GENERAL MEDICINE

EXPLANATIONS

ALT-1.  (E) The stomatodeum or primitive mouth is formed by the ectoderm at the head end of the embryo on the third week, and when the oropharyngeal membrane disappears, a communication will be established between the stomatodeum and the cranial end of the foregut. Teeth develop from the primitive oral epithelium, which begins to bulge into the underlying mesoderm, forming the dental lamina, and from it, are produced the tooth buds, which later develop into the teeth. The enamel organ will be formed from the ectoderm, while the dental papilla from the mesenchyme, and the tooth bud which is also of a mesenchymal origin. The enamel substance develops from the enamel organ, while the pulp and the dentine develops from the dental papilla, and from the dental bud develops the cementum and the periodontal ligaments.

ALT-2.  (C) The lateral pterygoid muscle moves the mandible forewards, since it pulls the mandibular condyle forward onto the articular eminence at the initial phase of the mouth opening. Temporalis muscle is a jaw closing muscle, its posterior fibers pull the mandible backwards. Masseter muscle and the medial pterygoid muscle are jaw-closing muscles. The mylohyoid muscle is the most important muscle of the floor of the oral cavity (diaphragma oris), since it hermetically closes the floor of the mouth till the third molars.

ALT-3.  (D) The maxillary nerve (n. V/2) is the intermediate branch of the trigeminal nerve, which arising from the Gasserian ganglion leaves the frontal skull through the foramen rotundum. It then enters the pterygopalatine fossa and divides into its branches.

ALT-4.  (A) The mandibular nerve (V/3) is the third branch of the trigeminal nerve. Arising from the Gasserian ganglion it enters the infratemporal fossa through the foramen ovale. The it divides into anterior motoric branches and into the posterior three sensoric branches between the lateral pterygoid muscle and the medial pterygoid muscle.

ALT-5.  (C) The buccinator muscle is innervated motorically by buccal parts of the temporofacialis nerve arising extracranially from the facial nerve’s (n.VII).

ALT-6.  (C) See ALT-2

ALT-7.  (D) Communication between the pterygopalatine fossa and the nasal cavity is drowided by the sphenopalatine fossa. The perpendicular plate of the palate (sagittal part) is attached to the lower surface of the body of the sphenoid bone, thus it completes the sphenopalatine incisura into sphenopalatine foramen. Anatomic features passing through: sphenopalatine artery and posterior nasal nerves

ALT-8.  (C) Venous blood draining system of the teeth is the pterygoid plexus of veins. It then unifies with the superficial temporal vein, and it carries the blood through the retromandibular vein into the facial vein then into the external jugular vein.

ALT-9.  (E) Peyer’s plaques (aggregated lymphatic follicles) fill up the submucosa and the mucosa in approximately the half of the cross-section of the ileum, distant from the attachment of the mesentery. These large follicle groups widen the Liberkuhn’s crypts, they form villi and intrude into the lumen.
ALT-10.  (C) The right subclavian artery is the branch of the brachiocephalic trunk, which arises from the arch of the aorta.

ALT-11.  (D) The parotid duct (Stenon duct) opens on a small mucosal papilla on the vestibular surface of the cheek at the level of the maxillary second molars.

ALT-12.  (B) Topographically the facial nerve is in the closest connection with the parotid gland. On its extracranial part it gives the posterior and inferior branches then it enters the parotid gland with its two main divisions, though these divisions innervate muscles. The parasympathetic innervation of the parotid gland is provided by the parasympathetic fibers of the glossopharyngeal nerve(n. IX) via the auriculotemporalis nerve (n. V/3).

ALT-13.  (D) The Carabelli cusp existing on the maxillary first molars may be considered as a fifth cusp, although it usually does not reach the occlusal surface. In 27% of the cases it is well developed, in 10% it is underdeveloped. But in most of the cases it is a small cusp which is surrounded by a semilunar fissure running towards the lower part of the crown. In a number of cases only the fissure is visible (63%). Rarely it is detectable on an other maxillary molar (1%), but it is never visible on the mandibular molars. It is interesting that in deciduous dentition it mainly exists on the second molars (80%).

ALT-14.  (C) The mesencephalic nucleus of the trigeminal nerve contains pseudounipolar cells. It sends somatosensory fibers to the individual muscles of the masticatory muscles.

ALT-15.  (A) By the fifth to sixth week, develops the frame of the face and the nasal duct, then a communication by the disappearance of the oropharyngeal membrane (oronasal membrane) will be established between the oral cavity and the cranial end of the foregut. At the end of the first period a free communication exists between nasal cavity and the oral cavity and at the same time the development of the tongue begins.

ALT-16.  (D) The joint of the tooth in the alveolar socket is a type of fibrous joint in which a conical process is inserted into a socketlike portion where the attachment of the two bony surfaces is provided by the syndesmosis (syndesmosis dentoalveolaris, gomphosis) and the microscopic but very strong connective tissue spanning over this space.

ALT-17.  (A) The three main somatosensory branches of the mandibular nerve are the lingual nerve, the alveolaris inferior nerve and the auriculotemporalis nerve. The mental nerve is the endnerve of the alveolaris inferior nerve. The motoric branch of the mandibular nerve is the masticatorius nerve.

ALT-18.  (E) The main gingival fiber systems are the dento-gingival fibers, the circular fibers, the interdental decussate fibers, the alveolo-gingival fibers and the mesiodistal interdental fibers.

ALT-19.  (B) Cholelithiasis may often lead to cholestasis (the blockage in the supply of bile into the digestive tract), jaundice, bilary colic and inflammation. Most severe among them is the perforation. Occurrence of neoplasms is not characteristic, or rather independent from the cholelithiasis.
ALT-20. (C) The most frequent reason of the massive gastrointestinal hemorrhage is the gastroduodenal ulcer. The listed other possibilities are more rare.

ALT-21. (A) Seduxen may be given in case of convulsion accompanied by the loss of consciousness, since the other listed drugs are not suitable for this aim – but in the everyday practice it is administered before the attack or after the attack, in order to prevent a further attack, because administration is technically difficult during the attack.

ALT-22. (D) Necrotizing inflammation is caused only by the acute leukemia from the listed possibilities, and often the primary symptoms of leukemia are the orofacial alterations. Pernicious anemia causes the atrophy of the tongue; the other listed diseases do not cause ulceration.

ALT-23. (D) Acromegaly is caused from the listed ones only by the tumor of the anterior lobe of the hypohysis, the other ones not.

ALT-24. (C) Inheritance of hemophilia shows an X-chromosome-linked recessive way. Only hemophilic men are bleeders, women only transmit (conductive stage) the disease.

ALT-25. (E) The endothelial damage of the blood vessels is an essential process in the ethiopathogenesis of thrombosis, mainly in the formation of the arterial thromboses.

ALT-26. (D) The main reason of the hemorrhagic diathesis is the decrease in the platelet number, the other alternatives are not causative factors.

ALT-27. (A) From the listed alternatives only the first one (histamine) is a chemical mediator, others not.

ALT-28. (C) From the listed diseases only the rheumatic endocarditis may be originated from a distant bacterial focus, while the others not.

ALT-29. (E) A number of causative factors may predispose to deep venous thrombosis, but the most important among them are the inherited thrombophilias, operation, trauma, taking of oral contraceptives. The first three of the listed alternatives do not have any connection with these diseases, while aspirin has an antagonistic effect, since it is an inhibitor of thrombocyte-aggregation. Thus, only the last alternative is the correct answer.

ALT-30. (C) Anticoagulant therapy is started already in case of the suspicion of the deep venous thrombosis, at first with a low molecular weight heparin, which is the completed with a cumarine derivate (Syncumar). Syncumar therapy is administered for a relatively long period of time, at least for 3-6 months, but in case of a recurrence of thrombosis, 1-2 year is the recommended time period, in case of thrombophilia and healed thromboembolia Syncumar therapy may be followed for a life long period of time. Our aim by the help of this therapy is to keep up the INR-value (International Normalized Ratio) between 2 and 3, and to prevent further thrombosis.
ALT-31. (C) The main consequence of the peptic ulcer is the hemorrhage, perforation into the abdominal cavity, constriction mainly because of the cicatricose healing of ulcers nearby the pylorus, or the penetration of the ulcer into the head of the pancreas. Embolia is the only, that does not belong to it among the listed alternatives.

ALT-32. D) Pain beginning at breathing and coughing indicates a pleural origin, of which pleuritis, pneumothorax, pneumonia and from the listed alternatives: pulmonary embolia can be the reason.

ALT-33. (E) Anaphylaxis may occur in different forms and in different severity. The reason for anaphylaxis is the deliberation of histamine, leukotrienes and other mediators derived by the IgE-mediated reaction. Administration of antihistamins beyond the elimination of the releasing agent might be the treatment in case of a moderate reaction, but in the more severe cases parenteral infusion, Tonogen (Epinephrine), steroid, as well providing a vein might be required.

ALT-34. (D) The essence of an asthmatic attack is the acute inferior airway- constriction, and its consequence will be dyspnea upon expiration and wheezing.

ALT-35. (C) To control an obstruction caused dispnea in case of an uncouscious patient a conicotomy must be carried out, and via the obtained orifice breathing of the patient can be provided. Tracheotomy can be carried out only in hospital environment. There is no time for electrocardiographic examination; inhalation of oxigen is unnecessary, and ineffective because of the obstruction.

ALT-36. (A) Hypoglycemia can occur in case of a therapeutic mistake (missed or too few food intake; too much or missed timing of the insulin dose). Symptoms of hypoglycemia can be feeling of strong hunger, tremor, paleness, sweltering, tachycardia, reduced level of consciousness. Hypertension is not in connection with the symptoms of hypoglycemia. Dry red skin of cheeks is characteristic of hyperglycemia.

ALT-37. (C) From the listed drugs only propranolol is used in the treatment of hypertension, in hyperkinetic syndrome, by use of the blocking β receptors. Still a small dose of parenteral Epinephrine can cause a strong constriction of the blood vessels, and an expressed hypertension, which can be dangerous because of the increased risk for heterotropic impulse generating, mainly in coronaria stenosis. Other drugs do not have any effect or only negligible effect onto the circulatory system.

ALT-38. (A) From the listed drugs Doxycyclin belongs to the tetracyclin-derivates, while Semicillin and Ampicillin are penicilline-derivates, and Sumetrolim belongs to the sulfonamide-derivates.

ALT-39. (B) Only Carbocain belongs to the ester-bond containing materials, other are amine-derivates.

ALT-40. (D) Except Naloxon the other materials are semisynthetic or synthetic derivates of morphine. Naloxon however is free of the agonist effects it is completely an antagonist, thus its main indication field is the elimination of the respiratory depression, caused by the overdosing of morphine.
ALT-41. (B) Certain groups of drugs cause gingival hyperplasia as a side effect. This kind of side effect has been known about hydantoin-derivates belonging to the anticonvulsive drugs for the longest time. It is less widely known that the calcium channel antagonists may also have this kind of side effect. These drugs are widely used in the treatment of the coronary diseases and the hypertension. Beyond these drugs the immunsuppressive Cyclosporin-A can also have a similar side effect. From the listed alternatives only the Corinfar belongs to the calcium channel inhibitors, other preparations do not belong to any of these categories.

ALT-42. (C) The characteristic triad of morphine overdosing is loss of consciousness, respiratory depression, and constriction of the pupil (miosis), and further more constipation is also characteristic. Dilatation of the pupil is not the sign of morphine overdosing.

ALT-43. (B) Troparin causes a decrease in the secretion of saliva. The other listed materials do not have this effect.

ALT-44. (A) Among the listed materials, the salicylic acid has a characteristic erosive irritative effect onto the oral mucosa that has been well known for a long time. However, this effect is not known about the other listed preparations.

ALT-45. (B) All the listed drugs can cause agranulocytosis of different severity, except Penicillin.

ALT-46. (C) Topical anesthetic drugs can have a number of side effects, among those the ones effecting onto the central nervous system and the ones acting onto the heart (and rarely causing anaphylactic shock) may be lethal. Higher concentrations of these drugs may have a harmful effect onto the peripheral nerves (i.e. spinal anesthesia). Their inhibiting effect onto the formation of leukocytes has not been known yet.

ALT-47. (D) Verapamil is an excellent anti-arrhythmic drug, thus it can be used in case of extrasystolia as well. It is effective in the treatment of angina pectoris and hypertonia, since it has a similar effect onto the calcium channels of both the heart muscle and the smooth muscles. It seems to be effective in the prevention of a secondary heart attack by avoiding arrythmias. However its administration is contraindicated in case of a previous taking of β-receptor blockers.

ALT-48. (C) Nitrites and nitrates are very strong smooth muscle relaxants, and strong selective vasodilatators. The base of their effect is the direct coronary dilatation. Their effect may be quick by a sublingual or an intravenous administration, but the ecccl passes of quickly. Their most common side effect is head-ache,flush, fainting because of the sudden fall in the blood-pressure., rarely torpidity of the tongue can occur. Gastrointestinal side effect of these materials is not known.

ALT-49. (A) The α receptor antagonist prazosin does not cause tachycardia, but it decreases both the arterial and the venous tone. Pripheral resistance decreases and the accomplishment of the heart will improve during a long treatment period. It is more effective on walking patients than on patients laying in bed, especially increased doses may provoke orthostatic hypotension. It should not be expected in case of the other listed materials.

ALT-50. (B) Among the optional preparations Vegacillin and Maripen are the basic penicillin preparations, Metacillin and Oxacillin belong to the beta-lactamase-stable penicillin derivates,
therefore their spectrum do not cover the Gram negative bacteria. Only Semicillin (Ampicillin) belongs to the wide spectrum penicillin derivates, thus it can be effective against the Gram negatives as well.

ALT-51. (C) All of the listed preparations diffuse well, except procain. Therefore it is suitable only for infiltration and conductive (block) anesthesia, although recent preparations overcome their effectiveness (lidocaín, articain etc.).

ALT-52. (E) Cefalosporins are beta-lactam preparations, similarly to the penicillin antibiotics work by inhibiting the bacterial cell wall synthesis, by binding to the penicillin binding protein.

ALT-53. (B) Kinolons inhibit the bacterial DNA-girase enzyme, which enables the hook formation of the bacterial DNA. Bacterial DNA-spiral can not be formed if this enzyme is inhibited, the cell dies, thus the kinolons have a bactericid effect.

ALT-54. (E) The first position of choice regarding modern antibiotics in the prevention of the infective endocarditis is amoxicillin, or rather its combination with clavulanic acid (Augmentin). The secondary position of choice of antibiotic in case of penicillin allergy is Clindamycin (Dalacin-C).

ALT-55. (B) The cations of the serum are: sodium-, potassium-, magnesia- and calcium ions. Mainly the chloride-, the bicarbonate- (HCO₃⁻) and the phosphate ions, in smaller amount by sulphate (SO₄²⁻) ions, compensate the positive charge of these ions although the sum of the negative charge is less than the positive charge.

ALT-56. (D) See ALT-55.

ALT-57. (D) In the formation of the membranes of the human body mainly Phosphatidylcholine (Lecithin), Phosphatidylethanolamine, and Phosphatidylserine (kefalgin) take part. These are amphiphil narrow molecules elongated along their long axes. Cholesterol occurs in a smaller amount. The glycerol-3-phosphate takes part in the synthesis of the triglycerides and it is not an amphiphil molecule.

ALT-58. (A) Crystallization may be influenced by a number of factors. The most important factors among these are: the quality of calcium-phosphates, the degree of oversaturation in the medium, temperature, effect of pH, nucleation, presence of the matrix, presence of certain trace elements, presence of inhibitors and presence of materials recting with calcium or phosphate.

ALT-59. (C) The enamel contains 92% inorganic material and in 8% it is composed of organic material and water.

ALT-60. (A) The dentin is composed of 65% inorganic material and a further 35% is composed of organic material and water.

ALT-61. (B) The GLUT-1 and the aquaporine-1 are not ion pumps, the first one is glucose transporter, the second one is a water transport channel. Sodium (Na)-pump, and the proton(K)-pump occur in the plasma membrane only, while calcium-pump may be found in the SER and the ER as well.
ALT-62. (E) The innervation of the sphincter pupillae muscle is parasympathetic, in case of its contraction the pupil will be constricted. The innervation of the other listed muscles is sympathetic.

ALT-63. (B) Glucagon is a stimulating hormone of glucose mobilization. In order to decrease the glucose level in hyperglycemia insulin production should increase.

ALT-64. (E) IgM has a pentamer structure, Ig-D,E,G are monomers, while the IgA has a dimer form.

ALT-65. (B) Increase in the blood pressure reduces the heart rate by a cardiovascular reflex, while the other effects cause the increasing of the heart rate by a similar way.

ALT-66. (D) Normal serum values are: K+= 4 mmol/l, Na+=143 mmol/l, Cl-=103 mmol/l, Urea=2,5-6,3 mmol/l, Ca^{2+}+non ionic Ca=2,5 mmol/l.

ALT-67. (D) T3/T4 thyroidal hormones increase the synthesis and the demolition of cholesterol, the absorption of the glucose from the intestine and the hyperglycemia arising from the effect of epinephrine.

ALT-68. (A) The PQ-distance is 0.12-0.20 sec , the value: <0.1 is the P wave, the distance of the QRS complex, is 0.32-0.39 s, the QT-interval is 0.2-0.5 s. While the 1s does not have a meaning in this case.

ALT-69. (A) The normal mean cerebral arterial pressure is 93 Hgmm. Cerebral blood vessels use different regulation mechanisms for keeping the circulation on a steady state value between 60 and 160 Hgmm (dilatation and constriction of the cerebral blood vessels).

ALT-70. (D) The child cannot have a 0+ blood group, since the child inherits an A- or a B-antigen, which is dominant over the 0 blood-group inherited from the mother. Although the child can be Rh+ and Rh- as well, because the D-allele out of the 3 allele pairs (C/c, D/d, E/e) are responsible for the expression of the D-antigen, which is dominant over the others, and the parents might have D/d allele pairs. See ALT-140.

ALT-71. (C) In the bell stage of the tooth bud the internal enamel epithelium bulges deeper into the center of the enamel organ, thus a loop will be formed between the meeting point of the two enamel epithelium layer, from which the stellate reticulum will completely disappear and a double layer epithelium will be formed. The formed structure is called the cervical loop, or rather the Hertwig’s root sheath.

ALT-72. (A) The differentiated det of ameloblasts can be divided into two groups according to their functions: secretory ameloblasts and maturation ameloblasts. Secretory ameloblasts produce the 8 micron wide initial layer at the beginning of the enamel formation and then it forms the characteristic later arcade type enamel structure. Maturation ameloblasts take part in the maturation process of the enamel.

ALT-73. (E) The main periodontal ligaments in older persons are wider and have an undulated form. The cellular matrix of the periodontal ligaments decreases, the ratio of the collagen fibers increases, they become wider and rougher, while the basal connective tissue matrix decreases.
Hyalin degeneration is often detectable, and the reason for this can be hypoxia or a chronic trauma, or rather a calcified corpuscle.

ALT-74. (B) More important cariogenic trace elements are: Alumina, Mercury, Cadmium, Lead, Copper and Selenium.

ALT-75. (C) Cariesprotective trace elements are: Fluor, Molybdenum, Tin, Strontium and Vanadium.

ALT-76. (B) During application of the fluoride derivates one has to count with the fact that some amount of fluoride which is transmitted into the gastrointestinal system via the swallowed saliva, may be absorbed, and an other amount may be absorbed through the oral mucosa. The higher the fluoride concentration of the topical fluoride preparation is, the more increased will be the ratio of the fluoride intake from the generally 5-8 % oral mucosal absorption, and its influence on the general health.

ALT-77. (A) Kidneys excrete 50% of the fluoride intake, 10% is excreted by a fecal way, 1-5% is excreted by the sweat, 1% by the saliva, and <1% is excreted into the milk.

ALT-78. (E) In case of 1 ppm fluoride concentration 1 liter or 1 kg of drinking water contains 1 mg of fluoride. Drinking waters enriched with fluoride contain such an amount of fluoride.

ALT-79. (D) The safe and tolerable dose of fluoride is 8 mg/kg of body mass, the probable lethal dose of fluoride is >15 mg/kg of body mass, the lethal dose is between 32 and mg/kg of body mass.

ALT-80. (B) The spatium pterygomandibulare is surrounded anteriorly by the mucosa, posteriorly by the parotid gland, laterally by the mandibular ramus, medially and inferiorly by the medial pterygoid muscle, superiorly by the two bellies of the lateral pterygoid muscle. Feature running in it: superiorly the buccal nerve, in the middle runs the alveolar inferior nerve, which enters the mandibular canal at the lingual of the mandible, more anteriorly the lingual nerve which passes along the medial pterygoid muscle.

ALT-81. (C) The vagus nerve (n. X) innervates the lower part of the pharynx, the mucosa of the larynx till the glottis and all of the laryngeal muscles. Also the trachea and the esophagus is innervated by the vagus. The tensor veli palatine muscle is innervated by the masticatorius nerve (branch of n.V/3.), while the styloglossus muscle is innervated by the hypoglossus nerve.

ALT-82. (A) The following features have an access to the middle nasal meatus: bulla ethmoidalis, maxillary sinus (hiatus semilunaris or ostium maxillare), sinus frontalis (frontonasal duct, or infundibulum ethmoidale).

ALT-83. (E) The muscles of the buccal shelf are: depressor anguli oris muscle (this is the narrowest part of the vestibulum), a buccinator muscle (this provides the main part of the lateral wall of buccal shelf) masseter muscle, and the tendous part of the temporalis muscle.

ALT-84. (D) Both the anterior and the posterior ethmoidal cells communicate with the middle nasal meatus.
ALT-85. (B) The blood supply of the palatine tonsil is provided by the maxillary artery, the ascendant pharyngeal artery and the lingual artery.

ALT-86. (D) See ALT-12.

ALT-87. (B) The filiform papilla is a string like wart, which ends in one or more keratinized apices. These papillae make the dorsal surface of tongue velvety. The fungiform papillae are splayed like a butt; they carry taste buds in new born children and in small children. On the side of the vallatae and on the side of the foliate papillae taste buds (caliculi gustatorii) can be found.

ALT-88. (A) The oral sensory fibers are provided by the facial nerve, by the trigeminal nerve and the glossopharyngeal nerve, which run into the nucleus tractus spinalis solitarii and into the nucleus gustatorius. The hypoglossal nerve contains only motoric fibers and innervates the infrahyoid muscles and the muscles of the tongue.

ALT-89. (E) The pterygopalatine fossa has an access to the medial base of the skull via the foramen rotundum; it has an access to the nasal cavity through the foramen sphenopalatinum; it has an access to the external base of the skull via the canalis pterygoideus; it has an access to the orbit via the inferior orbital fissure; it has a communication with the oral cavity via the canalis palatinus majus; and there is a way to the fossa infratemporalis via the pterygomaxillary fissure.

ALT-90. (D) The primary lymph nodes of the lymphatic vessels running from the tip of the tongue are the submandibular and the submental lymph nodes.

ALT-91. (B) The suprahypoid muscles are the mylohyoid muscle (diafragma oris), the digastric muscle, the stylohyoideus muscle and the geniohyoideus muscle. They are multifunctional muscles, since they have an essential role by contraction in accord with other muscles of the head and the neck in different combinations in the opening of the mouth, in the swallowing, in the sound making, in the drinking of water, and in the suckling of the infant.

ALT-92. (C) The center of mastication is nucleus mesencephalicus nervi trigemini, which sends somatosensory fibers to the masticatory muscles, and the nucleus motorius nervi trigemini, which sends visceromotoric special/branchialmotoric fibers.

ALT-93. (E) The placenta is formed after the implantation of the blastocyst. Its most developed stage is 1-1.5 month before the end of the pregnancy, it shows the signs of degeneration right before the birth. It is covered by a thin layer of the amniotic epithelium on its fetal aspect, and the main fetal closing layer is formed by the chorionic plate, which carries the remnants of the chorionic villi, and in which the blood vessels of the umbilical chord radiate. The chorionic villi rising from the chorionic membrane extend towards the basal lamina on the mother’s side, some of them span it, these are the villous stems. The intervillous space is filled with the maternal blood. The chorionic villi are established from the cytotrophoblasts and the syncytial trophoblasts cells.

ALT-94. (A) The following features develop from the first branchial arch: masticatory muscles, mandible, malleus and incus.

ALT-95. (D) The following nerves are cranial nerves related to the taste sensation: facial nerve, mandibular nerve, and glossopharyngeal nerve, but only the facial nerve and the
glossopharyngeal nerve have taste sensory centres. Taste sensation fibres, running into the nucleus of the facial nerve, carry information from the anterior two thirds of the tongue via the rr. linguales of the mandibular nerve; while taste sensation fibers, running into the nucleus of the glossopharyngeal nerve, carry information from the posterior one third of the tongue via the rr. linguales of the glossopharyngeal nerve.

ALT-96. (C) To the sinuses of the dura mater belong the sigmoid sinus, the occipital sinus and the inferior petrosal sinus. Among these the inferior petrosal sinus and the sigmoid sinus carry the venous blood into the jugular internal vein. The occipital sinus joins the confluence of the sinuses. Frontal sinus is a paranasal sinus.

ALT-97. (B) Nerve fiber systems of the cerebrum are the association fibers, the commissural fibers and the projection fibers. The association fibers connect gyri of the same hemisphere. Commissural fibers connect the gyri of the two hemispheres. The projection fibers are formed by the ascending and descending tracts running through the internal capsule.

ALT-98. (E) Headache is a basic symptom in all of the listed alterations. The folding of the head forward aggravates the symptoms in case of sinusitis, radiating head ache can be detected in spondylarthrosis too. It can be also a complaint of the neurosis, which may continue during the therapy as well. It is a common symptom in the intracranial processes, which typically increases during night, the strongest is at the wake up time, and is often accompanied by profuse vomiting.

ALT-99. (B) see at ALT-113. more detailed.

ALT-100. (A) Sjögren’s syndrome was described by a Swedish ophthalmologist in 1933. Its main symptoms are the glandular symptoms (xerophtalmia xeroderma, hyposalivation) and the extraglandular symptoms (vasculitis, myositis). In its secondary form, it is accompanied by an other polysystemic autoimmune disease (i.e. SLE, PSS). The exact pathogenesis of the Sjögren’s syndrome has not been known yet.

ALT-101. (B) In case of a patient with known angina pectoris in the history it is suggested for dentists tending to reduce the stress during dental treatment (by administration of anxiolytic drugs, by increasing the effectiveness of the topical anaesthetic drugs), administration of preventive nitroglycerine might also be effective. Although, general anaesthesia is not recommended, and parenteral administration of barbiturates and tricyclic antidepressants must be avoided.

ALT-102. (D) There is an increased risk for a second heart infarction and other complications in case of a patient who gone through a myocardial infarction during the last 3 months. Therefore elective dental treatments are postponed; also ambulant dental treatment can only be done in a hospital environment, nearby the close consultation and control of the cardiologist.

ALT-103. (C) The characteristic alteration in case of an infective endocarditis is the vegetation, developing on the endocardium and on the intracardial foreign bodies (for example: on artificial valves). There is an increased chance for attachment of bacteria, beyond foreign bodies, on the damaged endocardium or heart valve, because of previous diseases. This danger neither exists in case of a cardial decompensation nor in hypertension.
ALT-104. (B) Antibiotic prevention is necessary mainly in case of those dental interventions which might be accompanied by an increased risk for a massive hemorrhage and bacteriaemia. Although among the listed ones, suture removal should not be considered as a risk intervention from this point of view.

ALT-105. (D) Recent way of antibiotic prevention is that it is enough to give the intraorally well absorbable drug right before the treatment in one large dose, which provides a satisfactory level in the serum.

ALT-106. (D) Protocols introduced into the prevention of the infective endocarditis recommend amoxicillin as a first position of choice, while in case of an allergy to penicillin they suggest the administration of clindamycin.

ALT-107. (C) Nifedipin can be chosen in case of emergency hypertension of a young patient who does not show neurological symptoms, rather captopril is suggested in older patients, because the rush drop in the blood pressure might cause a cerebral softening.

ALT-108. (D) Total elimination of the cumarin is not recommended in case of a patient with synccumar anticoagulant therapy because of the increased risk for thrombosis. Although the dose can be reduced, that the INR value should be between 1.5 and 2. Topical application of the Exacyl mouth wash is also effective, nearby other topical stanching applications, like suturing.

ALT-109. (D) It is an important viewpoint in the therapy of asthma that there are inflammatory processes in the background, thus the base of the therapy is established by the anti inflammatory treatment. Most effective anti-inflammatory drugs are the steroids. However the most effective drugs against the bronchial spasm are the selective ß-2 bronchodilatators, therefore these drugs are also necessary in the therapy, since steroids can not immediately solve bronchial spasm.

ALT-110. (C) The typical symptom of the gastro-esophageal reflux disease (GERD) is the “heart-burn” felt behind the lower one third of the sternum, and additionally the reflux of the acidic content of the stomach. It arises especially in a laying position, after food consumption, or rather during the night.

ALT-111. (D) N-acetyl-cystein acts via liquefying of the thickened secretum, while pilocarpine operates by means of increasing the secretion rate, if the patient has an amount of functioning glandular tissue.

ALT-112. (A) Fever, lymphadenopathia, splenomegalia and the coincident existence of a coated throat are characteristic symptoms of the EBV caused disease, although these are not proving constituents in themselves. Often anti-thrombocyte and anti- erythrocyte autoantibodies arose, causing a severe hemolytic disease. Diagnose can be supported by the careful serological analysis.

ALT-113. (E) Collapse is a transient disorder of the cerebral blood supply. It can be caused by physical explanations (defecation or urination), cardiac problems (increased sensitivity of the vagus nerve), vasovagal, psychological reasons, and causes effecting the control of blood circulation (for example: hypovolemia or administration of diuretics).
ALT-114. (C) Bulimia is a typical form of eating disorders; it is originated from the loss of the control above the eating, recurrent binge eating attacks and followed by an intentional purging (vomiting). Acidic gastric fluids cause erosion of the dental enamel, typically on the oral surfaces, mucosal erosions, parotid swelling and also mucosal damage are often detectable, because of the vomiting exercises.

ALT-115. (C) The aim of the antithrombotic therapy is the prevention of the thrombosis and the thromboembolia, more rarely the thrombolytic treatment. Physical appliances are employed in the enhancement of the venous flow which of those are effective in the prevention of stagnation (elastic bandage, physiotherapy of the extremity). Eventhough drug therapy is also necessary, the possible preparation of which are the different anticoagulants (heparin or coumarin derivates), inhibitors of the thrombocyte function, and thrombolytic drugs.

ALT-116. (C) Cefalosporins are a broad spectrum, bactericid antibiotics, and similarly to the penicillins, they have a beta-lactam structure. They are non-toxic, and they are easily absorbable per os too.

ALT-117. (C) Antibiotics belong to the recent beta-lactam antibiotics (like Impenem) can be administered parenterally. They have a broad spectrum of effectivity: they are effective both against Gram-negative and Gram-positive bacteria. Eventhough they are not effective in case of a Meticilline-resistant Staphylococcus infection.

ALT-118. (A) Among the indication fields of the coumarin therapy may be the deep venous thrombosis, the status after implantation of a mechanical prosthetic heart valve, and the atrial fibrillation. Since it can be transmitted through the placenta, it can not be administered during pregnancy (it increases the risk of abortions).

ALT-119. (A) ACE-inhibitors became the primary drugs in a number of cardiovascular diseases, by the control of the renin-angiotensin system. They can be applied well in the different types of hypertension; they effectively reduce both diastolic and systolic blood pressure. Inhibition of the pump function leads to the increased function of the renin-angiotensin system, thus ACE-inhibitors are effective in the treatment of the cardial decompenation as well. Their hemodynamic effects are also favorable in the prevention of the further myocardial infarction. However long application of these drugs in pregnancy may cause developmental disorders (mainly in the second- and the third trimester).

ALT-120. (E) Phenothiazine-derivative drugs (Chlorpromazine, Hibernal) are employed in the premedication of the patient for general anesthesia, because of their sedative, antihistaminic and antiemetic effect. If the patient had pain before the operation, it is necessary to provide an analgesic drug in the premedication, most often opioid derivates (morphine, Dolargan). More rarely general anesthesia is combined with an antiemetic or narcotic drug (for example: Droperidol).

ALT-121. (C) Hydrocodeinon (hydrocodon) is stronger than the codein, a non-sedative analgesic and antitussive drug. The Nalorphine is a clear antagonist of the Morphine. The others are really narcotic analgesic drugs.

ALT-122. (E) All of the listed drugs have hypnotic effects, although they are used more rarely nowadays.
ALT-123. (B) Only Amphetamine (Aktedron) among the listed drugs belongs to the psychostimulants, that excite the central nervous system, the other preparations are truly antidepressants.

ALT-124. (D) From the listed ones, Meticillin and Oxacillin belong to the beta-lactamase-resistant penicillins. Vegacillin is a basic penicillin derivate, while Ampicillin (Semicillin) belongs to the broad spectrum penicillin.

ALT-125. (B) Mezlocillin, Ampicillin, and Carbenicillin are effective against the Gram negative bacteria. However Maripen, which is a basic penicillin derivate, is not effective against the Gram-negative bacteria.

ALT-126. (B) Among the listed preparations only the effect of Syncumar is inhibited by vitamin-K. This effect can be prevailed via the vitamin-K dependent coagulating agents. Coumarin derivates inhibit the reformation of the inactivated oxidated form of vitamin-K, reducing the level of the active vitamin-K in this way. That is why administration of vitamin-K has an essential therapeutic value at this time.

ALT-127. (D) To the group of adrenergic neuronal inhibitors belong the Guanethidin (Sanotensin) which acts only at the peripheral nerve endings. Its more recent type is the isokinolin derivate Debrizoquin (Tendor), which acts more rapidly, but the effect of this is shorter.

ALT-128. (B) At first calciferol occurs from the precursor (7-dehydrocalciferol) of vitamin-D in the skin, then it transforms into 25-hydrocalcfiverol in the liver. It increases the absorption of calcium and phosphor from the alimentary canal. The lack of vitamin-D coincides with the reduction of the calcium content of the blood, and in this way it induces the parathyroid gland for an increased secretion of the parathyroid hormone.

ALT-129. (B) Drugs used for the treatment of asthma bronchiale act on more locations, since the pathogenesis of the disease is also composed of many components. Thus the β2 receptor agonists, xanthin derivates (for example teophyllin) are used for the solving of bronchial spasm. Additionally anti-inflammatory drugs may also be well applied, like glucocorticoids.

ALT-130. (A) The aim of the drug therapy in the treatment of peptic ulcer is to reduce the pain of the patient, to improve the chance for the healing of the ulcer, and furthermore to prevent recurrences.

ALT-131. (B) Helicobacter pylori is a Gram-negative rod, which is responsible for the gastritis, for the peptic ulcer, and it is possible that it has a main role in the maintenance of a part of gastrointestinal neoplasms. Crucial in the eradication of this on one hand is the reduction of the secretion of gastric acid (omeprazol), and on the other hand the direct antibacterial therapy (Amoxycillin or Claritromycin).

ALT-132. (E) Glucocorticoid hormones have a multiple effect onto the metabolism, and onto the inflammation. They mainly influence the carbohydrate metabolism; they increase the gluconeogenesis, and decrease the peripheral utilization of glucose. They increase the demolition of the skeletal muscles. They abate or abolish the early or the late symptoms of inflammation. Also see ALT-187.
ALT-133. (B) The symptoms of the methanol poisoning can be originated basically from three factors, as follows: the moderate heady, narcotic effect of methanol, the acidosis arising in 12-24 hours, and the direct toxic effect of methanol onto the retina and onto the central nervous system.

ALT-134. (D) Serotonin takes part in a number of biological reactions: it might be a neurotransmitter, it can cause vasoconstriction, it can release the secretion of growth hormone, it plays a role in the regulation of the body temperature, in the regulation of sleep, and appetite, or rather at such kind of psychological processes, like mood and hallucination. Serotonin is a biogenic amine, by releasing from the mastocytes and from the basophilic granulocytes, it is responsible with a number of other materials for the physiological and the pathophysiological consequences of the atopic allergic reaction, for example it is responsible for the increased permeability of the endothelium. During its synthesis from the amino acid tryptophan by a hydroxylation and a decarboxylation 5-hydroxytryptamine, also known as serotonin, occurs.

ALT-135. (E) A lot of enzymes in different amount can be found in the saliva. Most important is the amylase and the maltase, but it contains in a smaller amount lipase, peptidases, peroxidases, phosphatases, beta-glucuronidase, esterases, carboxydrases, lactate-dehydrogenase, ribonucleases and a number of other peptides

ALT-136. (D) Az enzimek aktív helye nagymértékben specializálódott, fajra és egyedre jellemző. Csak egy molekulával képesek kapcsolatot létrehozni, vagy azzal nagyon analóg szerkezetű molekulát képesek felismerni és már nagyon kis különbségek esetén sem jön létre kapcsolat. Az enzimatikus reakció során az enzim és a szubsztrát között közvetlen kapcsolódás jön létre, melyet gyenge reverzibilis kölcsönhatások (elektrosztatikus kötés, hidrogénhidak és hidrofób kölcsönhatások) sokasága biztosít.

ALT-137. (E) There are two mononuclear lipid layers placed on each other, in the membranes. The structure formed in this way is the lipid double layer, and the solidity of which is controlled by the ratio of the cholesterol and the saturated and the unsaturated fatty acids at a given temperature. By increase of the unsaturated fatty acids also increases the fluidity and the internal mobility of the membrane. Cholesterol influences the mechanical stability of the membrane and the fluidity. Transmission of any kind of material via the lipid membrane is diffusion, what is influenced by the chemical structure of the membrane itself, and it is influenced by the characteristics of the transmitted material. It is absolutely permeable for small sized non-polar molecules, but transportation of small sized polar molecules is slower. The membrane works like a semi permeable film for the small molecules, while larger molecules and charged ions wonder through its peptide channels with an active transport process.

ALT-138. (B) Hormone receptors may be membrane receptors on the surface of the cell and intracellular receptors inside the cell. The membrane receptors bind peptide and amino acid hormones, while the citosol receptors bind amino acid like and steroid like hormones.

ALT-139. (A) The defensive mechanisms of the body were established for eliminating “foreign” structures, which are different from self-structures, also known as antigens. Antigens can be foreign macromolecules (for example peptides, polysaccharides), viral infection, or cells changed by a tumorous transformation, or cells which are rarely unchanged. There are specific and non-specific mechanisms, taking part together in the antigen elimination process. In case of a successful procedure, effector mechanisms completely eliminate the undesirable antigen. During the humoral immune reaction a huge amount of antibodies, specific for the antigen
(immunoglobulin), occurs. The immunoglobulin molecule consists of two heavy polypeptide chains and two light polypeptide chains binding together, and the molecule might be a monomer, a dimer or a pentamer structure.

**ALT-140. (B)** Rh-incompatibility is caused by the Rh-antigen, which is bound by three allele-pairs (c/C, d/D, e/E), but only the D-antigen has a practical importance. 85% of the European population is D-antigen carrier, meaning that they are Rh-positive, while those who do not have the D-antigen expressed on the surface of the erythrocytes, are the Rh-negative persons. Rh-positivity is dominantly inherited. Anti-D antibodies occur only because of immunization with Rh-positive erythrocytes. It can happen in two ways: one, if an Rh-negative subject is transfused with Rh-positive blood, the second, if an Rh-negative mother is pregnant with an Rh-positive fetus, and she becomes immunized during the birth or an abortion. The occurring antibodies are IgG immunoglobulins, which going through the placenta, enter the fetus during the following pregnancy, and they damage the erythrocytes of the fetus. It is evident from the sentences above, that in case of an Rh-negative mother and an Rh-positive father either Rh_positive or Rh-negative fetus may develop.

**ALT-141. (E)** Hypoxia is the reduction of the oxygen supply of the tissue. It can have a number of causes: the low tension of the arterial blood (low O₂ tension of the inhaled air, unsatisfactory alveolar ventilation, ventilation/perfusion disequilibrium, “from right to left shunt”), low hemoglobin content of the blood, cardial decompensation, or rather the local obstruction of the blood vessels.

**ALT-142. (C)** Cellular elements taking part in the immune reaction of inflammation are macrophages, thrombocytes from the listed ones, and further more other cells like endothelial keratinocytes, fibroblasts and others.

**ALT-143. (A)** In the relaxed stage of the muscle myosin binding locations of the actin are inhibited, since the tropomyosin-troponin system covers the myosin binding locations mechanically, while ATP is attached to the myosin. During contraction, when the myoplasmatic Ca²⁺ concentration raises, the troponin-C’s Ca²⁺-specific locations bind the Ca²⁺, and thus the myosin binding location becomes free. Actin and myosin bind, and this will result in the intensification of the Mg²⁺ dependent ATP-ase activity, and that is why ATP will dissociate into ADP and P. In the presence of the ATP an other ATP will bind the myosin head, the actin and the myosin dissociate, while the myoplasmatic Ca²⁺-concentration will fall, thus the fiber will relax.

**ALT-144. (B)** The task of accumulation and storage of intracellular calcium, which is closed to the cytoplasm, is attended by the mitochondria, matrix vesicles, and probably by the endoplasmatic reticulum.

**ALT-145. (C)** The 8 mm of mercury atrial pressure and the 1.5 mm of mercury/liter total resistance is characteristic value for the pulmonary circuit. The atrial pressure in the systemic circuit is 2-3 mm of mercury, the mean arterial pressure is 93 mm of mercury and the total resistance is 16.5 mm of mercury/liter.

**ALT-146. (E)** All of the listed ones are primary pumps, because they use the energy from the dissociation of ATP (ATP-ase) for the transportation of ions.
ALT-147. (B) Stimulation of the β1, β2, β3 receptors with catecholamine, stimulation of D1, D5 receptors with dopamine and the stimulation of the H2 receptors with histamine, stimulate the adenylate-cyclase, thus the cAMP level will raise. The stimulation of α2 receptors with catecholamine will result in the fall of the cAMP level, since it restrains the action of the adenylate-cyclase.

ALT-148. (E) Elderly atherosclerosis causes a relative periodontal ischemia, so it can predispose to periodontitis, and might also be responsible for periodontal degenerative alterations, like fibrosis, calcification, decrease of the cellular content. The slow circulation leads to a slower bone metabolism, to decreased ability to bone turnover, and to a longer wound healing ability.

ALT-149. (A) The human body contains a huge number of different ions, both anions and cations. A part of those is present in a very small amount, these are called the trace elements. A number of trace elements are essential to the working of the body; these are called the essential trace elements. These are for example: the zinc, the manganese, the iodine, furthermore the fluor, the chromium, the molybdenum, the nickel, the copper, the selenium, the silicium, the vanadium etc.

ALT-150. (D) See ALT-75.

ALT-151. (C) See ALT-74.

ALT-152. (E) Beyond inhalation, food and the drinking water, it is possible, that significant fluoride content will enter the body via common consumption of tea, sardines, fluoride tablets and other fluoride containing preparations. Rarely can it be absorbed through the skin as well.

ALT-153. (B) In primary hyperparathyreoidism not always develops a manifest bony alteration. If yes, then both either multiple or focal lesions can be detected in the jaws. Cortical bone becomes thin, and the trabecular bony structure becomes indistinct. Later the structure may completely disappear, and the spongy bone will show a fine granular structure.

ALT-154. (B) Vitamin-D deficiency in children with rachitis might result in severe dental developmental disorders. Eruption of teeth is also altered, teeth erupt later (dentitio tarda). Mineral content of the jaw bone will be reduced and it might result in an increased susceptibility for pathological fractures.

ALT-155. (C) Symptoms of acromegaly accompanied by an increased secretion of the growth hormone are extremely characteristic. Striking is the overdevelopment of the mandible, in many cases the ramus of the mandible is 3cm longer the characteristic mean value in adults. The cortical bone will become thicker because of the raised periosteal appositional bone development. Gradually progenia and an open bite develop. Active eruption of teeth will speed up, because of the escalating hypercementosis; which is followed by an appositional growth of the alveolar process. Tongue will also become thicker, macroglossia may develop.

ALT-156. (E) Symptoms of acute fluoride poisoning are similar to the symptoms of the heavy metal poisoning. They develop suddenly, and the prognosis is good, if the patient can survive the first 24 hours. Early symptoms: pain in the stomach, vomiting, nausea, lachrimation, rhinorrhoea, diaorrhea. Late symptoms are: tetania, circulation disorder (electrolytic and
metabolic alterations), hypercalcaemia, hypotonia respiratory center insufficiency→ respiratoric acidosis

ALT-157. (D) See ALT-156.

ALT-158. (A) During enforced moving of teeth transformation and remodelling of the neighbouring tissues occur. Osteoclasts become activated on the loading side, while osteoblasts happen to activated form the new bone on the pulling side. If the load exceeds a given value, the compression of the capillaries may cause a circulation disorder or the closing down of the circulation, and the compression may lead to the rupture of the elements of the periodontal ligaments, thus possibly resulting in hyalinisation. Interrupting the load results in the restoration of the normal situation.

ALT-159. (A) Since paranasal sinuses are filled with air, the small density of the air reduces the mass of the head, furthermore it helps with the voice formation.

ALT-160. (C) The meseter muscle originates on the zygomatic arch and inserts on the lateral masstetric tuberosity at the angle of the mandible, therefore it causes the closing of the jaws. Thus it has an important role in the closing of the mouth and in the mastication.

ALT-161. (D) See ALT-11.

ALT-162. (D) Sensory ganglions of the brain nerves and the spinal ganglions consist of pseudounipolar cells. Except of these are the ganglions of the brain nerve NoVIII, which contain bipolar cells. Vegetative ganglions consist of multipolar neurons, which are surrounded by the satellite cells.

ALT-163. (D) See ALT-17. Maxillary nerve innervates the upper (maxillary) teeth.

ALT-164. (D) Trigeminal nerve is truly a nerve divided into three branches, but the three branches are: the ophthalmic nerve, the maxillary nerve and the mandibular nerve.

ALT-165. (B) Posterior belly of the digastric muscle originates on the inner surface of the mastoid process, whereas the anterior belly of the digastric muscle arises from a depression on the inner side of the lower border of the mandible, close to the symphysis, and passes downward and backward, and the two bellies meet in an intermediate tendon, which is held by a fibrous loop in connection with the side of the body and the borther of the greater cornu of the hyoid bone. Tension of this muscle has an role in the opening of the mouth.

ALT-166. (C) The mandibular nerve innervates motorically the tensor tympani muscle (the tensor of the eardrum), but the other muscle of the tympanic cavity, the stapedius muscle, is innervated by the facial nerve.

ALT-167. (A) The developing tooth and the surrounding alveolar bone has a different course of growing, thus the erupting tooth has a relative movement before its eruption.

ALT-168. (A) Pyogenic infections of the upper lip can be easily transmitted by the veins (v. labialis sup., v. angularis) or rather the lymphatic vessels towards the meningeal membranes and the pterygoid plexus, thus a cerebral abscess or a thrombosis in the sinus cavernosis may occur.
ALT-169. (A) The deep venous thrombosis of the lower extremity is a severe disease; it is responsible for the half of the total mortality rate that is why it means a serious therapeutic problem. Myocardial infarctions, cerebral infarctions (stroke), pulmonary embolism, and embolisation of the peripheral veins belong to this group.

ALT-170. (D) Susceptibility for gingival diseases is evident in diabetes, but these diseases are not caused by the odontoblasts.

ALT-171. (B) Alterations caused by the atherosclerosis, can be detected most severely on the abdominal part of the aorta. Syphilitic aortitis is localized at the thoracic part of the aorta, but it is extremely rare nowadays.

ALT-172. (B) In the humoral step of the immune reaction take part the specific peptide molecules, which are able to bind the antigens, called the antibodies. In case of an autoimmune process, antibodies are produced against the own molecules and structures (auto-antibodies), which get in touch with the own cells and own structures of the body, with the so called autoantigens.

ALT-173. (A) See. ALT-172.

ALT-174. (C) Paget’s disease can be characterized by the progressive enlargement and deformity of the bones. In its initial phase predominates the bone resorption, later uncontrolled recruitment of the bone is the characteristic process. The consequence of the Paget’s disease can be a functioning arterio-venous fistula, or osteosarcoma.

ALT-175. (E) In case of pernicious anemia antibodies against the intrinsic factor are produced. Intrinsic factor is required for the absorption of the extrinsic factor (vitamin B₁₂), they make a complex during the process. Gastrointestinal alterations (Hunter glossitis, atrophic gastritis) may frequently occur.

ALT-176. (C) Truly an atraumatic tooth extraction should be applied as far as possible in case of a hemophilic patient. It is prohibited administering aspirin or other non-steroid antiinflammatory drugs, because of the increased risk for a postoperative hemorrhage.

ALT-177. (A) In the pathomechanism of DIC the thrombine and the plasmin play the main role. The activation of the coagulation and the platelet is carried out by the thrombine, while the plasmin degrades the coagulation proteins. Nearby the causative therapy elimination of the shock, heparin therapy and the inhibition of the fibrinolysis (for example: Exacyl) are frequently employed in the treatment of the disseminated intravascular coagulation.

ALT-178. (A) In about 70% of the gastric ulcers can be detected a Helicobacter pylori positivity. In these cases the main goal of the treatment is the total eradication of the bacteria by administration of the applicable antibiotics (amoxicillin+Klacid vs. Klion (Metronidazole)). Although reduction of the acid secretion is also necessary nearby this treatment.

ALT-179. (A) The metabolisation of alcohol is done in the liver, whereas acetic aldehid occurs in 90%, then acetic acid arises. Anthaethyl (disulfiram) inhibits the aldehid dehydrogenase, thus the acetic aldehid level of the blood significantly increases. Parallel consumption of alcohol causes very unpleasant symptoms, so it is suitable for the treatment of alcohol addiction.
ALT-180. (A) The coiffein-effect leads to the increase of the c-AMP concentration, and via this way it will result in the rising of the level of the catecholamines. Thus it truly raises the blood pressure.

ALT-181. (B) Atropin is really used in the premedication of the narcotic anesthesia; the aim of its use is to prevent the bradycardia provoking effect of the stimulants of the vagus nerve. It also has a relaxant effect onto the smooth muscles, but not for this reason is it given to the patients before the narcosis.

ALT-182. (A) Cholinesterase inhibitors prevent the binding of the acetyl cholin to the active site of the enzyme, thus the inhibit the hydrolysis of the substrate. They also increase the saliva secretion rate in this way.

ALT-183. (A) The β receptor blockers inhibit among others the positive inotroph, and chronotroph effect of the catecholamines. They reduce increased the oxygen need, thus they make the work of the heart more effective, and they reduce the resting heart rate. Because of these effects they are effective in the treatment of the angina pectoris.

ALT-184. (E) Ampicillin does not belong to the penicillase resistant antibiotics, therefore it is not suitable for the treatment of infections caused by bacteria resistant to the penicilllnase.

ALT-185. (C) The factor of resistance is truly an extrachromosomal ring, but resistency against more antibiotics may be exchanged between the same and different bacterial races too.

ALT-186. (D) Steroid hormons develop their effect via the influence of the transcription of genes. They only transit through the cellular membrane; they bind the cellular receptors of the plasma and activate them. Entering the nucleus, the activated receptor-steroid complex joins the DNA, and develops its effect during this way.

ALT-187. (D) Glococorticoid increase the production of the gastric hydrochloric acid and the pepsin, thus there is a significant risk for consequent ulcers. Steroids reduce the absorption of the Ca^{2+} and increase the elimination of Ca^{2+}, so the outcome will be a negative Ca^{2+} balance.

ALT-188. (C) All of the non-steroidal anti-inflammatory drugs (NSAIDs) inhibit the cyclooxigenase enzyme (COX), most of them inhibit both of the two types of the enzyme (COX-1, COX-2). They are excellent in the alleviation of pain of minor and medium intensity; they are especially suitable for the alleviation of the postoperative and of the inflammation originated pain. The base of their analgesic effect is that by the inhibition of the COX-enzyme prostaglandin E_{1} can not be produced, thus the sensibility of the proprioceptive (pain) receptors to the other pain mediators can not arise.

ALT-189. (B) The parotid gland is the largest salivary gland. It mainly consists of serous acinus cells, thus it produces serous saliva. The duct to this gland is known as the Stenon's duct, the oral orifice of which can be found on a small papilla at the level of the maxillary second molars.

ALT-190. (B) There are more brainstem levels taking part in the coordination of mastication from the cortex to the medulla oblongata. The beginning of the mastication is controlled, but there are more reflex actions and autonomic components in the up started masticatory process.
Occlusal surfaces acquire their most favorable position during the movement of the jaws, but these are not in correspondence with the above statement.

ALT-191. (C) The magnitude and the kinetics of the primary and the secondary immune reaction differ significantly from each other; in case of the repeated antigen giving a more rapid and more extended immune reaction can be detected. The reaction at the same time is selective and specific, since the first giving of an other (B) antigen by the repeated giving of the original (A) antigen provokes a primary immune reaction only, to the B antigen.

ALT-192. (B) Macrophages are the localized tissue types of the monocytes. They can be found in every organ and connective tissue, but they can be different according to their denominations. These cells, as parts of the natural non-specific immune reaction, play a central role in every phase of the special immune reaction. They have a significant role in the antigen presentation. The phagocytosed antigen during the antigen presentation gets into the endosomes of the APC (antigen presenting cell), and the greater part of it disintegrates for the effect of the lissosomal enzymes, but a small part remains in the form of peptides with a size of 12-23 amino acids. The MHC (major histocompatibility complex)-molecules enter the endosome and join this peptides. This complex then catches onto the surface of the cell, thus the antigen becomes recognizable to the T-cells. Superantigens already in a very small amount can stimulate the T-cells. Joining the external part of the MHCII molecules these are able to stimulate a huge amount of T-cell clones.

ALT-193. (D) See ALT-140.

ALT-194. (D) See ALT-137.

ALT-195. (E) Enamel, dentin and the cementum are calcium-phosphate containing mineralized tissue. Calculus also contains calcium-phosphates. It is important to emphasize that collagen can not be found in the maturated enamel, and this characteristic significantly differentiate it from the dentin and the cementum, where the collagen is the main protein.

ALT-196. (E) Beyond the sinus node there is impulse generation also in the AV (atrioventricular) node \( f = 40-55 \text{ Hz} \) and in the bundle of His A (with greater frequency in the lower fibers), in the Tawara bundle branch and in the Purkinje fibers with a frequency of 25-40 Hz. Even if the impulse generation of the Sinus node is blocked, is the heart able to contractions, although it is not a complete contraction, since the atria contract later then the normal or they do not contract at all.

ALT-197. (A) Tomes’ fibers become more and more shorter during the entire formation of the enamel, and later disappear. This phenomenon leads to the fact that a new unstructured enamel layer of 15-30 microns will be formed on the surface.

ALT-198. (B) Fluid continuously flows in the dentinal tubules, but pain can be exacerbated only by a rapid flow, thus a sudden change in the pressure can exacerbate pain.

ALT-199. (A) Since the reduced bone and cement turn over is not able to compensate the changes caused by the attrition of teeth, it will result in the decrease of the occlusal vertical dimension.

ALT-200. (B) Signs of osteoporosis can be truly detected in the alveolar bone, but these can be originated from local reasons, and not from generalized reasons. Decreased chewing capacity
and the physical load lead to the decreased amount of the trabecular bone mass, and to the widening of the marrow spaces.

ALT-201. (C) The primary secretum of the salivary glands is isosmotic, the concentrations of Na\(^+\) and Cl\(^-\) are similar to the serum. Saliva entering the oral cavity, becomes hyposmotic, since the ductal epithel cells reabsorb Na\(^+\) and Cl\(^-\) in a transcellular way. No other fluid is added to the secretum in the ducts.

ALT-202. (E) Na\(^+\) -reabsorbing capacity of the ductal epithel cells is limited, therefore the higher is the amount of the primary secretum the less capacity of the ducts have to reduce the osmotic concentration. If saliva flow rate is high, then the osmotic concentration of the saliva will be closer to the serum’s osmotic concentration, thus it increases.

ALT-203. (D),
ALT-204. (B),
ALT-205. (A),
ALT-206. (D) Parotid gland is innervated by the autonomic parasympathetic fibers arising from the nucleus salivatorius inferior. The innervating fibers are originated from the n. glossopharyngeus, they enter the ganglion oticum via the petrosus minor nerve, and at last from here they run till the parotid gland through the auriculotemporalis nerve. Submandibular gland is innervated by the autonomic parasympathetic fibers originated from the nucleus salivatorius superior, which, branching from the chorda tympani run to the gland via the lingual nerve.

ALT-207. (C)
ALT-208. (A)
ALT-209. (B)
ALT-210. (D)
ALT-211. (A) Parotid gland contains completely serous acini, submandibular gland contains predominantly serous mixed acini, while sublingual gland contains predominantly mucous acini. There is no salivary gland in the cavum oris proprium. The facial artery runs through the submandibular gland.

ALT-212. C
ALT-213. B
ALT-214. D
ALT-215. D
ALT-216. (A) See ALT-4., ALT-17., ALT-81., Mandibular nerve and maxillary nerve do not have special autonomic nuclei. Branches of the maxillary nerve running in the maxillary sinus, innervate the mucosa of the sinus too.

ALT-217. D
ALT-218. A
ALT-219. D
ALT-220. C
ALT-221. B
ALT-222. C
ALT-223. A
ALT-224. A
ALT-225. (D)
ALT-226. (B) Minor salivary glands can be found on both the hard palate and the soft palate. The mucosa of the hard palate forms wrinkles and the submucosal layer is missing. Soft palate is innervated by the masticatorius nerve which is the motoric branch of the mandibular nerve (m. tensor veli palatini).

ALT-227. B
ALT-228. A
ALT-229. B

ALT-231. (A),
ALT-232. (C) Both the cirrhosis and the later stadium of the hepatitis can result in the breaking down of the hepatic function, that the bilirubin level raises, and jaundice occurs. Primary neoplasms of the liver occur mainly on the basis of hepatic cirrhosis.

ALT-233. (A)
ALT-234. C
ALT-235. C
ALT-236. (D) The easiest, and perhaps the oldest way of detecting occult gastrointestinal bleeding is the examination of the excrement (benzidin reaction). Among the recent diagnostic tools endoscopic examination of the upper part came into prominence, and the traditional radiographic methods have been forced back. Thus among the indication field of endoscopy can be found the suspicion of gastrointestinal bleeding, recurrent vomiting, unjustified weight loss, abdominal pain, control of the peptic ulcer etc. The role of Helicobacter Pylori has been proven in the ethiology of the peptic ulcer, therefore in case of signs referring to a peptic ulcer (vomiting, gastrointestinal bleeding) it is also necessary to use the blood detecting tests. CT scan does not provide enough information to the diagnosis in such kind of symptoms.

ALT-237. C)
ALT-238. C)
ALT-239. (C),
ALT-240. (D) Both of the diseases are autoimmune diseases of unknown ethiology, characterized by vasculitis. The treatment of these diseases is basically symptomatic, and the steroids have the main therapeutic role.

ALT-241. (B)
ALT-242. (C),
ALT-243. (C)
ALT-244. (D) The group of diseases of hemophilia are inherited diseases, while the thrombocytopenia causing effect of digoxin-, chinidin-, gold-preparations- or heparin administration. Administration of aspirin is contraindicated in both of the diseases (because of its effect onto the coagulation). Extraction can be carried out with careful preparation, in topical anesthesia, and it is suggested giving antifibrinolytics, as a supplementary treatment.

ALT-245. (C),
ALT-246. (C),
ALT-247. (B),
ALT-248. (A),
ALT-249. (D) Both of the compounds belong to the group of the non-steroid anti-inflammatory drugs. Their main effect is the anti-inflammatory and the analgesic effect. Among their side
effects can be mentioned the thrombocyte aggregating effect of the acetyl salicylic acid, while Algopyrin can cause agranulocytosis, but only rarely. Tolerance does not develop to any of these preparations, neither in case of a long term administration.

ALT-250. (A),
ALT-251. (A),
ALT-252. (D),
ALT-253. (C) At first the effectivity of Metronidazol (which belongs to the imidazol compounds) against the trichomonas, later its effectivity against the protozoons were found. Later it was discovered that it has a bactericidal effect against all types of anaerobic microorganisms. Similarly to the disufiram, it causes alcohol intolerance. Fluorokinolons also have a bactericidal effect, because they inhibit the girase enzyme. While the old Nalidix acid was effective only against the Gram negative rods, other fluorokinolons are effective against other bacteria as well (See ALT-53).

ALT-254. (A),
ALT-255. (B),
ALT-256. (B)
ALT-257. (C) Cephalosporins are broad spectrum, bactericidal, nontoxic antibiotics. They can have more kind of side effects, but the occurrence of those is rare (less than 10%). Aminoglycozides are also bactericid, they very effective, but toxic preparations. Their main side effects are the nefrotoxicity and the ototoxicity.

ALT-258. (D)
ALT-259. (B)
ALT-260. (A)
ALT-261. (A) Drugs widely used in the treatment of the fungal infections are the Amphotericin B, and triazol derivates (fluconazol). Unfortunately, development of resistant species has been detected against both of the preparations. Amphotericin B can not be absorbed, but the fluconazol can be well absorbed from the gastrointestinal system. That is why the first one is used only parenterally, the second one is administered per os. Among the side effects of Amphotericin B nefrotoxicity is the most important.

ALT-262. (A)
ALT-263. (D)
ALT-264. (B)
ALT-265. (D) Chloramphenicol is a broad spectrum antibacterial preparation. Its employment is limited only by its toxicity that is why its prophylactic application is prohibited. It can be absorbed well from the gastrointestinal system, therefore its suitable for the per os administration. In case of allergy against penicillin Clindamycin is the correct position of choice.

ALT-266. (B),
ALT-267. (B),
ALT-268. (D),
ALT-269. (C)
ALT-270. (C) Both the sensory and the motoric ganglions develop from the neural crest, their task is the transmission of the nerve impulses between the peripheral and the central nervous system. The autonomic ganglions are formed by multipolar cells, and there are axosomatic synapses on their cells.
Amphiphil molecules, building up the membrane are not able to leave their monomolecular layer, so they are not either able to the “flip-flop” movement.

Collagen can not be found in the maturated enamel, and this property makes it different from the dentin and the cementum. The dentin matrix consists of dentinal tubules and odontoblast processes (Tomes’ fibers) and the peri- and intertubular matrix. The dentin contains inorganic (65%) and organic (35%) materials and water. The intact enamel contains both Hydroxyapatite and Fluoride-apatite too.

The coronal one third of the root is covered by acellular cementum. The cementum layer of the newly erupted tooth continually increases with age, and it has a lamellar structure parallel with the root surface, because of the appositional development. It becomes thinner towards the direction of the neck of the tooth, at the cemento enamel junction. The main periodontal ligaments calcificated into the cementum (Sharpey-fibers) join the cemento-enamel junction. Cellular cementum covers the apical one third of the teeth and the furcations. There are cementocytes embedded in the calcified matrix of the cementum. The apposition is less regular, but more rapid, thus it becomes wider by age.

The “A-alpha” fibers are the widest myelinisated fibers, and they transmit the rapid information from the motoric and the sensoric reflexes, thus they transmit the sudden intensive sharp pain. The myelinisated “A-gamma” fibers take part in the reflex mechanism of the efferent branch of the muscular tone. The “B” fibers are the thinnest myelinisated fibers, which transmit the signs of the central nervous system to the efferent fibers. The “C” fibers have a very slow conductivity, they form the terminal axons of the autonomic nervous system, and they have a role in the transmission of the long deep troublesome suffering pain.

The alpha-receptors are adrenergic receptors. The alpha-1 receptors are located mainly on the smooth muscles, their stimulus hand on contraction, and this is the way they take part in the control of the blood pressure and the circulation too. The alpha 2-receptors are located mainly on the neuronal membranes and they have a control above the neurotransmitter release. The beta-1 receptors have a role in the control of the heart function, they increase the heart rate and the force of the heart contraction.
Both cupper and molybdenum are essential trace elements. Both of them are constituents of a number of enzymes. The bone may become enriched in molybdenum, which can strengthen the bony structures. The appropriate dose of molybdenum, according to different authors, decreases the frequency of caries, but the mechanism of this process has not been known yet. Cupper is an element of the hemocain named, cupper containing pigment, which is essential to the synthesis of the hemoglobin. Its cariogenic effect has been detected. None of the trace elements cause goiter, since it occurs in case of an intake of a large amount of iodine. See ALT-149. and ALT-74.

Dental Materials

Explanations

ANY-1. (A) Gypsum belongs to the group of alkaline earth metals, and is a form of the sedimentary rocks; its chemical formula is Ca$_2$SO$_4$. Potassium sulfate is the base material of the chemical fertilizers, an auxiliary material of the glass fabrication it is also called alum. Calcium oxalate is an insoluble material: its biological importance is its occurrence in the form of vegetable inclusions, and in the form of the human nephrolith. Calcium carbonate is
the limestone, marble, and chalk. Calcium apatite: its crystal is one of the components of the
dental hard tissues.

ANY-2. (E) Gypsum powder: water ratio is determined by the water coefficient of the
different gypsum types. Its unit is kg/kg. The water coefficient of the impression plaster is
0.67, which means a 1:1.5 or rather a 3:5 ratio.

ANY-3. (E) The hardening time of the impression plaster takes few minutes. However, the
complete setting: the last phase of the hydration, thus the formation of the crystalline
structure by the seading mechanism still continues after the hardening, and will be finished
until the following day.

ANY-4. (A) Lime milk: Ca(OH)_2 is a milky suspension. The sodium chloride, the potassium
sulfate and the calcium chloride increases the speed of the hardening Chalk: CaCO_3 is a
component of the skeleton of sea animals, and is an additional material of the gypsum
powder.

ANY-5. (B) Momax: zinc-oxide-eugenol paste Lastic: silicon based, Kerr’s green stick:
compound, Sanalgen: alginate impression materials.

ANY-6. (D) Dimethyl-silanol: siloxane, is an oil-like material, which occurs at the
interaction of dymethyl dichlor silane and water, with a formation of hydrochloric acid, as a
byproduct.

ANY-7. (E) The shellac is made of the flaky secretion of the lac insect Coccus lacca.

ANY-8. (B). The inlay wax burns completely out during the burning out procedure
following the investigation, because it contains just a very few amount of tailing, compared
to the other wax types.

ANY-9. (C) Latex: is the milky sap of many plants (rubber tree in America) that coagulates
on exposure to air. Natural rubber is essentially a cis polymer of isoprene units: it is the
elastic component of the impression compounds. Shellac, mastix, resins: plastic materials; talc belongs to the fillers and the painting materials.

ANY-10. (A) If the model is made of gypsum or gypsum containing material (investment materials), it is essential using a separating medium, if it is made from another model material it is suggested isolating the plaster of Paris impression, in order to remove it from the model.

ANY-11. (E) Clay is one of the components of porcelain (porcelain soil).

ANY-12. (A) Melott, composed from low melting point metals (lead, bismuth, tin, cadmium), is a mechanical compound (eutectic). Its melting temperature is 125 °C. The melting point of the silver palladium is 1050 °C - 1300 °C, economy gold alloys: 850 °C - 1050 °C, Platinum gold alloys: 900 °C – 1150 °C, while stainless steel: 1350 °C.

ANY-13. (D) Stainless steel for dental aims: it has a high melting point (1350 °C), and the molten steel has a lower viscosity compared to the other alloys, that is why it is hardly suitable for casting.

ANY-14. (C) The melting point of the gold is: 1063 °C.

ANY-15. (A) The composition of the nickel chromium alloys is: 70% chromium: 15-20% nickel, 4% molybdenum, 1% iron and niobium.

ANY-16. (A) The composition of the cobalt chromium alloys is: 60-65% cobalt, 30% chromium, 5% molybdenum, occasionally nickel and titanium.

ANY-17. (C) Already 15% of palladium makes the silver alloys resistant to discoloration, while 25% provides complete color stability.

ANY-18. (D) The composition of the silver palladium alloys is 60-70% silver, 20-30% palladium, 7-9% copper, nickel, manganese, 1-3% gold.
ANY-19. (B) Tissue structure of the alloys can be homogenous and heterogeneous. In the heterogeneous type, two or more physically and chemically different phases can be recognized. For the examination of the tissue structure, the so-called dislocated reflection light microscopy is suitable. Among the dental alloys, the cobalt-chromium alloy has a heterogeneous tissue structure.

ANY-20. (A) The solder of which has a melting point is lower with an average of 100 C° than the metal to be soldered, is drawn into the joint with the crystals of the metals to be soldered, by diffusion. The precondition of the diffusion is that the metals to be soldered and the solder should dissolve in each other in their solid state as well (Fick's law of diffusion).

ANY-21. (C) In order to utilize better the gravity, as one of the retaining forces of the mandibular denture, density of the acrylic denture base is increased. Its disadvantage is its dark grey color originated from the color of the wolfram powder.

ANY-22. (A) Because of the solid structure, polymer chains both in the plane and in the space can better join each other by cross-linking, and the advantageous physical properties (hardness and wear resistance) of the polymers can be improved in this way.

ANY-23. (A) Prefabricated porcelain teeth do not contain, or they contain only a quite small amount of clay (3%). That is why the exact name of these products is mineral tooth, because the silimanit crystal, which is characteristic of the porcelain products, is missing.

ANY-24. (D) Carborundum: is artificially made SiC silicium carbide. Natural grinding materials: corundum Al₂O₃, which is the second hardest mineral after diamond. Granite: is the most widely occurring igneous rock of the earth. Quartz SiO₂ exists in crystalline (rhinestone) lamellate (achate) and amorphous forms (pebble stone). Pumice: is an igneous rock with a vesicular structure.

ANY-25. (B) The solder’s melting point is lower with almost 100 C° than the metal to be soldered. The metals and the solder is drawn into joint by diffusion.
ANY-26. (B) Materials with different ability to elastic recovery are called the elastomeric impression materials.

ANY-27. (E) The special characteristic of the group of thermoplastic materials is that they become plastic at heat application. The softening temperatures are: waxes: 60-90°C, impression compounds: (Kerr’s compound): 50-60°C, Oroplastic impression materials: 35-38°C, gutta-percha: 50-60°C.

ANY-28. (D) Reversible is an impression material in the dental technology, if a material can be resoftened due to heat application, which becomes in this way theoretically suitable for a new impression taking (but it is not necessary in the practice because of the risk for cross infection). In case of the irreversible materials, the reapplication is not possible because of the end products resulting in the chemical reactions occurring during their setting reaction.

ANY-29. (E) The fine quality of the particles raises the speed of the chemical reaction thus the hardening, by increasing the chemically active surface; while the temperature increase raises the speed of the chemical reaction and the hardening by escalating of the Brownian motion. Also potassium sulfate and sodium chloride under 1% speeds up the hardening process.

ANY-30. (E) Dissolution: beta-hemi hydrate dissolves in the water of an amount of the water coefficient. Water uptake: water joins the surface of the great surfaced CaSO₄ particles; the water-bonding surface can be increased by the fine quality of the particles. Colloid formation: a water shell is formed because of the dominance of the superficial phenomena at the interface of the big phases and the adsorption water uptake: the result is the hydrophilic colloidal gel state: imbibitions, and further water uptake and drawing in case of the threadlike crystals. Crystal formation: formation of the spatial crystal structure according to the homogenous seading.

ANY-31. (E) By the changing of the components (siloxane, fillers, paraffin oil, silicone, cross linking agent) of the base paste impression materials with different consistencies can be manufactured.
ANY-32. (A) During warming up the gypsum the occurring steam dislocate the gypsum layers from each other, while impression compound and the hydrocolloid impression material becomes plastic at heat application.

ANY-33. (D) Potassium-sulfate mixed to the gypsum in a maximum amount of 3% speeds up the initial phases of the hardening procedure. The water up taking surface increases in case of the gypsum powder with fine grinded particles, thus the time of the water uptake phase will be reduced.

ANY-34. (B) The borax-solution and the paraffin-bath increases the superficial wear resistance of the gypsum model, while the water glass increases the hardness of the gypsum by its ‘silication’.

ANY-35. (B) The composition of the alginate impression material is: 10-18% sodium-alginate 10-12% calcium-sulfate (gypsum) 70-75% filler (SiO$_2$).

ANY-36. (A) Zincoxid-eugenol impression pastes dissolve in organic solvents, but they cannot be dissolved by alcohol.

ANY-37. (B) The early types of blade- needle- and subperiostal implants had been made of the high strength cobalt chromium molybdenum alloys. The later biocompatible implants were made of aluminum oxide ceramic. The recent, one phase or two-phase implant types are made of titanium with different surface treatments.

ANY-38. (B) The common property of the metal ceramic alloys is that oxide bonds can bind to their surface. Their heat expansion coefficient is nearly the same as the dental ceramic’s. Amongst silver palladium- and nickel chromium-, and additionally cobalt chromium alloys (Wirobond) can be found types which fulfill these requirements.

ANY-40. (C) Noble alloys are: gold (Au), silver (Ag) and metal members of the platinum group (VIII column), such as ruthenium (Ru), rhodium (Rh), palladium (Pd), osmium (Os), iridium (Ir), platinum (Pt). Their characteristic property is that they strongly absorb the hydrogen, while their metal lattice dilates. They are extremely resistant against acids (they dissolve only in the royal water (aqua regalis)).

ANY-41. (C) For making cast clasps alloys suitable for casting can be used, which are capable for a distinct amount of reversible deformation (elasticity). Cast clasp can be made of cobalt chromium alloy and platinum gold alloy.

ANY-42. (E) Every type of corrosion can be the form of the local corrosion.

ANY-43. (B) Common heat resistant components of the investment materials are: quartz powder (SiO$_2$), pumice, mica powder, asbestos powder, talcum, bolus alba bonding material: gypsum or ethyl-silicate or metal oxide sulfate.

ANY-44. (C) The total expansion of the investment material is the result of the common expansion of the setting expansion and the thermal expansion.

ANY-45. (B) Natural occurring forms of the quartz are alpha-quartz: triangular crystal structure is formed until 573 °C, cristobalit: tetragonal crystal structure is formed until 180 °C, tridimit: from beta-quartz is formed at long term high temperature application.

ANY-46. (A) According to the location of the joining surface at soldering the following positions can be probable: joining (fitting surfaces precisely interlock), hollow type (fitting surfaces do not precisely interlock), lapstreak (one of the fitting surfaces slightly covers the other surface).

ANY-47. (A) Homogenization: means a diffusion process, which result in the realignment of the atoms, which can also occur in the solid state of the metals. As a result, homogenous one phase tissue structure will be formed. Recrystallization: dissolving of the inner stress of crystal lattice formed during cold processing of the metals. Nobeling: heat treatment in controlled conditions for increasing the strength and the hardness of the metals.
ANY-48. (C) Corrosion: an erosion occurring because oxidation, an inward drifting from the external surface of the material, which can be a result of a chemical or electrochemical process. Deflation: is the surface forming procedure of the wind, or the increasing spending power of the money. Erosion: is a superficial milling, for example epithelial erosion.

ANY-49. (B) Self curing: cold or self curing acrylic resins, chemo plastic: acrylic resins, cured on high pressure and high temperature. Thermoplastic: acrylic resins which are made plastic by heat application and then poured by pressure into a preformed mould.

ANY-50. (A) The metal with a satisfactory hardness, and elasticity at the same time, which can also survive many activations is suitable for making clasps. According to its technology the clasp construction can be wrought wire or cast clasp. Metals suitable for wire clasp construction are: stainless steel, cobalt chromium alloy, metals suitable for cast clasp construction are: platinum gold alloy and cobalt chromium alloy.

ANY-51. (B) The mixing phase of cement lasts until the appearance of the first strain (cement bridge), which is followed by the working phase (luting). The characteristic sign of the hardening phase is the sharp sound of breaking. The setting process will be completed after 24 hours.

ANY-52. (B) The flux keeps the solder in a fluid state by decreasing its surface tension. Flux materials dissolve metal oxides (clinker formation) and they save the metal surfaces against reoxidation. The most frequently used flux is borax Na$_2$B$_4$O$_2$, its melting point is 740 $^\circ$C.

ANY-53. (A) The group of dental materials, which can be plasticized by heat application, is called the thermoplastic materials. Oroplastic impression materials become plastic at relatively low temperatures, their consistency becomes applicable for brushing already at about 60 $^\circ$C. They become hard at room temperature, but they turn into plastic again in the oral cavity in 30 seconds in a manner that they are suitable for impression taking (mainly in cases of edentulous jaws).

ANY-54. (E) During polyaddition small molecules join together to form a larger molecule without forming a byproduct. Such kind of reaction occurs in case of the addition cured
silicones. Impression materials held in the mouth for an appropriate time period has a very small ratio of permanent dimensional change, these materials have a very small ratio of shrinkage, their volumetric change is less than 0.3%, which can be referred to the thermal contraction of the material.

ANY-55. (B) Only 10-15% of the alginate impression materials is sodium-alginate, about 12% of them is calcium-sulfate, the remaining about 70% is filler. Water is not chemically bond in the ready impression; therefore it shrinks 1%/hour in the normal air. The impression can be stored just for only 5 hours in the hydrofor (wet package), where the humidity is 100%.

ANY-56. (C) Vibration and the use of the vibration table is an advantageous method in case of casting an impression with hard stone, because it brings the bubbles forward. The cast made of stone can also be hardened subsequently; or rather its hardness can be increased in a paraffin bath, in water glass, or in a hot concentrated borax solution.

ANY-57. (C) Melott can be easily molten; its melting point is 125°C. It was an important material of the cold curing method of crown fabrication. It is reversible in case of a careful temperature rise, if the components do not change, and the material in this way can be used more times.

ANY-58. (B) Silicon impression materials have a wide range thermal resistance (from -70°C till +270°C), therefore they are suitable for “dispersion metal lining” with metal model materials of low melting temperature. Fusible alloys contain tin and bismuth beside lead. For metal dispersion the Cerocast alloy is suitable which has a melting temperature of 138°C.

ANY-59. (C) The inlay/modeling wax is a mixture of different wax types, mainly paraffin and stearin, further more they also contain carnauba wax, spermaceti, ceresin, colofonium, turpentine, sesame oil, bolus alba, talcum and coloring material. Carnauba wax increases the melting point and the hardness. The melting point of the carnauba wax is 82-86°C, the melting point of the paraffin (mineral wax) is 45-55°C.
ANY-60. (D) Setting expansion of the investment materials is related to the fact that their water content transforms from hemi-hydrate into di-hydrate when mixed with water, and this physical-chemical reaction provoke an expansion. Not only in the setting expansion has gypsum a role, it has a thermal expansion too, but it is continuing only until 300°C, and it starts to shrink on higher temperatures, which also continues at the cooling of the material. Gypsum therefore added to the investment material, but only in that amount, which does not inhibit expansion over the necessary extent.

ANY-61. (A) If the temperature of the investment material rises above 700°C for a longer period of time at the processing of the silver palladium alloys, sulfur silver palladium eutectic can occur, because of the dissolution of the sulfur from the investment material. The mistake can be prevented by not exceeding the 30 minutes time period of preheating. Also employment of the naked light should be avoided.

ANY-62. (C) Gold content of the economy gold alloys is 50-55%, their palladium content is 5-10%, and the remaining part is silver, which can be partially replaced by copper. Corrosion resistance is provided by the palladium. 1% palladium suits 2-3% gold considering corrosion resistance.

ANY-63. (B) Silver is really a suitable metal for casting, similarly to gold. Although silver is a component in economy gold alloys, not because of its fusibility, rather it is a component because of its advantageous price.

ANY-64. (D) Cobalt-chromium alloys have a heterogeneous tissue structure, however according to the experiences; their corrosion resistance in the mouth is satisfactory.

ANY-65. (A) The aim of homogenization is to extinguish the heterogeneity of the tissue structure. Structural transformation is the result of the atomic movement which is although limited.
ANY-66. (E) Nobel alloys are: gold- (platinum gold) and silver palladium or palladium silver alloys. The silver content of the silver palladium alloys is 60-70%, their palladium content is 20-30%.

ANY-67. (D) Melting point of the metals is the same as the temperature that is necessary for the solidification of the molten metal, this is the solidus point. A certain amount of thermal energy, the so called melting heat is necessary to the melting of the metal.

ANY-68. (A) Implant can be made of a material which is biocompatible, biologically stable, and its strength and formability is provided. These requirements are filled by the titanium: a bioinert material with a low density, its corrosion resistance is provided by the oxide layer forming on the surface of the metal.

ANY-69.  (E) The amount of feldspar in the dental porcelain teeth is 70-80%, the quartz content is about 25%, while its clay content is low, and the silimanit crystal formation, which is especially characteristic of the porcelain, is slight. “Ceramic artificial tooth” as an expression is not used for the prefabricated porcelain teeth.

ANY-70. (D) Mechanism of the phosphate cement luting is: that the still fluid cement flows into the unevenness of the surface, becomes hard and fixed: it achieves its luting effect via wedging.

ANY-71. (C) Aim of polishing is to make the surface smoother and shinier. Plaque formation and irritation will be reduced on a polished surface, acid resistance however is not influenced directly by polishing. For polishing metal dental appliances polishing paste made of grinding-particle-powder (iron-oxide, chromium-oxide, and alumina-oxide) and oil.
ANY-72. (E) Cobalt chromium alloys have a heterogeneous tissue structure, their corrosion resistance in the mouth however is perfect, and therefore there is no need for homogenization.

ANY-73. (A) Phases of the alloy with a heterogenic composition can act in the saliva like galvanic batteries or micro batteries, and the metal can be dissolved accompanied by an electric current, electrochemical corrosion can occur.

ANY-74. (C)

ANY-75. (B)

ANY-76. (B)

ANY-77. (B)

ANY-78. (A) The hydrocolloid and the silicone rubber impression materials belong to the group of elastic impression materials. Silicone rubber impression materials have a setting time. Their initial monomer molecules are the siloxanes, -when mixing with their catalyst, -the zinc octoaton or the dibutil-dicin-laurate, they form macromolecules. They can not adhere well to the surface of the impression trays because of their elasticity, but this inconvenience can be avoided by tray adhesives. The heat-resistance of the silicon based impression materials is high; thus these materials can be sterilized on high temperatures. Hydrocolloid impression materials do not have a setting time, since they become plastic at high temperatures, and turn into solid at lower temperatures, thus they are considered as reversible impression materials. Impression is taken at a temperature of 40-50°C, therefore it is suggested using a warm bath tray with a syringe access to cold water for auxiliary chilling.

ANY-79. (C)
ANY-82. (D) Cobalt chromium and nickel chromium alloys are especially suitable alloys for casting. The main components of the cobalt chromium alloys are cobalt, chromium and molybdenum. Its increased hardness and strength makes it suitable for making fine structures of castings. It is suggested mainly for making dental appliances by the lost wax casting technology. Nearby the two main components nickel chromium alloys contain molybdenum, manganese, alumina, silicium and other elements. From nickel chromium alloys mainly porcelain fused or acrylic fused crowns and bridges are fabricated by casting.

ANY-87. (D) The advantage of the silver palladium alloys is that they can be processed almost as easily as the gold alloys, but the use of these alloys is economically more beneficial. Also the framework of metal ceramic appliances can be fabricated from silver palladium, and it is suitable for making custom made dowel cores as well. A source of error in the procedure is that the sulfur content of the gypsum bonded investment material may disintegrate; resulting in a sulfur-silver-palladium eutectic, (also see ANY-62.) Nickel chromium alloys with their heterogeneous tissue structure are especially suitable metals for casting metal ceramic appliances, custom made cast dowel cores. Nickel and chromium allergy is the most frequent in those patients who wear prosthetic appliances.
ANY-90.  (B)

ANY-91.  (B)

ANY-92.  (D) Esthetically, acrylic crown is a preferable type. It can bear a definite tension, but it can be used only for temporary aims, because of its elasticity, and for the reason that it does not either have a satisfactory wear resistance, or has a reasonable hardness. Porcelain jacket crown can only be made onto a tooth prepared with a shoulder. It has a good esthetic effect, but it is brittle, it has a low tensile strength and a low flexural strength, it is harder than the dental enamel. Its wear resistance is so high that it can be biologically harmful in a given situation. None of the listed ones can be abutments, since abutment can only be a tooth, a root or an implant.

ANY-93.  (A)

ANY-94.  (B)

ANY-95.  (B)

ANY-96.  (B)

ANY-97.  (D) Metals only with the same properties can be joined by welding or soldering. Joining happens at a lower temperature than the metals’ melting point. Soldering is understood as a process when two solid metal parts are joined with the help of a third molten metal as a joining material (solder). The precondition of the longevity of the solder joint is the good fitting of the soldered metal pieces. In case of welding metals are heated to an extent that they can be joined by a mechanical intercession (pressing or beating). An except is the 24-carat gold, which can be welded in its cold state (cohesive characteristic).

ANY-98.  (B)
Glass-ionomer cements are used in conservative dentistry for making fillings, and in prosthodontics for luting prosthetic appliances. They adhere well to both of the enamel and the dentin, and also the chemical bond plays an important role in the luting effect between the dental tissue and the cement. Its powder component is composed of alumina-silica glass, its liquid component is composed of poly-acrylic acid. The bonding of the phosphate cement is based on a reaction between the zinc-oxide of the cement powder and the liquid of the liquid component of the cement. After mixing, initially it forms a crème like, than a paste like, and at last a solid form of zinc-phosphate. Also silica and porcelain spar is added to the cement powder in order to increase the hardness and the strength.

Impression compounds and the oroplastic materials are rigid, reversible impression materials. They become plastic at heat application. The composition of the impression compound is: plastic materials (resins), elastic and softening materials (latex, paraffin wax), fillers and staining materials (talcum, alizarin, crapp). They are suitable for the impression taking of the edentulous jaws, and they are also suitable for galvanoplastic model fabrication. Impression can be removed from the mouth only after water cooling. (Also see ANYm-27 and ANYm-53.)
Dento-alveolar surgery

Explanations

DAS-1.  (E) Oral surgical instruments may be classified according to their shapes. In such a classification sharp – pointed, single and paired, single and double ended, bent in and out of the plane instruments can be distinguished.

DAS-2.  (D) Characteristics of odontogenic cysts: they are located in the bone, surrounded by a connective tissue capsule lined with epithelium, not of a proliferative nature. Their content is a yellow serous fluid.

DAS-3.  (D) The point of insertion of the needle is different according to all these methods: it is according to Braun’s method that the needle is inserted directly in the zygomatic arch.

DAS-4.  (C) Partsch’s instrument is a chisel, Barry and Bein are elevators, and Cooper’s are scissors. Jansen’s is a bone rongeur.

DAS-5.  (B) Barry is a typical root elevator. Even though Bein may sometimes be used to remove roots, it belongs to the group of tooth elevators.

DAS-6.  (E) In the case of TMJ pain striated spasmodytics, NSAIDs and painkillers are equally effective. Their combination is recommended.

DAS-7.  (B) Subfebrility or mild fever is possible alongside strong tenderness on percussion. There is no visible periapical sign on the X-ray. Lymphadenomegaly and a left shift in the white blood cell counts are common features.

DAS-8.  (D) All the symptoms are typical but the intrapulpal pathway of spread is not possible. Inflammation may progress to the periapical region via the periodontal ligaments.

DAS-9.  (E) All these methods may be used alone or in combination.

DAS-10.  (C) Based on the nature of the exudate pulpitis may be purulent or serous.

DAS-11.  (E) Phlegmon is caused by Streptococci. Its spread is in the spaces of connective tissue.

DAS-12.  (D) Radicular cysts are odontogenic, the others are not.

DAS-13.  (A) It may be associated with leukopenia and arthralgia, but most characteristic is sequestration.

DAS-14.  (E) Very common irritating factors in the oral cavity: imprecise fillings and prosthetic devices, which, among others can cause hyperplasia.

DAS-15.  (B) Leukoplakia is a 'precancerous lesion’, the others are neither lesions, nor conditions.
DAS-16. (D) Pindborg tumour, or ’calcifying epithelial odontogenic tumour’ is the only odontogenic tumour of those listed.

DAS-17. (B) The term ’ranula’ is used improperly as a synonym of a retention cyst, as it refers to the retention cyst of the sublingual gland only.

DAS-18. (A) Pain occurs on the 3rd day after the extraction. All the other symptoms are characteristic.

DAS-19. (B) It is mainly a disease of the mandible. It is associated with lymphadenomegaly, left shift in white blood cell counts, high fever. There is no X-ray sign in the acute phase.

DAS-20. (C) In the upper molar region the palatinal gingiva is innerved by the palatinal nerve. The superior posterior alveolar nerves are anaesthetised upon tuberal anaesthesia.

DAS-21. (A) In the list cat gut is the only resorbable material, the others are all non-resorbable.

DAS-22. (C) Trigeminal neuralgia is characterised by brief, paroxysmal, stabbing, lightning-like or shock-like pain.

DAS-23. (B) There is no ’sailor’s stitch’, just sailor’s knot.

DAS-24. (D) These three points list the main characteristics and advantages of cryotherapy.

DAS-25. (E) The coagulopathies listed all involve the lack of one of the clotting factors, thus all the answers are right.

DAS-26. (B) Redon’s incision is an extraoral one, the others are intraoral incisions and are used with varying frequency for apicectomy.

DAS-27. (A) Typical neuralgias are the trigeminal and glossopharyngeal ones, the others belong to the atypical group.

DAS-28. (A) Amputation neuroma develops after trauma, after sectioning or tearing the nerve and is a regenerative hyperplasia of the nerve.

DAS-29. (B) Temporofacial phlegmon spreads in the space between the temporalis muscle and the temporal fascia. It most often originates from the upper molars. The other phlegmons listed originate from lower teeth.

DAS-30. (C) No operation aimed at the deepening of the floor of the mouth was named after Obwegeser, whereas the other authors did give their names to such operations. The most often performed one is Trauner’s.

DAS-31. (B) Answers D and E or not of a haematological nature. Syncumar does not influence platelet counts. Out of prothrombin value and bleeding time the previous one is characteristic, bleeding time is usually normal.

DAS-32. (D) The most widespread and best is the OP in central occlusion and with open mouth to examine the TMJ.
DAS-33. (A) According to Matas’s method the pterygopalatine fossa is reached through the palatinal canal and the maxillary nerve is anaesthetised there.

DAS-34. (C) In the case of a prothrombin level less than 30% prolonged clotting is to be expected despite of local therapy.

DAS-35. (D) All of these flaps are used in dentoalveolar surgery, but only the Partsch incision is concave upwards.

DAS-36. (B) The tooth impacted most often is the lower third molar, the one most often retained is the upper canine.

DAS-37. (B) The tooth with periapical pathosis and the neighbouring teeth become mobile as well because of the inflammation spreading in the marrow (mostly of the mandible).

DAS-38. (A) Typical and most frequent occurrence is on the lingual side of the mandible in the premolar region.

DAS-39. (E) Fistula formation is possible in all these cases, but multiplex fistula formation is only characteristic of actinomycosis. Its cause is that in the involved area abscesses are formed spontaneously and these open spontaneously.

DAS-40. (B) This symptom is typical of sialolithiasis. Pericoronitis has no such sign and the others are usually bilateral kinds of inflammation.

DAS-41. (C) The listed materials are biomaterials, except for amalgam.

DAS-42. (B) Endogenous osteomyelitis is mostly the complication of childhood contagious diseases, mostly of scarlatina and morbilli.

DAS-43. (C) The lingual nerve may be injured due to anaesthetic injection, or surgery in the floor of the mouth or the submandibular region. The duct of the parotid gland is far from the nerve, thus nerve injury is unlikely.

DAS-44. (D) Mild sensory nerve injury is followed by relatively quick regeneration. Electric stimulation, heat treatment, vitamins B₁ and B₁₂ help healing. A surgical reconstruction is rarely needed.

DAS-45. (D) The term ‘neurotmesis’ means that the macroscopic continuity of the nerve is ruptured, there is complete paresis and no regeneration can be expected without surgical reconstruction.

DAS-46. (A) Areas of the origin of the cylinder flap: neck, suprascapular area, thorax, etc., i.e. not the immediate environment. In the case of the other techniques the skin grafting is done from the immediate environment, not from distant areas.
DAS-47.  (E) A perinatal cyst (or Epstein’s pearls) appears on the mucosa of newborns as small whitish-yellowish swellings. They require no treatment. On histological examination keratin is found in them.

DAS-48.  (A) The most common odontogenic cyst, always develops on an inflammatory basis. The cyst epithelium is rich in collagen, and an ameloblastoma develops out of it quite rarely.

DAS-49.  (E) The irradiated jaw and its periosteum is no capable of defence against infection because of the occlusion of vessels, the destruction of osteocytes and the insufficiency of circulation (basically a ‘dead’ bone).

DAS-50.  (D) Phlegmon or cellulitis is an inflammation that quickly spreads in connective tissue spaces. It is very painful and appears a hard swelling. It shows no tendency of abscess formation. It is associated with high fever, shivering and a painful lymph node swelling.

DAS-51.  (B) Besides wide spectrum antibiotic treatment and immediate surgical approach, abscess formation should be encouraged. A cold compress makes this more difficult, therefore it is not recommended.

DAS-52.  (D) Order of frequency: submandibular gland (83%), parotid gland (10%), sublingual gland (7%), minor salivary glands.

DAS-53.  (E) Most common site of occurrence of sialoliths is the submandibular gland (cf. E-66.).

DAS-54.  (A) According to the WHO it is a bilateral non-inflammatory lesion. No real xerostomy is present, upon sialochemical examination increased K-excretion is found.

DAS-55.  (C) According to Rauch’s statistics – whose categories are used to this day– the order of frequency is: inflammation, sialosis, sialolithiasis, tumour.

DAS-56.  (D) Homogenous leukoplakias usually heal as a result of treatment, the verrucose and nodular forms become malignant in 3-5% of the cases, erythroleukoplakia in 25-30%, and erythroplakia in 50-80%.

DAS-57.  (A) Leukoplakia is a chronic inflammatory lesion of the oral mucosa with increased keratinisation which is a white spot that cannot be wiped off and cannot be classified as any other disease. A primary etiological factor is smoking.

DAS-58.  (B) Erythroplakia is a precancerous lesion, the others are precancerous conditions (WHO classification).

DAS-59.  (C) Out of the diseases of the lip listed here cheilitis actinica chronica is a premalignant condition, the others are not.
DAS-60. (E) The administration of steroids is strictly prohibited. Good results are yielded by antifungal treatment (also of the denture), setting the vertical component of CO, prescribing an antiseptic. These methods may be used separately or combined.

DAS-61. (D) The statements are characteristic of local anaesthetics except for D. In a watery solution it is not the acid but the salt that dissociated to a cationic and an anionic form.

DAS-62. (B) It is sold in a dark ampoule because of its sensitivity. It is the most often used vasoconstrictor and has an effect on veins and capillaries, but its strongest effect is on arteries and arterioles. Its maximal dose is 0.2 mg.

DAS-63. (A) The lipophilic part ensures the molecule’s affinity to the neurons and the hydrophilic part its solubility in water and its diffusional capacity. The structure of the connective chain is responsible for the decomposition of the molecule, thus also for its length of effect and toxicity.

DAS-64. (B) see DAS-63.

DAS-65. (C) see DAS-63.

DAS-66. (D) As here the spasm of striated muscles is involved spasmolytics of striated muscles are effective. As trismus is evoked by inflammation antibiotics and the removal of the wisdom tooth are also useful. No-Spa is a plain muscle spasmolytic, therefore it is useless in this case.

DAS-67. (D) The most common cause is trauma followed by rheumatoid arthritis.

DAS-68. (B) The muscles listed are responsible for the translational and rotating movement of the joint except for the buccinator muscle. This latter one plays a role in moving the corner of the mouth and the cheek.

DAS-69. (B) The listed symptoms are those of a difficult eruption of a tooth, but lymph node enlargement is always on the same side and unilateral.

DAS-70. (B) Periostitis and phlegmon are odontogenic inflammations, sinusitis is the inflammation of the maxillary sinus and actinomycosis is a specific inflammation.

DAS-71. (A) Trigger zones are according to the innervated area of the glossopharyngeal nerve as follows: the tonsils and their area, the posterior third of the tongue and the hypopharynx.

DAS-72. (C) The fossa behind the ramus of the mandible is filled in by the parotid gland, therefore the most common cause of the abscess is the purulent inflammation of the parotid gland. Due to anatomical connections the swelling may extend to half the face.

DAS-73. (B) A primordial cyst is an odontogenic one, the others are not.

DAS-74. (C) The beaks of upper wisdom forceps are bent backwards because thus tooth extraction can be performed without injuring the lip.
In the case of an intact dental arch a Lecluse elevator may be used to move or remove the lower third molar. If the dental arch is not intact the tooth in front may easily be moved. In the case of upper molars its use is prohibited because of the danger of sinus injury.

If the tooth is fractures in the cervical third then the instrument of choice is a root forceps. When removing roots fractured in the medial and apical third surgical tooth removal is recommended.

The right handed dentist stands behind the patient when removing lower right teeth (lower right premolar in the list), in all the other cases he will stand in front of the patient.

A number of flaps have been described for apicectomy, and all the listed types may be used. A marginal incision, however, is not recommended, it is of good use for tooth removal.

It should be avoided in young patients, in the case of a healthy periodontium and in the region of front teeth to avoid scar formation and the recession of the gum.

Tooth dissection may be performed on lower and upper molars under the listed conditions, but a missing tooth in front is not a condition of this operation.

In old age the elasticity of the bone is decreased, therefore removal is more difficult. In an edentulous jaw the risk of fracture is higher. Wound healing is slower and postoperative complications are more common, therefore in this age the removal of impacted and retained teeth causing no complaints is contraindicated.

The strong palatinal root of an upper molar may ensure the function of the tooth even after the removal of the two buccal roots.

Gingiva separation has an important role in wound healing (the gum is not ruptured), and also it is easier to position the forceps and to check the success of anaesthesia.

The beak of a lower molar forceps is at right angle with the connecting part and both beaks are split with a pointed end. The forceps with a bent beak split on one side only is the upper molar one.

The Lecluse elevator is used for removing teeth not roots. The Barry and Winter elevators and the scaler are used for root removal.
DAS-86. (A) High fever is not characteristic of alveolitis, the other symptoms are.

DAS-87. (E) Injury to the inferior alveolar nerve may cause paraesthesia, ‘anaesthesia’ of the facial nerve may cause paresis (palsy) (the needle is driven too deep upon lower block anaesthesia. Vasoconstriction caused by epinephrine can cause temporary loss of sight (amaurosis) due to the spasm of the central artery of the retina. Lingual anaesthesia may cause a reflectory neurogenic trismus.

DAS-88. (C) The cause of its growth is the fluid produced. Its content is not mucinous.

DAS-89. (B) The one or both condylar process positioned anterior to the articular tubercle cause pain in the joint. Saliva is flowing from the open mouth, the patient has difficulty swallowing and cannot close his/her mouth.

DAS-90. (C) The labial soft tissues of the lateral incisor and the canine are innerved by the mental nerve therefore anaesthetising the inferior alveolar nerve is sufficient. The buccal soft tissues of the molars are innerved by the buccal nerve therefore it has to be anaesthetised together with the inferior alveolar nerve.

DAS-91. (E) To ease the spasm of the plain muscle in the wall of the duct plain muscle spasmolytics are used. to decrease the inflammation antibiotics, chemotherapeutic drugs (sulphonamide, macrolide) may be administered.

DAS-92. (B) Ultracain 1% and 2% contain no vasoconstrictor, Ultracain DS Forte contains epinephrine. Creams and sprays usually contain no vasoconstrictors.

DAS-93. (A) Physiotherapy is not applied. Medical therapy, the injection infiltration of the end branches of the nerve, neurotomy, infiltration of the Gasserian ganglion and surgery; this is the principle and practice of step-by-step therapy. The combination of these methods is possible.

DAS-94. (E) The material may be titanium or aluminium-oxide ceramics, the surgical technique may be apically open or closed. In the previous one this is combined with apicectomy, in the latter one approach is prepared blindly.

DAS-95. (D) The goal is to keep a filled root of lower molars at the end of the arch. Healthy periodontium and a wide interradicular septum will provide strong support for the root to be conserved.

DAS-96. (D) When removing a horizontal or mesioangular tooth it is advisable to cut the tooth into pieces to protect the surrounding structures.

DAS-97. (E) In the case of a neglected pericoronitis inflammation usually spreads to the surrounding tissues therefore strong pain, trismus due to the involvement of the masticatory muscles.
Difficulty in swallowing may arise due to the involvement of the pterygomandibular space. Pus is also flowing from the pocket.

**DAS-98.** (B) Three (1., 2., 4.) of the answers are certain signs of neuralgia. During a paroxysm the face does not become plain but is in spasmodic contraction.

**DAS-99.** (D) Kostecka’s operation is important from a historical point of view. Dingmann’s operation belongs to surgery performed on the corpus. Obwegeser’s operation and its modification according to Dal Pont are sagittal osteotomies.

**DAS-100.** (E) The four answers are the four main characteristics of true odontogenic cysts.

**DAS-101.** (B) Berg’s method is used for the extraoral anaesthesia of the inferior alveolar nerve.

**DAS-102.** (B) Mixed tumours account for 60-80% of salivary gland tumours. It is benign, has a capsule and contains various elements.

**DAS-103.** (E) All the listed methods may be applied.

**DAS-104.** (A) Granuloma is often diagnosed accidentally. It develops at the apex of a tooth with gangrene and may become an abscess.

**DAS-105.** (C) Vitamins that enhance nerve regeneration: B₁ and B₁₂. Physiotherapy is important in treatment.

**DAS-106.** (E) The notion of phlegmon may basically defined with these four answers.

**DAS-107.** (D) Strong pain and bleeding are not part of the phenomenon. Water flowing from the nose upon rinsing and air appearing in the mouth upon blowing the nose are certain signs.

**DAS-108.** (D) Procaine and Articaine do not, but Lidocaine and Tetracaine do have an anaesthetic effect on the mucosa.

**DAS-109.** (A) The first three answers are clearly correct. Pressing the trigger zone may evoke a paroxysm and will certainly not stop it.

**DAS-110.** (D) Antibiotics may occasionally be administered orally. Local treatment is a lot more important, which may be conservative (gauze strip dipped in Chlumsky’s solution) and/or surgical.

**DAS-111.** (E) All the listed diseases may be secondary to a focus.

**DAS-112.** (C) Spontaneous abscess formation may occur in the region of the hard infiltration therefore the application of cold or cryotherapy makes no sense. Incisions and high dose penicillin are the adequate therapy.

**DAS-113.** (C) The weak base has low solubility in water. The unloaded base ensures penetration through the myelin sheath and the peri- and endoneurium.

**DAS-114.** (B) Swollen lymph nodes, bad general condition and mobility of the involved tooth are characteristic. Sequestration only occurs several months later.
DAS-115. (E) The application of vitamin A or any of the listed surgical procedures are adequate.
DAS-116. (E) These are all possible complications.
DAS-117. (C) When water flows out through the nose upon rinsing and upon blowing the nose air flows through the perforation to the mouth then perforation is certain. The voice usually does not change.
DAS-118. (E) Cryotherapy may successfully be applied for the treatment of certain precancerous lesions and conditions of the mouth.
DAS-119. (C) It has a thin epithelium that is easily torn and has a high tendency of recurrence, but the tendency of recurrence is lower in soft tissue cysts. The content is keratin.
DAS-120. (B) None is an absolute indication, but surgery can be indicated in all but the 3rd point. If the root canal filling is incomplete it is a professional error to perform apicectomy.
DAS-121. (A) The alveolus contains smelly but not purulent detritus. It is accompanied with foetor ex ore, pain, swollen lymph nodes, maybe fever.
DAS-122. (D) Possibly immediate closure is necessary, if not, then at least it has to be closed as soon as possible.
DAS-123. (D) Typical symptoms (numbers 2 and 4 here) are always unilateral. If the process is not chronic and is not associated with purulent sialoadenitis, then the patient’s general condition is good.
DAS-124. (B) Fluctuating swelling is not true: the infiltration is hard on palpation. The other characteristics listed are true.
DAS-125. (E) The first two points refer to the origin of the sinusitis, the last two to the temporal progress of the inflammation. Both classifications are correct.
DAS-126. (D) Collin and Lübker are tongue forceps; the other two are haemostats.
DAS-127. (C) Point 2. is characteristic of a root forceps. Number 4 is only true of upper forceps.
DAS-128. (D) Werlhof-disease is a thrombopathy, haemophilia is a coagulopathy; the others are vasculopathies.
DAS-129. (C) Epinephrine and norepinephrine are vasoconstrictors, the other two are local anaesthetics.
DAS-130. (E) All the listed treatment modalities are good options separately or combined.
DAS-131. (A) OP images are used, but they are not appropriate to determine position (vestibular or palatinal) of the canine.
DAS-132. (A) No exfoliative form of leukoplakia is known. The first three are its clinical forms. (Other nomenclature is also possible: e.g. simple or homogeneous; erosive or erythroleukoplakia.)
DAS-133. (D) Luxation may be unilateral or bilateral. If it is unilateral then the mentum moves towards the other side. X-ray images should be obtained.
DAS-134. (C) Tenderness of the tooth on percussion and chewing (‘the tooth has become longer’) is a typical symptom of the disease.

DAS-135. (E) All the listed symptoms are characteristic of a fracture. The presence of several of these suggests an almost certain diagnosis.

DAS-136. (A) Dingmann’s operation is performed on the corpus, the others belong to operations of the ramus. Most common is the sagittal osteotomy.

DAS-137. (A) On Parma’s X-ray image the ramus and processes of the mandible can be seen. A fracture of the corpus can be detected on the other X-rays.

DAS-138. (A) Liquid and blood result in opacification. A big periostitis of an upper molar may cover the sinus behind as well, even if the latter one is not involved.

DAS-139. (E) On the special X-ray made of the maxillary sinus all the listed anatomical structures can be seen.

DAS-140. (B) It is characterised by slow growth around the crown of a retained and heterotopic tooth. Quick malignisation is not characteristic.

DAS-141. (C) In edge-to-edge bite upper and lower teeth are in the optimal plain.

DAS-142. (B) Developmental disorders, tumours and maxillofacial trauma are indication for a CT scan. It is not appropriate and too expensive for focus search.

DAS-143. (D) Tachycardia is caused by epinephrine. Exanthema is not characteristic. Overdose can cause trembling, spasms followed by a drop in blood pressure.

DAS-144. (E) This malaise is characterised by palpitation, tremor, pre-collapse and anxiety.

DAS-145. (A) A quickened pulse, rise in blood pressure, sweating, and paleness are side effects of epinephrine.

DAS-146. (E) All those listed can cause unconsciousness, therefore taking a detailed history is very important.

DAS-147. (B) Strong sweating is characteristic of all but hyperglycaemia.

DAS-148. (C) As first aid the most important task – especially in the case of an unconscious patient – is to ensure free airways to prevent aspiration. Appropriate blood volume also has to be ensured. Antibiotic administration and definitive treatment are later tasks.

DAS-149. (B) Laryngeal oedema and the other mechanical obstacles may cause obstruction. Paresis of the recurrent nerve may cause temporary hoarseness but it does not cause airway obstruction.

DAS-150. (D) A spasmodic state associated with unconsciousness does not necessarily require drug administration. But if seizures are repeated and consciousness is not fully regained between two, then medication is necessary.
DAS-151. (A) Inflammation in this space is rarely phlegmonous. It is characterised by high fever, sore throat, difficulty swallowing and a restricted mouth opening. It often develops from the tonsil.

DAS-152. (B) Due to aesthetic and functional considerations the incision has to be performed in the wrinkles; branches of the facial nerve have to be spared and the wound has to be closed atraumatically. The incision has to follow Langer’s lines.

DAS-153. (A) The first three are extraoral, the fourth one is an intraoral method and is only used to anaesthetise branches of V/3.

DAS-154. (E) All these statements are true. It is relatively rarely used because of the possible complications.

DAS-155. (C) The medial superior alveolar nerves are anaesthetised at the apex of the tooth and palatinal the anterior palatinal nerve in the groove in front of the foramen.

DAS-156. (B) The inferior alveolar nerve enters the canal behind the lingula, which is in the geometric centre of the ramus. The lingual nerve runs medially to it, quite close; thus both nerves are anaesthetised with the Szokolóczy-method.

DAS-157. (E) All the tasks described are important in the case of a collapse or pre-collapse, therefore they must be performed.

DAS-158. (B) Main groups of the method are points 1., 2. and 4. Infiltration anaesthesia is a version of terminal anaesthesia.

DAS-159. (B) When performing tuberal anaesthesia the determined direction and depth (15-21 mm) have to be observed to avoid nerve injury and haematoma formation.

DAS-160. (E) The list contains the most important directions to be given after tooth extraction.

DAS-161. (A) The first three are upper root forceps.

DAS-162. (C) Out of the answers listed phlegmon and thrombophlebitis are indications of extraction because of the serious general condition of the patient and the potentially fatal outcome.

DAS-163. (E) As when one is searching for a dental focus the search is after periapical processes, an X-ray has to done of all the teeth that are not completely healthy.

DAS-164. (E). All these incisions are used.

DAS-165. (E) All these tasks are appropriate in an order dependent on the gravity of the process.

DAS-166. (B) Crepitation may suggest joint disease or fracture. The other symptoms are characteristic.

DAS-167. (E) All these tasks are very important to prevent oedema, to ensure perfect wound healing and to avoid injury.

DAS-168. (A) The first three are included in the range of indications. Any form of periodontitis is a contraindication.
DAS-169. (D) The treatment of inflammation occurring 2-3 days after extraction with strong pain and swollen lymph nodes is conservative or surgical.

DAS-170. (A) The first three of the listed symptoms can be detected. A disturbance of tear production is possible in the case of a higher lesion due to the injury of the superficial petrosal nerve.

DAS-171. (C) In contrast to long bones the pathogens are Bacteroides species and not Staphylococcus. It may originate from periapical lesions, pericoronitis, fractures, shot wounds. It is significantly more frequent in the mandible than in the maxilla.

DAS-172. (E) All the listed methods belong to terminal anaesthesia.

DAS-173. (B) The two statements are true separately, but there is no relation between the two. The position of the lingula has to determined, because the mandibular foramen is situated behind it. It is here that the inferior alveolar nerve enters the mandible.

DAS-174. (C) Cysts are characterised by constant growth but the epithelial lining is not of a proliferating nature.

DAS-175. (A) The statements are true and related to each other. An epithelial lining is missing from the conditions of a true cyst.

DAS-176. (C) As a sialolith can often be removed from the duct, removing the submandibular gland is not necessary. The exception is if prolonged swelling and sialoadenitis do not subside after removing the stone.

DAS-177. (E) None of the statements is true. The inflammation of the tonsils or the sinuses feature more often as foci. The eradication of a dental focus is possible by extraction and other methods (e.g. root canal filling and apicectomy.

DAS-178. (C) A true terminal anaesthesia is performed, which means that the nerve is anaesthetised at the end organ, immediately at the apex of the tooth.

DAS-179. (C) Their toxicity is about the same, but other factors also have to be considered when determining the maximal dose (e.g. the diffusional property of Ultracain is exceptionally good. In the case of two materials with the same toxicity the one with a quicker absorption has a higher dose.).

DAS-180. (E) Upon terminal anaesthesia the end organ is anaesthetised. In the case of inflamed tissues block anaesthesia is recommended if possible (it is less painful, absorption is better in healthy tissues).

DAS-181. (B) Both sentences are true, but in the second sentence submucous infiltration is not involved, thus there is not relation between the two.

DAS-182. (A) This method is used rarely, but it is very effective. The palatinal flap includes the anterior palatinal artery, therefore its blood supply is good.
DAS-183. (D) Ameloblastoma is a well differentiated tumour, but exactly because of this it is not sensitive to radiation; sensitivity to radiation is characteristic of undifferentiated tumours.

DAS-184. (D) NoSpa is a spasmolytic of plain muscle, therefore it will not help in spasms of the masticatory muscles.

DAS-185. (E) None of the statements is true; lingual bone is thinner, therefore luxation is started in this direction.

DAS-186. (C) Pathological tissues are removed from the sinus through the bony window. This however is closed. Drainage is removed through the nose.

DAS-187. (A) Both the statement and the explanation are true and they are related.

DAS-188. (E) The place of incision depends on whether the abscess is below or above the mylohyoid muscle. In the first case an extraoral, in the latter one an intraoral incision is needed.

DAS-189. (A) Due to the anatomical properties of Wharton’s duct, the chances of saliva congestion – and thus sialolith formation are higher.

DAS-190. (C) One of the leading symptoms of osteomyelitis is that the teeth neighbouring the tooth involved also become mobile, but the removal of these is usually not necessary.

DAS-191. (D) The cyst is found in the lateral region of the neck. The explanation is true.

DAS-192. (D) The disease is not caused by fungi but bacteria, therefore in its therapy high dose penicillin is very important.

DAS-193. (E) Fever and a left shift in blood cell counts are not characteristic of alveolar osteitis. Its treatment is always local. The administration of *per os* analgesics may be necessary.

DAS-194. (B) Both the statement and the explanation are true in themselves, but there is no relation between the two.

DAS-195. (C) If the inferior alveolar nerve is punched by the needle the patient may feel this characteristic pain. Pushing the needle to deep a branch of the facial nerve may be reached, but its trunk certainly not.

DAS-196. (D) In this case it is not the inflammation of the bone marrow, but of the alveolar process and in part the circumspect inflammation of the bone. Its main cause is the quick disintegration of the thrombus.

DAS-197. (E) The inflammation is in connective tissues. Hyaluronidase – which dissolves connective tissue cells – is produced by beta-haemolytic Streptococci.

DAS-198. (A) The statements are true. There is a close relationship between the time passed and the success of closure.

DAS-199. (A) A palatinal abscess of upper lateral incisors is quite common because the root of upper lateral incisors is often bent palatinally.
DAS-200. (A) Both statements are true and there is a relationship. Upon lingual anaesthesia it is very important to introduce the syringe from the direction of opposite premolars, as thus going too deep can be avoided.

DAS-201. (A) Cleaning the extraction wound also serves to stimulate bleeding, which is important in the formation of a coagulum ensuring healing, therefore this has to be performed in all cases.

DAS-202. (E) In contrast to upper molar forceps the third molar is usually removed with a single and not two (left sided – right sided) forceps. None of the beaks of this forceps is split, as the ‘bifurcation’ between the roots is not express. The beak bent backwards prevents injuries to the lip.

DAS-203. (E) Forced extraction is an error as it can cause significant tissue damage, longer wound healing and pain. Wound healing can often be better following surgical removal (preventive flap surgery).

DAS-204. (E) When replanting an avulsed tooth it is only rarely possible, in an ideal case that most of the fibres remain intact and a physiological contact is re-established. Fibres are very sensitive and are usually destroyed by the time replantation happens. In these cases the cement of the root is connected directly to bone.

DAS-205. (E) Difficult dentition, which is also called pericoronitis is a result of the partial eruption of the tooth (mostly lower third molar). The dental follicle opens up during eruption and a pocket develops around the crown of the tooth and there an inflammation occurs easily. The problem can be solved by the removal of the tooth or circumcision.

DAS-206. (C) A bend in the distopalatinal direction is characteristic of the upper lateral incisor, thus it is here that a palatinal abscess most often develops.

DAS-207. (D) Removal of the cyst walled is cystectomy. If a portion of the cyst wall is left behind will increase the tendency of recurrence.

DAS-208. (B) Both statements are true, but solubility in water ensures diffusion among tissues and not penetration through the myelin sheath.

DAS-209. (E) Osteomyelitis is significantly more frequent in the mandible, which is probably due to the fact that the lower jaw is supplied by a single artery.

DAS-210. (A) Both statements are true and there is a relation between them. One symptom so inflammation is pain, which is quite strong in the case of inflamed bones.
DAS-211. (D) An incision always has to be performed above healthy bone in order to achieve good wound healing. The explanation in itself is true,

DAS-212. (A) Both statements are true and there is a relation between them.

DAS-213. (C) The use of elevators is not suggested mainly to avoid injury to the maxillary sinus.

DAS-214. (D) A Wassmund flap is done in the vestibule – i.e. buccal. It gives good access to the operational area.

DAS-215. (E) Pichler’s flap is used quite rarely, exactly because the incision may only be lengthened towards the marginal gingiva.

DAS-216. (D) The treatment of pericoronitis is mainly local, but in the case of complications – or to prevent them – systemic treatment may be necessary.

DAS-217. (A) Both statements are true and there is a relation between them.

DAS-218. (D) Medical treatment is the first choice, but if remains ineffective surgical treatment is necessary, but it causes anaesthesia in the area innervated by the given nerve.

DAS-219. (B) Both statements are true, but the bony window prepared during a Luc-Caldwell operation ensures the drainage of the exudate that is produced in the sinus.

DAS-220. (E) None of the statements is true; if the sialolith is in the gland it cannot be reached intraorally.

DAS-221. (C) Usually 3-4 months’ waiting is necessary following implant placement to achieve osseointegration – and fibrotic healing.

DAS-222. (C) The statement is true. The explanation, i.e. the innervation of half the face, however, is not true. The innervated area: lower eye lid, nasal ala and the upper lip on the involved side.

DAS-223. (D) The lingual nerve and the inferior alveolar nerve are separate branches of the mandibular nerve. The lingual nerve is a sensory one, which innerves the anterior two thirds of the tongue, the floor of the mouth and the lingual mucosa of the teeth.

DAS-224. (A) Both statements are true; that is why the quantity of the anaesthetic has to be increased in the case of inflamed tissues.

DAS-225. (A) Both statements are true and they are related. The growth of the cyst is caused by the fluid produced in it.

DAS-226. (D) The cyst develops after the formation of the crown of unerupted teeth out of the enamel epithelium, therefore it is always found around the crown of the tooth.

DAS-227. (B) Both statements are true, but they are not related. The destruction of osteocytes is directly due to the radiation and not to the occlusion of arteries.

DAS-228. (D) Pleomorphic adenoma is an epithelial tumour belonging to the group of adenomas. Histologically it contains epithelial, mucoid, myxomatous and cartilage-like elements.
DAS-229. (A)  
DAS-230. (A)  
DAS-231. (B)  
DAS-232. (B) Impaction is a position of the tooth when eruption started, but the tooth hit some obstacle and therefore it cannot erupt. Retention is a case when the tooth does not start to erupt. Impaction is usually treated surgically; retention can be treated by surgical, orthodontic or combined methods.

DAS-233. (C)  
DAS-234. (A)  
DAS-235. (D),  
DAS-236. (B) The WHO described the main characteristics of cysts in 1971 based on statistical data, histological studies and X-rays. The most common odontogenic cyst is the radicular cyst.

DAS-237. (A)  
DAS-238. (D)  
DAS-239. (B),  
DAS-240. (D) Both loops of the seaman’s knot are single, the first loop of a surgical knot is double (so that it is not loosened), the second one is simple.

DAS-241. (C)  
DAS-242. (B)  
DAS-243. (D)  
DAS-244. (A) Fistula formation is not characteristic of either one, both are accompanied by the infiltration of lymph nodes. A gauze strip dipped in Chlumsky’s solution is beneficial in alveolar osteitis; in the case of a periostitis a dry gauze strip is placed into the incision wound. High fever is characteristic of an abscess.

DAS-245. (B)  
DAS-246. (A)  
DAS-247. (A)  
DAS-248. (D) The anterior group of branches of the mandibular nerve contains motor nerves and a single sensory nerve, the long buccal nerve. The posterior group of branches contains sensory nerves and a single motor nerve, the mylohyoid nerve. The motor nerve of mimic muscles is the facial nerve.

DAS-249. (A)  
DAS-250. (B)  
DAS-251. (D)
DAS-252. (C) High fever and general feebleness are characteristic of acute osteomyelitis, while the chronic version is associated by subfebrility. Both are more common in the mandible. Whether an extraction is performed or excochleation of the bone antibiotics have to be administered, targeted, if possible.

DAS-253. (A)
DAS-254. (A)
DAS-255. (D)

DAS-256. (D) The maxillary nerve is a structure of the pterygopalatine fossa. The inferior alveolar nerve and the lingual nerve and partly the auriculotemporal nerve are found in the pterygomandibular space.

DAS-257. (D)
DAS-258. (B)

DAS-259. (C)

DAS-260. (A) Sinusitis usually does not cause a swelling on the face. Rhinogenic sinusitis is often treated conservatively (medically), whereas odontogenic sinusitis requires surgical treatment. Chronic sinusitis – irrespective of its origin – features as a focus.

DAS-261. (C)
DAS-262. (D)
DAS-263. (D)

DAS-264. (D) Both anaesthetics are without epinephrine, therefore their maximal daily dose is 10 ml. The mostly widely spread anaesthetic in dentistry is Inj. Lidocain – Adrenalin. Their toxicity is about twice of the toxicity of procaine.

DAS-265. (B)
DAS-266. (C)
DAS-267. (B)

DAS-268. (C) Out of the products listed Lidocaine is a 2% solution, while Ultracaine is a 4% one. Both have good diffusional properties and they both contain a vasoconstrictor in 0.001%. The maximal daily dose of Ultracain DS Forte is 12.5 ml; that of Lidocain-Adrenalin is 20 ml.

DAS-269. (C)
DAS-270. (C)
DAS-271. (D)

DAS-272. (A) Both are typical neuralgias; their cause is unknown. The nature of the pain is similar but localisation is different. Neuralgia of the glossopharyngeal nerve has a trigger zone in the
posterior part of the tongue and the tonsils. By treating the Gasserian ganglion only trigeminal
neuralgia can be treated.

DAS-273. (C)
DAS-274. (C)
DAS-275. (D)
DAS-276. (B) Both tumours are epithelial and occur most often in the inferior pole of the parotid
gland. Both have a capsule. Mixed tumours account for 60-80% of salivary gland tumours, whereas
Warthin-tumour for about 2%.
DAS-277. (D)
DAS-278. (A)
DAS-279. (B)
DAS-280. (A) Anatomical areas very important both for dentists and oral surgeons. The upper border
of the pterygomandibular space is the lateral pterygoid muscle. Its posterior border is in part the
parotid gland. Its important structure is the lingual nerve. The pterygopalatine fossa is in connection
with its environment through its connecting holes, thus also with the infratemporal fossa.
DAS-281. (B)
DAS-282. (B)
DAS-283. (C)
DAS-284. (D) Another name of phlegmon is acute cellulitis which is characterised by a hard swelling
of a large extent. Both an abscess and a phlegmon has to be incised, a phlegmon usually in multiple
locations. Bacteria play a major role in the development of both conditions.
DAS-285. (A)
DAS-286. (D)
DAS-287. (C)
DAS-288. (B) Both are odontogenic cysts with an epithelial lining, but the radicular cyst is of an
inflammatory origin. None is a result of cell proliferation. The tooth surrounded by a follicular cyst
has to be removed.
DAS-289. (B)
DAS-290. (A)
DAS-291. (D)
DAS-292. (D) Partsch’s flap is concave towards the marginal gum and Pichler’s is convex.
Wassmund flaps and L-shape flaps are also used, as well as the Reinmöller flap.
DAS-293. (B)
DAS-294. (A)
DAS-295. (A)
DAS-296. (D) Lidocaine contains an amide bond and procaine an ester bond. Procaine’s toxicity is quite low (e.g. it is half of that of lidocaine), whereas Ultracaine has the best diffusional property.
DAS-297. (B)
DAS-298. (B)
DAS-299. (A)
DAS-300. (D) Marcaine has a long term of effect but it is very toxic. The diffusional property of Ultracaine is very good. Ultracaine contains 4%-os drug together with epinephrine. Marcaine is only used with vasoconstrictors.
DAS-301. (C)
DAS-302. (A)
DAS-303. (D)
DAS-304. (B) Bleeding time is usually normal in both cases. In the case of a coagulopathy clotting time increases significantly. Platelet counts are normal.
DAS-305. (A)
DAS-306. (A)
DAS-307. (D)
DAS-308. (D) Palatinal nerves and the posterior superior alveolar nerves start from the pterygopalatine part of the maxillary nerve. The branches going to the lower eye lid and the upper lip are not parts of the orbital but the facial parts.
DAS-309. (C)
DAS-310. (A)
DAS-311. (C)
DAS-312. (D) Both are specific inflammations. Their pathogens are bacteria and not fungi therefore antifungal agents are not effective. Multiple abscess formation is characteristic of actinomycosis.
DAS-313. (B)
DAS-314. (B)
DAS-315. (A)
DAS-316. (C) They have a spoon-like semi-spherical working end which is connected to the massive handle by a straight connecting part in the case of a Volkmann spoon and by a bent connecting part in the case of a Kerpel spoon. The previous one is mainly used in the maxilla, the latter one in the mandible. The Kerpel spoon is a paired instrument.
DAS-317. (B)
DAS-318. (C)
DAS-319. (C)
DAS-320. (C) The first term refers to the replantation of the tooth, whereas the second one to the transplantation of the tooth. Their main complication is ankylosis. Splinting is mandatory in both procedures.
DAS-321. (A)
DAS-322. (B)
DAS-323. (B)
DAS-324. (C) Both instruments are used in the mandible only. Barry is a paired instrument, whereas Lecluse is not. The latter one is a tooth elevator, the previous one a root elevator.

Oral diagnostics, oral radiology, oral pathology
Explanations

DGN-1. (C)
Work diagnosis means the collection of diagnostic data and this solves as a basis of therapy. Definitive diagnosis is used in the final clinical report, while so called guide diagnosis is used during collection of the data.

DGN-2. (E)
Except of the most necessary tools (like dental mirror) the dentists rely on their own primary sensory organs during the physical examination. All the other mentioned answers are included into the complementary methods.

DGN-3. (D)
Dental diseases include diseases of the teeth and their supporting tissues as well as the disorders of eruption. Trismus is the reduction of mouth opening due to either spasm of muscles of mastication or TMJ disease.

DGN-4. (D)
Emergency diagnosis includes main complaints which need emergency treatment, like mordant pain, bleeding, acute inflammation. The sialadenosis is the chronic, degenerative change of salivary glands which in most of cases does not be treated.

DGN-5. (B)
Medical history includes the patients habit in checking their teeth, the oral hygienic activity, the previous dental treatment especially those that performed by specialists (orthodontist, oral surgeon or peridontologist). All the other answers are marked in other issues of the case history.

DGN-6. (C)
The aim of the family case history is to explore hereditaer, genetically determined diseases, which may influence the progress of the disease. All the other answers belong to other categories, like social case history, general medical history or dental case history.

DGN-7. (C)
Marital status usually does not exert influence on the treatment plan. The dentist task is to estimate the oral health condition and all the possible complication which affect on the treatment plan. The financial background of the patient may modify the treatment plan.
DGN-8. (D)
Reduced treatment plan means when a special complaint is needed to be solve, which is not necessarily a one visit treatment. Emergency treatment plan intend to solve acute complaints unlike the comprehensive treatment plan which intend to solve all the complaints of the patient. In case of the stabilization of the dental status, active lesions are treated only, and the prosthetic restoration is delayed.

DGN-9. (B)
This method consecutively numbers teeth starting with upper right wisdom to the lower right wisdom tooth. Therefore the number of the lateral upper left incisor is 10.

DGN-10. (B)
In this system the first number means the quadrant, like the lower right quadrant is 4. Teeth are consecutively numbered from the sagittal plain to distal (1 to 8), therefore the code of lower right second molar is 47.

DGN-11. (D)
The dental physical examination includes the examination of extra and intra-oral parts of the head and neck and the vital signs also. The determination of the visus is the ophtalmologist’s responsibility.

DGN-12. (C)
Except for tasting the dentist uses all of its sensory organs during the physical examination.

DGN-13. (D)
The mobility of the teeth is examined with application of two rigid instruments exerting oro-vestibular forces between them. Resiliency of the finger may modify the quantity of movement beyond that the fingertip may overlie the tested tooth decreasing the accuracy of this examination.

DGN-14. (D)
At the beginning of biting on and opening the plastic wedge pain appears which refer to vertical fracture of teeth. All the other mentioned answers are not informative to vertical fracture.
DGN-15. (C)
Intravenous 99Tc isotope is used in the examination of salivary glands which tissues accumulate this isotope. Determination of counts by the time or by excitation provides functional data.

DGN-16. (B)
Panoramic radiography had a subsidiary role to periapicals for the assessment of marginal bone level. Although the newer panoramic sets use orthogonal projection geometry, minimizing interproximal overlap. This technique is comparable with intraoral examination furthermore it reduces the ionization in case of full mouth survey.

DGN-17. (D)
Sialography means the retrograde filling of duct system of main salivary glands by radioopaque material. Therefore this technique is informative on changes of the ducts (dislocation, obstruction, inflammation). A contraindication of this examination is the acute purulent inflammation of the gland, because of the risk of retrograde infection.

DGN-18. (C)
The small salivary gland biopsy is indicated usually in those cases when main salivary glands are also affected. Small salivary gland biopsy is a much more easy method to gain specimen for histological examination. Between the given answers the Sjögren-syndrome is the only one which has similar characteristics of small salivary glands compared to those of the main salivary glands. The others have no characteristic salivary gland involvement.

DGN-19. (D)
All the anatomic landmarks mentioned belong to the mandible. Sometimes one of them, the coronoid process can be seen on periapical radiographs taken from upper molars.

DGN-20. (A)
The right positioning of central beam is +50°.

DGN-21. (C)
Since the central beam is in downward position on the radiograph the border of maxillary sinus is not contributed by the base but the latero-basal wall of the antrum.

DGN -22. (D)
It is important to eliminate the scattered x-ray photons as much as possible. Plastic collimators can not absorb x-rays, the closed plastic device acted as a source of scattered radiation and is now illegal. Lead collimators very well absorb radiation. Circular lead collimators limit the field of radiation to a 6cm diameter circle. Rectangular metal collimator which may incorporate with film holder give a very clearly defined area of irradiation.

DGN -23. (E)
The external oblique ridge is a landmark on the lower molar region. All the other parts mentioned belongs to the healthy periapical complex. Some of them may disappear partially or totally due to inflammation.

DGN -24. (B)
Conventional radiography is sensitive to a minimum 30% decrease of mineral content of hard tissues, therefore the only zone of the enamel carious lesion visible is the body of the lesion.

DGN -25. (C)
The D2 lesion is confined to the enamel. It is defined as a lesion which penetrates half way through the enamel but not involving the DEJ. This new type of classification reflects to the newly introduced therapies by the preventive dentistry.

DGN -26. (B)
This is the radiological definition of the sinus tract.

DGN -27. (A)
Nasal transparecy is a darkness of maxilla around upper incisors. It is a bony structure, which does not resemble to cysts. Maxillary sinus and incisive foramen or sometimes the align of trabecular structure of the posterior region of the mandible may mimic cysts. Stafne’s cyst is not a real cyst but the submandibular gland depression of the lingual cortical of the mandible. It may appear as a cyst especially if it is entirely corticated.
DGN -28. (B)
Right answers of this question are important in recognizing periodontal disease on radiographs. Signs like disappearance of lamina dura or the level of lingual cortical bone may also help in determining the depth of the infrabony defect. The external oblique line is an independent anatomical landmark which has no influence on any sing of periodontal diseases.

DGN -29. (B)
The dental plaque is transparent to x-rays, therefore it is not visible on radiographs. Orthoradial views clearly show the interdental space and the loose contact as a predisposing factor for periodontal diseases can be detected.

DGN -30. (A)
Cephalometry is not a useful tool for full mouth surwavy, because of the superimposition of the left and right side of teeth. The 4 film bitewing radiography does not provide informations from anterior teeth. Both the enlarged panoramic radiography and the 11 film periapical full mouth surwavy have a higher radiation than the dental panoramic tomography. Further advantage of this latter modality is that it also shows maxillary sinus and TMJ on one radiograph. For a comparison 4 periapical films are equal to a dental panoramic tomography in the effective dose of radiation.

DGN -31. (E)
A-D answers are the transparent layers of dentin caries therefore these appear as a dark area. Between the dark carious lesion and the pulp tissue in the normal dentine sometimes a well defined whiter line parallel to the pulp-dentine border can be seen which corresponds to the transparent zone of the lesion. Do not mix with the base material which covers the dentine!

DGN -32. (D)
Four wall infrabony defect is easily detectable on radiographs because the affected root is surrounded by soft tissue. All the other answers are the limitation of radiographic diagnosis of periodontal diseases.

DGN -33. (C)
Higher kilovolt produces harder x-rays which reduces the absorption of x-rays in skin. The other answers mention the disadvantages of the parallel technique.
**DGN -34. (A)**
Film gamma is a characteristic mark of the characteristic curve but not a part of that. It represents the slope of the straight part of this curve. All the other answers are part of the curve.

**DGN -35. (D)**
Answers A-C are characteristic to deterministic effect of radiation. Non-deterministic or stochastic changes may be expressed not only body being damaged but its descendents.

**DGN -36. (E)**
There is no dose limit for patients. The dental practitioner has the responsibility to be properly trained to direct medical exposure and to be aware of all radiographyc examinations undertaken. ALARA is a mosaic word meaning as low as reasonably achievable.

**DGN-37.(E)**
Sjögren’s syndrome is an autoimmune disease.

**DGN-38.(E)**
Granuloma internum is a chronic, hyperplastic pulpitis which causes perforation of the dentin and appears on the surface of the crown or root.

**DGN-39.(A)**
Chronic lymph node enlargement is the symptom of the chronic lymphoid leukaemia. The others cause pulpitis, peridontitis and acut lymph node enlargement.

**DGN-40.(A)**
Haemangiom is a benign, vessel tumor. Intraorally the lip, tongue and bucca are the typical location, their growth is slow.

**DGN-41.(D)**
Causes of pulp necrosis are mainly pulpitis,(due to eg. silicate-composite fillings). Symptoms are sensitivity to heat and knock, gray discoloration, and the further complications are versatile.

**DGN-42.(D)**
Mesiodens is a single or paired rudimentary supernumerary tooth with conic crown and short root.

**DGN-43.(B)**

Enamel hypoplaspy may be caused by vitamin deficiency, syphilis, fluor intoxication and infection of the tooth germs. Diagnostic X-ray is not harmful for the germs.

**DGN-44.(E)**

Focal infection is a chronic demarcated inflammation such as purulent pockets in periodontitis.

**DGN-45.(B)**

Odontogenic myxoma occurs only in the jaws as its origin is the connective tissue of the dental papilla.

**DGN-46.(B)**

Dilaceration a formation anomaly, hyperodontia and anodontia are numerical alterations, microdontia a size anomaly, while amelogenesis imperfecta is a hard tissue disturbance.

**DGN-47.(C)**

Most dangerous complication of phleghmone of dental origin.

**DGN-48.(D)**

Trismus is reversible with exception of the arthrogenic trismus caused by articular destruction.

**DGN-49.(E)**

Tertiary dentin defends the pulp tissue from infection.

**DGN-50.(D)**

Regional odontodysplasia is a hard tissue anomaly affecting the enamel, dentin and cement. X-ray picture of the hypocalcified enamel and dentin causes pale contours, named of shadow teeth.

**DGN-51.(B)**
The follicular cyst occurs in the region of third molars and upper canines, as these are the typical locations of retention. Ameloblastoma epidermoid carcinoma and mucoepidermoid carcinoma may develop from these cysts.

DGN-52. (E)
Chronic periodontitis is a chronic inflammation.

DGN-53. (B)
The mentioned imaging methods as well as the cytology are parts of the complementary examinations. Blood pressure measurement, like determining other vital signs are parts of the dental physical examination.

DGN-54. (D)
Soft tissue changes like ranula and pyogenic granuloma do not belong to dental diseases.

DGN-55. (E)
The comprehensive dental diagnosis includes all the complaints of the patient localized to the head and neck region based on the case history, physical examination as well as complementary examination methods.

DGN-56. (E)
See answers DGN--55 and DGN--57!

DGN-57. (A)
In case of dental survey the diagnosis refers to a given diagnosis at the tested patient. In this case the general health condition or the other oral diseases are not interested.

DGN-58. (E)
All the mentioned data is important in the medical history. Some of them main heading like personal data and main complaints, while others belong to the dental case history or the medical history.

DGN-59. (D)
Characteristic signs of the dentin sensitivity include evoked by external stimuli and it ceases right after the break of stimuli.

DGN-60. (C)
Characteristic signs of Eagle-syndrome include calcification of stylohyoid ligament on panoramic projection and pain appears at swallowing.

DGN-61. (E)
Aspects of pain analysis include its characteristic, duration, localization, possible radiation and the presence of trigger mechanisms.

DGN-62. (A)
The first three answers belong to the dental diagnosis database, while the last one is out of dental treatment.

DGN-63. (C)
The TMJ disfunction such as lip carcinoma does not belong to the dental diseases, but these diseases like other jaw and soft tissue diseases belong to nondental disorders.

DGN-64. (C)
During extraoral examination we touch the parotid glands and TMJ, however, they do not belong to the neck region.

DGN-65. (D)
In case of incisive biopsy a part of the pathological tissue containing healthy tissues at the boundary is removed for histological examination. Pathologists need both healthy and diseased tissue for a comparison.

DGN-66. (D)
Advantages of digital radiography include the reduction of radiation, the real time visualization, the contrast light functions are changeable and archiving in the same quality.
In case of fracture conventional radiographic projections or CT are useful. MRI is useful in diagnosing TMJ disorders or salivary gland diseases.

DGN-68. (C)
The CT is very useful in differential diagnosis of salivary gland diseases as well as of TMJ disorders, but it is unusuable in diagnosing of salivary gland function or determination of the degree of trismus.

DGN-69. (D)
Signs of salivary gland inflammations are usually include hyposalivation and swelling. The fistule may be a result of complication of surgery or injury.

DGN -70. (C)
In case of cysts and tumours the swelling is painless. Obstruction and acute purulent inflammations (co-existent appearance) cause painful swelling.

DGN -71. (A)
The islands of odontogenic epithelium within the gingival connective tissue give rise to periodontal cysts along the periodontal ligament including the apical area. Its characteristic is that periodontal cysts are associated with vital tooth.

DGN -72. (D)
On periapical radiographs taken from lower incisors neither the mandibular canal nor the mental foramen are visible. These anatomic landmarks can be seen on radiographs of posterior teeth.

DGN -73. (A)
Parma technique is meant to imagine one side of TMJ, it is not a useful method for localization. The Nitsche-Valyi technique shows the localization of retained upper canine in comparison with the dental arch. Parallax is primarily used for ascertaining the position of retained roots, unerupted teeth and foreign bodies. In practice two exposures are made of the same object from two different views. The objects that shift with focus is situated lingually while objects sift opposite are buccally. Stereo-radiography enables a three-dimensional picture to be visualized. The technique is designed to have two radiographs corresponding to the individual eyes of the observer.

DGN -74. (A)
Sclerosing osteitis is a focal radioopacity around the root apex on radiographs. All the other cases mentioned are transparent.

**DGN -75. (C)**

D1 and D2 lesions are confined to enamel. The two others penetrate the dentin in different depth.

**DGN -76. (C)**

The dimension of both the equivalent dose and effective dose is sievert. Absorbed dose is measured in gray (Gy). And radioactivity is determined in curie (Ci).

**DGN -77. (A)**

Fail in diagnosis cause a lot of difficulties in the clinical practice. Therefore is important to have knowledge about transparencies causing misinterpretation of a carious lesion. Cervical burnout is a triangular or wedge-shape radiolucent band at the interproximal cervical neck of the posterior teeth. The constricted cervical neck of the tooth, between the crown and the portion of the root covered with alveolar bone, absorbs less x-ray energy than the areas above and below it. This is because of the presence of enamel above and the alveolar bone covering the root of this tooth below the cervical neck. It results in a dark radiolucent collar at the neck of the teeth. When a uniformly dark shade meets a uniformly light shade (as when dentin meets enamel in a radiograph) the dark shade (dentin) appears even darker. This is edge enhancement phenomenon created in the eye and does not result from an actual density change in the film emulsion; it is called Mach band effect.

**DGN -78. (E)**

In osteolytic stage of cementoma resembles to a chronic apical periodontitis. In its cementoblastic stage it seems lighter than the surrounding bone. To differenciate from hypercementosis the lamina dura and periodontium are needed to be observed. Hypercementosis is in close vicinity of the root covered with periodontium. Cementoma is connected to the periodontium and entirely surrounded with sharp dark rounded border. Enostosis as well as small osteoma may project to the root causing difficulties in diagnosis. None of them covered with periodontium.

**DGN -79. (C)**

Fracture lines always appear as a dark line on radiographs. More frequently two horizontal lines can be seen in case of root fracture because of the angulation of the central beam. If the central beam goes
parallel to the fracture line (in rare cases) only one dark line is visible. Vertical root fractures refer to overloading of the root.

DGN -80. (A)
The presence of hemiseptum is a well detectable radiological sign of advanced periodontal disease. All the other answers mentioned are fine early sign of the disease which are hardly detectable by conventional radiographic methods.

DGN -81. (A)
TMJ is obscured on cephalometry images. Short cone (Parma) technique is useful for imaging one side TMJ on a picture. Because it causes high irradiation to skin other techniques are preferred. Reverse Towne’s projection showes both side of TMJ on one picture from the distal view. Dental panoramic tomography is the first choosen diagnostic imaging tool for TMJ which makes possible comparisons between the two sides and also serves for differenticate diagnosis.

DGN -82. (D)
A similar question has been discussed in the question DGN-30. Note, there is not possible to take a 9 film full mouth surway.

DGN -83. (C)
Interproximal surfaces of teeth is examined with orthoradial view, like coronal and bitewing examinations. Excentric direction views are used to visualize root canals obscured on orthoradial projections. For example periapical radiographs of upper premolars and lower molars.

DGN -84. (A)
Cementoblastic stage of cementoma appears a radioopacity on radiographs. All the other mentioned answers appear as a circumscribed periapical transparency. In addition these pathologies can not be differenciated radiologically.

DGN -85. (E)
Osteolytic stage of cementoma appears as a periapical transparency. Its cementoblastic stage may disinterpret with apical condensing osteitis or enostosis. Already has been discussed before in question DGN-78 in detail.
Epulides rise from either mucosa or periosteum belonging to non-odontogenic tumors. All the other pathologies mentioned rise from different tissues. Therefore these cases are grouped to odontogenic tumors.

Tooth fracture due to trauma or restoration appear only on erupted teeth. Infraction means fractures that involve only the enamel without the loss of enamel substance. Dilaceration is a disturbance in tooth formation that produces a sharp bend in the tooth probably the result of mechanical trauma to the calcified portion of a partially formed tooth.

The nasolacrimal canals are commonly seen on maxillary occlusal but not periapical projections. Neurovascular or posterior superior alveolar canal runs on the lateral wall of the maxillary sinus appearing as a radiolucent line. Septum in the maxillary sinus formed by a low ridge of bone on the sinus wall is seen as one or several vertical radioopaque lines. Blockage of the secretory ducts of small glands int he sinus membrane may result in swelling of the mucous membrane. These mucous retention cysts usually appear as smooth and dome-shaped radiopaque masses.

Finger sucking, decidual tooth persistence, early tooth extraction, inheritance all may cause positional tooth anomalies.

Root resorption may be caused by periapical inflammation reimplantation, cysts, tumors and overload.

Disturbance of speech, swallowing, and otitis media are the complications of palatoschisis. Aphasia is another disease with neural origin.
Syphilis causes tooth form anomalies and enamel defects by intrauterine infection.

DGN-93.(E)
The epidermoid cyst is a painless lesion. It has intraoral and extraoral forms especially in the sublingual and submental regions.

DGN-94.(B)
Aphthous stomatitis has erosions and ulcers but no blisters.

DGN-95.(A)
Sjögren’s syndrome is characterized by bilateral parotid enlargement but no macrocheilia.

DGN-96.(D)
The periodontal pocket is progressively deepened, and produces purulent exudates, the gingiva is not atrophic, and the epithel attachment is shifted to apical direction. There is no spontaneous regression.

DGN-97.(C)
The leukoedema and the glossitis migrans are benign lesions, they have no malignant transformation.

DGN-98.(D)
Cherubismus and ameloblastoma occur only in the jaws.

DGN-99.(B)
Adenoid cystic carcinoma (cylindroma) is the most malignant type of these salivary gland tumors.

DGN-100.(C)
Atrophic glossitis is the symptom of vitamin deficiencies, ulcerative stomatitis occurs in dermatological and infective diseases, and no sign of endocrine disturbances.

DGN-101.(E)
All response are right. Morsication is the consequence of bad oral habit, mucocele develops after traumatic bite, fissurated granulome and decubitus are caused by ill fitting denture.
DGN-102.(B)
Development of tumor-like leukemic infiltrations requires a longer period, so this is characteristic of chronic leukaemias.

DGN-103.(C)
Symptoms of Plummer-Vinson’s syndrome are dysphagia and atrophic glossitis. The ulcerative gingivitis is not characteristic for iron deficiency anaemia, and this type of anaemia is microcytaer.

DGN-104.(C)
The Eunoctin and Diazepam are sedative and tranquilant drugs, and they do not cause gingival hyperplasia.

DGN-105. (C)
Differencial diagnosis means differentiating of similar diseases, but it is also used in dental diagnosis, mainly in case of nondental disorders (jaws, soft tissue of the oral cavity).

DGN-106. (C)
It is true that subjective complaint is the cognition of the patient. But the appearance the subjective complaint and objective signs can be different: may be anticipated, may be simultaneous or latter, so their appearance is independent from each other.

DGN-107. (C)
The diagnosis of some systemic diseases is beyond the dentists’ task, however, collecting data on general health is needed and sometimes the treatment plan therefore must be modified (e.g. investigation by a specialist).

DGN-108. (E)
The ages of the patient may modify the treatment plan in certain cases. The comprehensive treatment plan is mainly affected by medical rules, of course it may be influenced by financial factors. Some other factors should also be considered.

DGN-109. (E)
In performing the treatment plan both the patients’ and the dentists’ aspects should be considered. The dentist considers more factors than the possibility of complication.
DGN-110. (C)
During the medical history all the complaints of the patient is important, but these data only a part of
information collected for a diagnosis. Therefore the results of adjunctive examinations should be
considered (radiography, lab, histology, microbiology).

DGN-111. (A)
An important factor such as radiation protection of the patient should always be considered. Since the
panoramic projection deliver much less ionization than a full mouth survey taken on periapical film
and it provides further information on the other parts of jaws, this imaging modality must be preferred.

DGN-112. (C)
The statement is true, but not the solely method for collecting samples for histology. Depending on
the extension of mucosal lesion, the incisional biopsy is frequently suggested.

DGN-113. (C)
Small salivary gland biopsy is the most frequently used method for sample collection, but sometimes
the biopsy of main salivary glands may be important. In case of mumps (or other inflammatory
diseases) the biopsy is not indicated.

DGN-114. (B)
In case of dental fluorosis (when the fluoride concentration exceeds 1 ppm in the drinking water)
hydroxilapatite crystals of the enamel transforms into fluorapatite crystals protecting the tooth against
caries. These discolorations cause esthetic problems.

DGN-115. (B)
Certain signs of sinusitis can be seen on periapical radiographs. This projection is useful in
determining the relation and localisation of the root apex to the anthrum. Specialized skull views are
the next step in the investigation. These extraoral projections show internal radiopacity and allow
comparative examinations with contralateral pair and with other paranasal sinuses.

DGN-116. (D)
In case of aplasia or tooth retention the coronal projection is not a useful method. The justification per se is true.

**DGN -117. (C)**
Radiographical examination taken before tooth removal may call attention for complications. For example extension of maxillary sinus into the tuber may highly increase the occurrence of tuber fracture.

**DGN -118. (A)**
Digital subtraction radiography (DSR) is sensitive to detect even 5-10% mineral changes, while the conventional radiography shows 30-50% mineral changes.

**DGN -119. (C)**
One of the most important application of TACT is the implantology, where the entire bone all around the implant can be observed. It can replace CT imaging modality mainly because of its much lower radiation.

**DGN -120. (C)**
Several sialoliths are not well calcified and therefore are radiolucent and not visible in plain films. Sialography is indicated if clinically suspected sialoliths are not demonstrated by plain film radiography.

**DGN -121. (E)**
Dental panoramic tomography shows even the TMJ. In this method the x-ray source is extraorally.

**DGN -122. (D)**
Proximal recurrent caries lesion is not always detectable on properly chosen direction of the central beam, because of the superimposition of amalgam filling or other kind of restorations. The only case if the central beam goes parallel to gingival wall of the proximal cavity recurrent caries become visible.

**DGN -123. (A)**
This advice should be followed by the practice.
DGN -124. (E)
Absorption of x-rays is proportional to the fourth power of the atomic number and elements with greater atomic number absorb x-rays much more than those having lower atomic number. One practical applicability of this phenomenon is the use of the aluminium filter. This is used to remove (absorb) soft x-rays from the original beam decreasing the irradiation of skin.

DGN-125. (C)
High concentration of fluoride causes fluorosis. Drinking water dosages of the fluoride at 2 mg/L, dental fluorosis appear around 50% of children. Caries protective dosage of the fluoride is 1 ppm.

DGN-126. (A)
The radiography is the principal tool in determining the extent of periodontal bone loss.

DGN-127. (A)
The anatomy of the jaw differs from long corticated bones.

DGN 128 (A)
The bilateral cervical spread of oral cancer is possible because of the crossing of the lymphatic vessels on the neck

DGN 129.(E)
The pulp polypus is an inflammatory proliferation, does not contain glandular elements.

DGN 130.(B)
The parotid is a serous type gland, however Warthin’s tumor occurs only in the parotid, because it is a hamartoma not a real salivary gland tumor.

DGN 131.(E)
Pulp necrosis develops not only because of bacterial infection but as an effect of mechanical and thermal stimuli, so contains not always bacteria.

DGN 132.(C)
Irritation fibroma develops most frequently in the occlusal line of the buccal mucosa, but rarely it occurs on the lower lip.
DGN 133. (A)
The calcification of the odontodysplastic teeth is low, therefore they have a radiolucent shadow.

DGN 134. (B)
Prognosis of sarcomas is worse compared to that of carcinomas but the causes are variable (younger age, blood vessel invasion).

DGN-135. (D)
DGN-136. (D)
DGN-137. (C)
DGN-138. (C)
Hypofunction and swelling of salivary glands may rarely be painful, but there is no evidence for that on panoramic radiograph. In Sjögren-syndrome hypofunction frequently be observed such as the swelling of the parotid gland. According to international criteria, focus score has importance, which is created by the histology of small salivary glands. The biopsy is an accepted diagnostic method.

DGN-139. (D)
DGN-140. (B)
DGN-141. (A)
DGN-142. (C)
Swelling of the parotid gland may appear in both of diseases, but coexistence with hypersecretion is never seen. In case of mumps high temperature may appear, but not in the Sjögren-syndrome. In the latter hypofunction is the leading sign.

DGN-143. (A)
DGN-144. (B)
DGN-145. (C)
DGN-146. (A)
Fever may be characteristic in both diseases, but CMV infection is frequent in infancy and mumps usually appears in early ages and in young adult ages. Eye lesions may develop on new-born babies infected by CMV, but may not on patients infected by mumps.
Both of the mentioned diseases belong to genetically determined diseases. In case of dentinogenesis imperfecta, the dentin is hypomineralized, therefore early attrition may be developed. Because of the low density of dentinal tubules, caries risk is decreased. Generalized enamel malformation appears in amelogenesis imperfecta. The enamel is thin, vulnerable or sometimes it may absent. Therefore sensitivity of teeth, early attrition and high caries risk are characteristic for that.

Hard tissue lost due to acidic attacks either gastric or food origin is called erosion. Hard tissue lost mainly appear on iscisal or occlusal surfaces is caused the functional or parafunctional (bruxism) contact of antagonist teeth. Both diseases are regressive changes of teeth. Cervical V-shape notch is usually develope as a result of hard horizontal toothbrush belongs to regressive changes, but it is called abrasion.

One-wall infrabony defects have only one bony wall namely the hemiseptum. Both the lingual and the buccal corticals are resorbed. In case of two-wall infrabony defects one of the corticals is resorbed therefore its bonywalls are one side of corticals and the hemiseptum. Osseous crater is a special form of the two-wall defects, where the septum is resorbed and both the lingual and buccal corticals are sound. Three-wall defects have two cortical walls and a hemiseptum. Circumferencial or four-wall defects have two corticals and two hemiseptum.
In the majority of the cases lichen ruber planus is a papulosquamous lesion, but it has also a vesiculobullous form: lichen bullous. The erythema exudativum multiforme is a vesiculobullous painful lesion, in correlation with dermatological problems and mucosal symptoms. Bacterial infection is only a complication.

Pyogogenous granulom is an inflammatory lesion. Granuloma fissuratum is a connective tissue proliferation caused by an ill fitting instable old denture. Granuloma pyogenicum developing during pregnancy may have a spontaneous healing after delivery. Granuloma fissuratum in the initial stage may also regress after sessation of the irritation. The fissured granuloma may show a malignant transformation caused by a long lasting chronic mechanical irritation.

Consequence of the eosinophilic granuloma and of periodontitis leads to the destruction of the periodontium, there is no possibility for spontaneous healing. Both of them cause serious loss of teeth. The periodontal abscess is characteristic primarily for periodontitis.

Both type of lymphomas are malignant lesions. Hodgkin’s lymphoma is extreme rare in the oral cavity, its characteristic symptom may be the ulceration. These are mesenchymal tumors without epithelial cell invasion.
The Hairy leukoplakia and the Kaposi’s sarcoma are characteristic for AIDS patients. Kaposi’s sarcoma is characteristically a multiple lesion, but this tumor may also occur in non HIV infected cases also. Kaposi’s sarcoma has three well-known forms: classic type, African type, and the third form associated to the defects of the immune system. This third type is common in correlation with acquired immunodeficiency syndrome (AIDS).

Endodontia
Explanations

END- 1. A. The cross section of a Kerr reamer is traditionally triangular but nowadays the instruments are classified according to the angle of their cutting edge to axis and that is appr.20°.
2. B. The Hedström file has one cutting edge running in a spiral around the operating part.

3. D. The cross section of a Kerr file is traditionally a square but nowadays the instruments are classified according to the angle of their cutting edge to axis and that is approx. 40°.

4. A For exploring the root canal, Miller needle, small reamers, files and spreaders are usable.

5. A. For both reaming (introducing the instrument into the canal and than rotating) and filing (leading it to the length needed than pushing it to the wall of the canal and pulling it out) only the Kerr file is appropriate.

6. A. Only the proper size Kerr reamers edges can enlarge the root canal walls uniformly. The other instruments are used for filing or removing pulp remnants or probing.

7. A. For circumferential filing only the Kerr reamer is unsuitable.

8. C. In case of irreversible pulpitis there may be vital parts inside the pulp, so it is essential to anesthetize before performing endo treatment.

9. D. In case of upper first incisor the typical access cavity is in the middle third of the palatal surface. The localisation of the opening can be modified by several factors (such as the axis of the tooth the carious lesion etc).

10. A. In case of lower first premolar the access cavity outline should be extend towards the buccal cusp.

11. B. Typical error of the access cavity in case of the lower first incisor is that if one of the vestibulo-orally positioned canals missed.

12. C. Typical problem preparing the access cavity of premolars and molars is that if the removal of the pulp chamber roof not completed totally. The remaining infected pulp horns may cause later complications.

13. E. In case of standardized preparation, the working length of all instruments that are being used remains constant.

14. B. In case of preparation the reamers are turned according to clockwise motion. In case of balanced force technique an anticlockwise one complements this motion.

15. B. The intracanal medicaments usually have strong disinfectant effects. If the material goes beyond the apex it naturally causes some irritation.

16. B. The cross section of the root canal in the lower first incisor is mesio-distally impressed oval form. Sometimes there can be two separate canals.

17. C. In case of acute partial pulpitis the patient can localize the tooth. In case of total pulpitis the pain may radiate into the whole quadrant or into the other jaw.
18. B. In case of perforation the instrument can invade the periapical alveolar bone border through the tooth structure and can end up even in the vestibulum.

19. D. Ledging may occur because of pressing the dentinal chips into apical portion of the root. This procedural error can be diminished with frequent irrigation.

20. E. The danger of the instrument breakage can be decreased by using an EDTA content Rc-Prep that makes softer and smoother the dentinal walls.

21. E. The Lentulo spiral is unsuitable for removing the root canal filling. Lentulo is applied to carry some material into the root canal.

22. E. The tooth with necrotized pulp and sinus tract does not respond to sensitivity tests.

23. B. The shape of odontoblasts may be different (oval, rounded, cylindrical). These bipolar cells are located in the cell rich zone in the pulp.

24. C. The nerves of the pulp are not in contact with receptors. It is supposed that the odontoblasts register the stimuli and transfer to the free nerve ends.

25. C. “Dead space” is the space that is surrounded by dentine and was previously occupied by the pulp.

26. A. The vitalextration means the total removal of vital pulp.

27. D. Chloroform is unusable for sensitivity test. Its only role lies in dissolving the gutta-percha during the retreatment.

28. D. In the pulp tissue there may be fibroblasts, hystiocytes. Monocytes and lymphocytes may occur in healthy pulp tissue as well. Malassez's epithelial cells or their remnants may occur in the periodontium.

29. C. In case of reversible pulpitis sensitivity to percussion can not occur. It can occur only when the inflammation reaches or goes beyond the apex.

30. C. In case of reversible pulpitis (hyperaemia) the inflamed pulp react very strongly to the electrical stimuli. This severe reaction can not happens when the whole pulp tissue is in purulent stage of the inflammation.

31. A. Phenol is not used for indirect pulp capping.

32. E. Basically the root canal treatment has not an absolute contraindication.

33. C. The length of the extra long instrument till the manubrium is 31 mm. It is used mostly treating canines.

34. D. According to ISO standardization the colour of the 30 reamer’s manubrium is blue.

35. A. The Hedström file has only one cutting edge.
36. A. In the head of the Excalibur rotary preparation instrument is an asymmetric metal piece. That’s why it’s rotary movement adding with an up-down movement also. This complex motion is named as aleatic movement.

37. D. The vibration distance of tip of the ultrasonically engineered instrument is approximately 20-40 µm.

38. D. In case of root canal irrigation the concentration of chlorhexidine solution is 0.2 %.

39. C. The worst location of the root perforation from therapeutic point of view is in the middle part of the root. In such a situation nor alveolar correction nor apicoectomy can solve the problem. The therapy may be filling the perforation through the root canal, or surgically exploring and retrograde filling.

40. D. The characteristic of the Weil-layer is that: there create the nerve fibers the Raschkow-plexus and the capillaries make a network here.

41. A. The bacteria haven’t role in the development of sterile necrosis.

42. A. The proper material for apexification is a long time active calcium-hydroxide material. It is recommended to change it in every three month.

43. E. The success of the pulp capping should be proven by several anamnestic and diagnostic testing (minimally two).

44. D. The average number of dentinal tubules pro square mm near the pulp is 75000. Both the number and the diameter of the tubules tend to reduce towards the dentino-enamel border.

45. C. The most often broken root canal filled teeth are the upper premolars, especially theirs palatal cusps.

46. B. Chlorhexidine hasn’t role in the acid solubility of enamel.

47. C. Obtura technique is an injectable gutta-percha rot canal filling technique. The gutta-percha is melted to 160°C inside the Obtura gun and inserted into the root canal through a tiny needle.

48. C. The interappointment emergency is also referred to as the endodontic flare up. The patients complain of pain and/or swelling. The etiological origin may be the host reaction against the infected debris, come to beyond the apex. If the reaction is severe it is recommended to prescribe antibiotics or nonsteroidals. Flare ups may often occur after retreatment.

49. E. The outcome/success of endodontic treatment may evaluate 1-2 years after treatment. If the root canal filled tooth is sign and symptomless and the apical or periodontal pathosis disappear on radiograph—may state about the success.

50. C. The treatment of patient who got a therapeutic X-ray irradiation should be maximally conservative because of avoiding an osteoradionecrosis. In this situation the necrotic teeth have to be root canal treated.
51. E. After anaesthesia the vitality of the pulp can not be tested.

52. B. In case of necrotized pulp when the pulp chamber is closed the hot stimuli can provoke pain because the gas produced by bacteria tends to expand.

53. B. The standard length of Kerr reamer without its manubrium is 25 mm.

54. E. Dynatrak instrument is not suitable for working length determination. It is a rotary handpiece and a normal Kerr reamer should be inserted in it.

55. D. Sodium-hypochlorite has an organic tissue dissolving effect. Its effective part is hypochloric acid which destroys the bacterial cell walls. The concentration for root canal irrigation is between 0.5-5.25%.

56. A. The Gangraena-Merz paste contains 50% Ca-hydroxide.

57. B. The gutta-percha point is radiopaque because of the added heavy metal salts. It has good adhesion to sealers but hasn’t any adhesion to wet dentin walls. Chloroform can solve it.

58. E. For exploring the pulp chamber and total removing its roof a sterile, stainless steel round bur is recommended.

59. D. The Schröder instrument is a hand orifice shaper. Nowadays it does not be used.

60. C. The aim of using apex locators is to locate/find the apical constriction. It is not usable for root canal preparation. Nowadays there are special rotary instruments on the market which are stop or sign when they reach the apex.

61. B. The location of the lateral and accessory canals is mostly at the apical third of the root or in case of multirooted teeth at the furcational area. The incidence of them is approx. 10-30%.

62. B. In case of complex endo/perio diseases the first treatment should be the endo procedure and after-if it necessary- the conservative or surgical periodontal treatment.

63. A. After the preparation with NiTi Profile instruments the root canal cross section is mostly round.

64. C. The cause of the endo/ diseases can be pulpal or periodontal either. This disease can be in case of partial pulp pathosis.

65. B. Primer dental focus can be every chronic inflammatory process originates from teeth, implants or theirs surrounding tissues resulting bacteraemia in the circulatory system. The impacted teeth without connection with the oral cavity can not be regarded as dental focus.

66. D. The most of endo procedures may not cause severe bleeding so in case of haemophilic patients the factor substitution is not essential.

67. D. The smear layer is created during the root canal preparation. The infected dentine chips are deposited into the orifices of dentinal tubules. Its removal is difficult especially at the apical part of the roots.
68. B. Orifice enlargement is especially important in case of multirooted teeth when the instrument penetration starts from a big pulp chamber to a narrow root canal. With the enlargement of the orifices it is much easier to reach the canals.

69. C. The mesiobuccal root of upper first molar has frequently two root canals. The occurrence can be more than 50%. Its location is little mesially and palatally from the main mesiobuccal canal.

70. A. In case of teeth with sinus tract the patient not complain for severe pain because the inflammatory fluids (pus) can disappear through the fistula.

71. B. Ordinarily the upper first incisors, lower canines and lower second premolars have one root canal.

72. A. The distobuccal root of the upper molars has one root canal. The other mentioned teeth or roots have frequently two root canals.

73. D. In case of upper first molar every root has one canal but sometimes the mesiobuccal root has two canals. In case of lower molars the mesial root usually has two canals and the distal has one.

74. C. Ordinarily the upper first premolars and the lower molars have two roots but theirs location are different. The premolars have vestibular and palatal roots and the molars have mesial and distal ones.

75. E. In case of all mentioned teeth the number of the root canals is ordinarily coincided with the number of the roots, but naturally there can be discrepancies especially in case of upper first premolars.

76. C. Ordinarily the upper canines and the palatal roots of the upper molars have wide and straight root canals.

77. B. Ordinarily the lower incisors and the mesial roots of the lower molars have narrow and divided root canals.

78. B. All but the Hedström file should be turned into the root canal of the mentioned instruments.

79. A. All but the Kerr reamer is suitable for circumferential filing of the root canal.

80. D. The orifice shapers are not the appropriate instruments for the shaping of the whole root canal but with enlargement of the orifice they are diminish the angle of the root canal curvature. These instruments are unsuitable for removing the old root canal fillings.

81. E. The diagnostic radiograph gives a lot of information to the clinician about several findings associated with root canal treatment. All of the mentioned titles are suitable.

82. A. In case of canals that projected close to each other on the radiograph with roughly the same thicknesses ISO15 and ISO20 reamers are not suitable instruments to distinguish the separate canals when they are investigated on radiograph for the working length determination. All of the other statements are right.
**83. B.** The advantages of caries removal before root canal treatment are: easier endo treatment, less material to remove during total opening of the pulp chamber, less infection will take into the root canal. The reference point of the working length determination is the highest cusp or the incisal edge of the tooth that frequently not involve the carious lesion.

**84. D.** The rubber dam - but its placement takes some time - keeps the root canals dry and aseptic from the oral flora and prevent the aspiration of the instruments. It hasn’t role in the fixation of the teeth.

**85. B.** Ramifications or intercommunications between the main root canals may everywhere occur along theirs total length. They are anatomic entities and haven’t any role in the creation of preparation errors. The other mentioned statements are real mistakes.

**86. E.** All of the mentioned statements are essential for the ideally shaped root canal. The equal preparation of the inner and outer parts of the root canal is essential not to make an asymmetrical preparation.

**87. C.** One of the main principles of the root canal preparation is to diminish the number of microorganisms into the canal and the other goal is to create a root canal shape that maximally coincides to the used root canal filling technique.

**88. B.** The step-back technique is a widely usable preparatory technique. It is not working only in case of treating young first incisors with open apex.

**89. A.** The role of the orifice shapers is diminished in case of young first incisors because there is not distinguishable transition between coronal and radical pulp. In case of multirooted teeth these instruments can enlarge this narrow part of the orifice.

**90. A.** The danger of creating dentinal plugs during preparation procedure can be reduced with frequent irrigation and proper using of shaper instruments. If an instrument is several times used in the same canal it is essential to remove the dentinal chips with sterile gauze. The usage of rotary instruments not reduces the possibility of dentinal plug creation.

**91. C.** The root canals can be dried with paper points or with cotton covered Miller needle. The CHX and Calcium-hydroxide points are suitable to diminish the number of microorganisms in the root canal.

**92. E.** The expectations against the good root canal irrigants are very high so all of the mentioned criteria are important.

**93. A.** There will be positive response for sensitivity tests: dentine hypersensitivity, acute and chronic pulpitis. In case of closed necrotic pulp there may be positive response only for the hot stimulus.
The aims of the irrigation of the root canals are: to clean and to disinfect the canal and to diminish the bleeding. Some of them can remove the smear layer, allowing the sealers to penetrate to opened dentinal tubules.

The radiological findings of the apical cysts are: larger than 5 mm in diameter radiolucent area with sharp margin. This pathosis is not accompanied by the osteosclerosis.

Corresponding of caries propagation the pulp can reacts with all of the mentioned answers.

The Ca-hydroxide cements are highly alkaline before theirs setting. They have an antiinflammatory effect and they can destroy most of the bacteria. They are not suitable materials for stopping the propagation of the hot and cold stimuli.

The apical constriction (for. physiologicum) is the narrowest part of the root canal. Here is the cemento-dentinal junction. It locates little coronally to the apical foramen (for. anatomicum). That distance may continuously enlarge because of the cement apposition during ageing.

All of the mentioned statements are characteristic of the periodontal ligament without the last one because the periodontal ligament may transfer the pushing (biting) forces as a pulling one towards the alveolar bone structure.

The aging of the pulp is accompanied by the diminishing of cellular structures and with increasing calcification. The volume of the pulp space is diminishing but the number of the collagen fibers are increasing.

Sensitivity for percussion may occur all of that cases when the pulp is not vital and in case of total pulpitis too. The normal, sound tooth can react severely for the percussion if the tooth is in traumatic occlusion, when the antagonist tooth or prosthesis has an enormous loading to its surface.

All of the mentioned shaping instruments have spiral cutting edges. In case of K-reamers three, K-files four and H-files only one cutting edge goes spiral on theirs working parts.

The effective concentration of the Na-hypochlorite solution for endodontic purpose is 0.5-5.25%.

Amongst the differently brand named apex locators the Solvident is an irrigant solution.

The oligodynamic silver point has some unique properties, for example its good radiopacity and it is usable for filling narrow root canals but it tends to corrosion.
Nowadays the ZnOE containing N₂ is out of usage. It contains lead-oxide and formaldehyde too.

In case of reversible pulpitis and apexification the proper medicament is Ca-hydroxide. The avulsion or total luxation means the tooth felled out of his alveolus. The attrition means the wearing the tooth structure because of its antagonist.

The radiographic incomplete root canal filling is respected as a primer dental focus so it is recommended to change it. The therapy is the same, when the root canal filling looks like good, but pathological findings exists.

The range of the diffusion in dentine depends one hand on its tubular structure and the covering smear layer and the other hand on the features of the penetrating material (its molecular size and surface strength).

The odontoblasts originate from connective tissue and they locate with multiple layer irregularly on the pulpal surface. They have most important role in dentin production. After the completion of root apex development they create secondary dentin.

The apical constriction (for. physiologicum) is the narrowest point of the root canal. Here is the cementodentinal junction. However its small diameter it can not prevent the propagation of microorganisms.

All but the last mentioned titles may accompanied with the aging of the pulp. The number of the cellular elements has decrease naturally.

All of the mentioned elements can occur in histological findings of acute pulpitis (irreversible pulpitis).

The electric vitality test can not be performed if the tooth is covered with crown (metal, acryl). If there are neighbouring amalgam fillings that may conduct the electricity the operator should place a plastic matrix between the contact amalgam surfaces to prevent the electric circuit.

The hyperaemia pulpae (reversible pulpitis) mostly can be originated by caries propagation but it can occur because of gingival recession and some kind of habits that destroy the enamel structure (abrasion, attrition, erosion).

The radiopaque gutta-percha point can be solved by chloroform or carbonic-tetrachloride. It can be plasticized by heating and when it cools down shrinks minimally.

The Chlumsky's solution contains carbolic acid, camphor and alcohol in 6:2:1 ratio.

The discoloration of root canal filled teeth may be happen because of the blood and pulp horns left during endodontic treatment. Some of the used intracanal medicaments and root canal filling materials may stain the tooth structure too.
121. A. The indications of the application of the gutta-percha are all but the last mentioned titles. There are special gutta-percha points as intracanal medicaments to disinfect the root canal. For semipermanent temporary fillings the Fletcher-type cements and the normal cements are usable.

122. E. Eugenol has tranquilizing analgesic effect and disinfectant properties. It has a neurotoxic effect too. Contact with pulp is not recommended because it can provoke hyperaemia and inflammation.

123. A. The ZnOE containing cements have a several indication tools but they are not suitable for core build up.

124. C. The soluble and anti-inflammatory Ca-hydroxide cements stimulate the odontoblasts for creating tertiary dentin. The ortho-phosphoric acid is a component of the phosphate-cement.

125. A. The Weil’s or cell poor layer is located centrally to the odontoblast layer in the pulp. Here is the Raschow-plexus and the subodontoblastic capillary plexus too. It is composed by not only fibroblasts but cytoplasmatic extensions too.

126. E. All of the mentioned titles are characteristic of the circulation of the pulp. Because of these anastomosises the different stages of the propagation of inflammation may occur at different layers of the pulp.

127. B. All but the third statements are characteristic of the sensory nerve fibers of the pulp. The myelinated or not myelinated fibers end at the periphery of the pulp creating the Raschow’s subodontic plexus.

128. C. The characteristic of the pulp of the upper first incisor is the three pulp horns. The cross section of the pulp by its orifice level is rounded triangle.

129. B. The slightly distally diverged root of lower canine has one pulp horn. If it has two roots theirs location is vestibular and oral.

130. B. The mediators responsible for the vascular dilatation developing during inflammation are prostaglandins, bradykinins and serotonin. The antihistamines are medicaments especially against allergic reactions.

131. B. The pulpitis can be classified according many things for example its duration: acute and chronic. According to exudates created: serous or purulent. According to extension can be: partial or total but never can be classified according to cause: for example bacterial, iatrogenic etc.

132. E. An external stimulus can cause pain in every tooth with sound or inflamed pulp structure. In case of closed necrosis the hot stimuli can provoke pain too.

133. A. The chronic apical periodontitis, cyst and any other inflammatory process that cause demineralization in the bone structure manifest as radiolucenty on the radiograph. The hypercementosis manifests as a radiopaque territory on the radiograph.
For the application of a cold stimuli are available the dry ice, the chlorethyl and the different
cold test sprays for example Cognoscin, Provotest etc.

Every physical and chemical stimulus can provoke pain in case of reversible pulpitis
(hyperemia pulpae).

All but the last title is suitable for keeping the pulp partially or totally alive. The mortal
amputation means that after impregnating the pulp with special medicaments (formocresol) the part
of it-especially the coronal part- should be removed.

The systemic diseases not contraindicate the root canal treatment but the anatomically
compromised situations should not be treated. There is no point of treat the severe periodontal
involved tooth because of its future outcome.

The smear layer hinders the penetration of disinfectants into the dentin tubules so diminish
the adhesion of the root canal filling materials to the dentin wall. Not disturb nor the drying of the
root canal nor the setting of the root canal filling materials.

The Solvidont root canal irrigating solution has a broad bactericide spectrum and fungicide
effect. It is not sparkling and not precipitates the peptides too.

The AH26 epoxy-resin type and the other mentioned materials ZnOE-type sealers.

The circumferential root canal preparation should be done with files when the file should be
insert to the wanted working length and than should be pull out with pressing it to one dentin wall.
With this motion should be enlarge the root canal walls all around.

The reamers should be insert into the root canal, should be turn clockwise 90-180 degree and
than should be pull out. Its edges are in contact with the dentin walls and cut them during tunning
motion.

Circumferential motion means that the files should be inserted to the desired length and
pressed to one dentin wall and withdrawn. With this motion only one dentin wall will be enlarged so
this motion should be continued all around the dentin walls.

The working length is a distance between the apical constriction (for. physiologicum) and the
reference point of the crown. According to used preparation technique the instruments should be
inserted into the desired deepness with the help of silicone stopper.

Before access cavity preparation the carious lesion should be removed. The location of ideal
access cavity often not coincided to the carious lesion.

Placing the rubber dam is time consuming but it is recommended in every step of the root
canal treatment. There is no correlation between the two sentences.

The lower incisors have usually one root canal but often two. In this case, the location is
vestibular and oral.
148. C. The pulp should be removed totally during endodontic treatment because the remaining parts of the pulp can cause pain, bleeding and other problems which can hinder the successful treatment.

149. A. The not overinstrumented apical constriction (for. physiologicum) prevents the overfilling during endodontic treatment.

150. A. The ledge creation can be reduced with the mentioned usage of instruments.

151. B. The number of pulp horns are coincided with the number of the cusps. In case of incisors there can be three pulp horns that reflect to the incisal eminences of the freshly erupted incisors.

152. A. The collateral circulation (arteriovenous anastomoses, venovenostomy) can make a balance in the inflamed pulp. In this way the inflammation may be particular and not always total.

153. D. The cavity form creating during endo treatment should be antiretensive in case of premolars and molars to prevent the subsidence of temporary filling in the cavity.

154. D. Tooth with healthy pulp can be sensitive to percussion (high filling, traumatic occlusion). Sensitivity to axial percussion is the sign of the apical pathosis and sensitivity to horizontal percussion is the sign of the marginal pathosis.

155. C. Lymph vessels can not be found histological in the pulp but there must be a lymph circulation.

156. E. Characteristic only of the mixed AH 26 sealer is that after heating it more powder can be added to the mixture.

157. D. The Lentulo is a spiral twisted stainless steel wire but its rotational direction is not optional. If its rotation is not according to the clockwise motion it can get stuck and fracture in the root canal.

158. E. In case of total perforation the artificial canal should be filled with some kind of inert material (gutta-percha, MTA) orthograde. If interradicular inflammation develops after furcational perforation the most conservative treatment is hemisection and curettage.

159. D. The periodontal ligaments may contain epithelial rests of Mallasez but the pulp polypus (chronic pulpitis) may never.

160. A. The pulpo-periodontal connection can not only occur through the apical constriction but through the lateral and accessory canals too. In these pathways the periodontal diseases can cause pulpal involvements and backwards too.

161. C. The endodontics is not a synonym for root canal treatment because it means the diagnosis and therapy of orofacial pain, the therapy of the vital pulp, the prevention of pulp diseases, the endodontic related surgery, and tooth whitening therapy too.

162. D. The structure of intertubular dentin is less mineralized than the peritubular one. The diameter of the dentinal tubules close to pulp is approx. two µm. This diameter continuously diminishes towards the dentinoenamel junction.
The shape of cross section of many root canals is oval but the upper first incisor has rounded triangle cross section.

With aging the mentioned transformations may occur.

Infected pulp and infected dentin are not the same nomenclature. At the initial part of the pulp necrosis only the pulp is affected but with the propagation of infection through the dentin tubules the part of dentin becomes infected also.

If the accessing and the anatomical situation allows, the wisdom teeth may be also targets for the endodontic treatment.

The forced orthodontic treatments can cause pulpal damages but the blood vessels rarely break at the apex.

The therapy of the primer dental focus is less conservative than the not dental ones. The therapy of dental focus is: extraction, endodontic treatment and/or endodontic related surgery.

The thermal effect of ultrasound is minimal. It can rise the temperature only with 1 °C inside the canal. This phenomenon can not improve the efficacy of the root canal irrigants.

It is essential to diminish the number of microorganisms into the canal before filling but nowadays the one appointment endodontic therapy is widely popular treatment method.

In case of apical inflammatory processes - when sinus tract does not develop - the inflammatory products should be drained through the root canal. If this way is blocked, an artificial sinus tract should be created for the passage.

After closure at the moment of opening inside the crack negative pressure will develop so fluid penetration will start through dentinal tubules from pulp to peripheral direction. The pulpal nerve fibers perceive this motion as a pain.

The rotary root canal instruments should be used with gentle “picking” motion moving towards the apex. The relatively low rpm. and low torque prevent the instrument separation.

In case of apexification the pulp is necrotized, but because of the therapeutic Ca-hydroxide a dentin bridge will create at the apex. In case of apexogenesis the vital pulp remnant – under the Ca-hydroxide layer - will accomplish the apex formation.

In case of avulsion of young permanent teeth the time out of alveolus is the most important thing according to success. The success of the replantation is depending on the storage medium where the avulsed tooth is kept. If the time is more than one hour (six hours) there is little chance for successful replantation.

For whitening or bleaching discoloured vital teeth at home peroxide of hydrogen of 10-20 % or peroxide of carbamide gel can be used. Peroxide of hydrogen of 30% should be used only in office bleaching procedure.
The smear layer can be dissolved by EDTA and by mild organic acids (10% citric acid). With removal of smear layer the seal of root canal obturation improves.

There are methodological and technical differences between lateral and vertical condensation. During lateral condensation the spreader should be insert laterally to gutta-percha. The plugger is an instrument for the vertical condensation.

The new generation of apex locators – principle based on the measure of electrical impedance - can measure properly the working length in wet environments too, therefore they are usable before root canal preparation, in wet conditions.

In case of curved root canals a small bend will be placed on the instruments according on the radiograph detected canal curvature. During preparation of curved canals the root canal tend to straighten so the instrument that used with initial length can go through the apex.

The characteristic of acute pulpitis (irreversible pulpitis) is a severe paroxysmal, throbbing radiating pain that may provoked with stimuli but it can occur spontaneously too. According to signs of acute inflammation the histological findings is the granulocytic infiltration. The pain characteristic of chronic pulpitis is a dull vague pain. By the chronic pulpitis the pulp tissue can grow out of the pulp chamber (pulp polypus). Common properties of the different pulpitis are that abscess can occur inside the pulp. Uncertain pain for percussion is also possible but not as severe as in case of periodontitis.
The apical constriction (for. physiologicum) is the narrowest part of the root canal. Its synonym is foramen biologicum. Here is the cementodentinal junction. It is one of the measuring points of the working length. It locates little coronally from the radiological apex. This distance can be 0.5-3 mm according to different investigations. Naturally the apical constriction is not covered by epithelium. Through the apical foramen nerves and blood vessels can invade in the pulp canal.

The sensitivity test has an important role in the diagnosis of reversible pulpitis and in endo/perio diseases too when the pulpal involvement should be clarified. Another important diagnostic tool is in dentistry the radiological diagnosis. With radiography can be verified the perforation and usable for the gutta-percha point control too.

Nowadays the judgement of reamers and files is not performs according theirs cross-section but according theirs cutting angle orientation to the instruments axis. The cutting angle by reamers is 20° and by the files 40°. The reamers and files are designed for root canal preparation. The manubriums of instruments have different colour. These colours and numbers show the ISO number. The colour of the ISO 35 numbered instrument is green.

Sensitivity both for biting and cold test can occur in case of total pulpitis and periodontal abscess too. In case of partial pulpitis the inflammation not involve the apex so sensitivity for percussion don’t exist. Severe pain for biting can occur in case of acute apical periodontitis. The Fletcher is a temporary filling material.
The chronic apical periodontitis can be symptomless for a long time. In case of acute apical periodontitis the patient feels the affected teeth little longer so severe pain can occur for biting. The intense and throbbing pain is characteristic of the pulpitis.

The mucocele is a bullous retentional cyst of sublingual gland. The ranula is a submucous abscess.

The Diaket and the resin type AH26 sealers don’t contain eugenol. The setting time of the AH26 is long it takes 48 hours. The Diaket sets more quickly. When the AH26 is mixed on heated glass, it will be more liquid and can take more powder up.

The etiology of purulent pulpitis and acute apical periodontitis is most often caries related. The pain for biting is sometimes occur in total pulpitis but more characteristic in case of apical periodontitis. Pulp amputation means partial removal of pulp tissue. In these diagnostic situations not the pulp amputation is the correct therapy.

The N2 and Endomethasone are medicament containing ZnOE root canal sealers. Both contain paraformaldehyde too. The AH 26 is an epoxy resin type sealer but contains paraformaldehyde too. The Diaket does not contain these elements.

The gutta-percha and silver point are radiopaque materials. The gutta-percha adhere better to the sealers then the silver point. The removal of gutta-percha is easy opposite to silver.
One of the elder generation of rotary enlarger is the Giromatic handpiece. It turns its special instrument in one quarter and reversely. The Endo-Cursor handpiece may used with standard hand instruments. It turns the instrument with one quarter and has an additional vertical movement too. Both of these instruments work under 10 000 rpm.

It is characteristic of the tooth with sinus tract that the inflammatory products sometimes goes away through the fistula. The etiology of the pulp necrosis and the tooth with sinus tract are bacteriological origin. Teeth with these diseases should be chemo-mechanically cleaned and shaped. During mechanical instrumentation frequently used disinfectant irrigating solutions (for example NaOCl) should take into the canal. After that the root canal filling may be performed in one appointment. All the other statements are incorrect.

Characteristic of reversible pulpitis (hyperemia pulpae): there is no spontaneous pain. The affected tooth is localizable. The pulpal process is reversible. Characteristic of irreversible pulpitis (total pulpitis): spontaneous severe pain that often radiating so poorly localizable. Sometimes pain for biting can occur. Characteristic of both processes: The pain after stimuli is sharp, throbbing and can disappear only a period of time that is longer in case of irreversible pulpitis.
In case of ProFile, Hero 642, GT Rotary technique and the crown-down technique the root canal preparation starts at the coronal part of the root canal and ends at the apical constriction (for. physiologicum). In case of Lightspeed and step-back technique the preparation starts at the apical part and followed by the coronal preparation. In case of double-flare technique the preparation starts corono-apically and followed by apico-coronal preparation. In case of standardized technique each instrument works at the same whole working length. The balanced force technique totally differ in its philosophy. The root canal instruments are turned with anticlockwise motion. In this way the forces creating by twisting the instruments into the canal are neutralized. The parallel technique is a special radiological technique.

The ZnO-eugenol products - because of theirs neurotoxic effect to the pulp - are usable only for indirect pulp capping. The direct pulp capping is suitable when the pulp chamber is opened. The most often used material for direct pulp capping is the calcium-hydroxide. Because of its poor physical property, the calcium-hydroxide should be covered by some kind of cement (liner). The composite is not usable directly on the pulp wound.

The step-back technique is an apico-coronal preparation technique performing only with hand instruments. The ProFile technique is a corono-apical preparation technique that use rotary instruments but for the working length determination is needed the use of hand instrument too. Both of techniques may create dentinal plugs.
The root canal irrigants are usable during preparation procedure. The peroxide of hydrogen has a bleaching (whitening) effect too. The ultrasound with its acoustic microwave formation can enhance the effect of irrigants. The crown-down technique enlarges better the coronal part of the root canal taking there the irrigants more effective. Amongst the intracanal medicaments, the calcium-hydroxide paste is the most long lasting effective material for disinfection. With the use of irrigants and intracanal medicaments into the root canal the goal is to diminish the amount of microorganisms. When they go beyond the apex most of them are irritating to the apical tissues. The sterile saline and the EDTA solution hasn’t disinfectant effect, but the EDTA can dissolve the smear layer. The NaOCl may remove the smear layer when it is activated ultrasonically. The mechanical preparation can not be substituted by using irrigants and intracanal medicaments.

The thin instrument that used for working length determination and the gutta-percha point that used for point control are radiopaque. Both of radiograph controls have an importance during endodontic treatment. At point control stage there is no sealer into the root canal. The root canal will be filled with gutta-percha points at the following phase of root canal treatment.

The nickel-titanium instrument made by turning are extremely flexible. The working part of the stainless-steel instruments are made by twisting. Both of the instruments are used during endo treatment. The material of the implants is not nickel-titanium alloy.
The Thermafil technique uses only one and the lateral condensation technique uses several gutta-percha points for filling the root canal. Both of them are usable only in dry root canal. The sealer is essential for both techniques because it fills the gaps between the root canal wall and the gutta-percha point/s.

Partial edentulousness
Explanations

**FPR-1.** B The precision attachments use physical retentive force for the retention of the removable partial dentures. The physical retentive force of the slide attachment is friction.

**FPR-2.** B The telescopic systems use physical retentive force for the retention of the removable partial dentures. The physical retentive force of the telescopic system is friction.

**FPR-3.** A There can be one or more primary fulcrum lines (rotational axis), after insertion of the denture, but none of these becomes a real axis of rotation, no torque moment arises. The class according to Fábián and Fejérdy classification of partial edentulousness is 1B.

**FPR-4.** B The denture base of the removable partial denture may not be reduced on the
edentulous alveolar ridge, because in this case the distribution of the chewing load wouldn’t be appropriate. Also because the structure of the mucosa and underlying bone in this region compared with other mucosal areas, tolerates load very well.

FPR-5. B There can be one or more primary fulcrum lines from which one can become an actual axis of rotation after the prosthesis is inserted. The moment of rotation is small, so the sinking of the tooth supported denture can be compensated for. The class according to Fábián and Fejérdy classification of the partial edentulousness is 1B.

FPR-6. C There can be only one primary fulcrum line, but one or more secondary fulcrum lines. After the denture inserted, the primary axis of rotation may turn in an actual axis of rotation, and the denture rotating around this axis may sink in one direction. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A.

FPR-7. D There is only one fulcrum line, and this primary fulcrum line becomes a real axis of rotation after the denture is inserted, the denture rotating around this axis, may sink in one direction. The number of the residual teeth is a maximum of two. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A/1.

FPR-8. D There can be two or more primary fulcrum lines among which one may become a real axis of rotation after the denture is inserted. The denture rotating around this axis may sink in one direction. The class according to Fábián and Fejérdy classification of partial edentulousness is 2B.

FPR-9. E There can be one or more primary fulcrum lines from which one or more may become a real axis of rotation after the denture is inserted, the denture rotating around them can sink in two directions, and it may rock. The class according to Fábián and Fejérdy classification of partial edentulousness is 3.

FPR-10. D Parts of the removable partial denture: flange, artificial teeth, denture base and retainers. The décolletage of the removable partial denture leaves the marginal gingiva of the residual teeth uncovered in order to protect the parodontium.

FPR-11. B Tasks of the saddle of the removable partial denture: To support the flange, to stop
the horizontal displacement of the removable partial denture, to transmit the masticatory load to the mucoperiosteum, to promote the retention of the denture. Providing correct articulation of the teeth is not the task of the saddle.

FPR-12. E Indirect devices for fixation of the removable partial denture are indirect retainers, continuous clasps, certain parts of the denture base, etc. Direct retainers of the removable partial denture are: clasps, precision attachments, telescopic systems, etc.

FPR-13. D Slide attachment, press button (stud attachment) system retainers, bar retainers and resilient attachments belong to the precision attachment. But the telescopic systems do not belong to the precision attachments.

FPR-14. E If the inserted denture may sink into two directions, the type of partial edentulousness belongs to class 3 according to Fábián and Fejérdy classification of the partial edentulousness.

FPR-15. A If no torque arises on the primary axes of rotation, the partial edentulousness belongs to class 1A according to Fábián and Fejérdy classification of partial edentulousness.

FPR-16. E If sinking of the inserted denture can be prevented by compensation, the partial edentulousness belongs to class 1B according to Fábián and Fejérdy classification of partial edentulousness.

FPR-17. A When making a telescopic system retained denture for class 2A/1 there is no gap between the occlusal surfaces of the primary and the secondary crowns.

FPR-18. D The ideal placement of the fulcrum line – namely the line connecting the clasps - is in the midline of the removable partial denture.

FPR-19. E Ney V type clasps have two occlusal rests. It can be used on single molars for the retention of the removable partial denture.

FPR-20. A Slide attachments, press button retainers, resilient attachments, and bar retainers belong to the precision attachments. Telescopic systems do not belong to the precision
attachments. Ceka and Ot- Cap systems belong to the press button retainers.

**FPR-21.** C Types of major connector of upper RPD are: full base, horse shoe (U) shaped, butterfly shaped (palatal strap), fenestrated (a “window” on the framework) and skeletal.

**FPR-22.** D Types of major connector of the lower removable partial denture are lingual bar, Kennedy bar (continuous bar), sublingual bar, continuous strap, and mandibular labial bar.

**FPR-23.** E The Fábián and Fejérdy classification of partial edentulousness is characterised by the following statements: it differentiates the upper dental arch from the lower one, has a subtotal class, there are 3 main classes, and gives instructions for treatment.

**FPR-24.** B According to the Kennedy classification of partial edentulousness: there are four main classes, it does not give instructions for treatment, does not make a difference between the upper and lower dental arches, does not include all types of partial edentulousness.

**FPR-25.** A Functionally the occlusal rest belongs to the denture base, because the task of the occlusal rest is to support the RPD, but the occlusal rest is part of the clasp morphologically.

**FPR-26.** E When preparing a removable partial denture it is not necessary to make a clasp holding crown in every case. It has to be made only if the shape, placement or status of the abutment tooth is not suitable for holding a clasp.

**FPR-27.** B Tilting of the removable partial denture can be prevented by placing the clasp rest remote from the saddle, creating the right localisation of clasps and the appropriate extension of the denture base.

**FPR-28.** C The décolletage leaves the marginal gingiva of the remaining teeth uncovered by the metal framework of the removable partial denture. The advantage of using a décolletage is the protection of the marginal gingiva.

**FPR-29.** B Characteristics of wire clasps: making the clasp by bending elastic wire is easy and simple, there are many types of this clasp, it can be used for incisors, canines, premolars and molars, and it can be used with an acrylic or a metal denture base.
**FPR-30.** C Characteristics of wire clasps: there are many types of wire clasps, making the clasp by bending elastic wire is easy and simple, it can be used for incisors, canines, premolars and molars, and it can be used with an acrylic or a metal denture base.

**FPR-31.** A The telescopic system retained denture is used most often in cases of subtotal edentulousness. They consist of two parts, a primary and secondary part. Types of telescopic system are cylindrical, conical and cylindroconical. It can be used with an acrylic or a metal denture base. This system decreases the lever arm, provides greater retention for the removable partial denture.

**FPR-32.** D The telescopic system retained denture is most often used in cases of subtotal edentulousness. They consist of two parts: a primary and secondary part. Types of telescopic system are cylindrical, conical, cylindroconical. It can be used with an acrylic or a metal denture base. The manufacture requires tooth preparation. This system decreases the lever arm, thereby providing a greater retention of the removable partial denture. The manufacture of telescopic dentures requires a good dental laboratory.

**FPR-33.** A The cast clasp is made from noble metal or base metal alloys, it may be applied in a metal or an acrylic denture base, its activation is difficult, it provides greater retention of the removable partial denture.

**FPR-34.** C – The clip bar of the Preci Horix precision attachment is made from metal; the sleeve is made from elastic plastic and is changeable.

**FPR-35.** E – The insertion of the removable partial denture depends on the number of remaining teeth, the extension and shape of denture base and the axis of the remaining teeth. It does not depend on the occlusal vertical dimension.

**FPR-36.** B – For milling the wax pattern the recommended revolutions per minute are 1500rpm.

**FPR-37.** D – For milling of metal the recommended revolutions per minute are 5000 rpm.
FPR-38. B – The primer abutments of the prosthetic value are upper first molars, second value are upper and lower premolars, third abutments are the lower first incisors. The prosthetic value of wisdom teeth depends on their developmental level.

FPR-39. C – The interocclusal space must remain after raising the bite.

FPR-40. B – Volume of the masticatory load per unit area of the mucoperiosteum.

FPR-41. E – Ney clasps are cast clasps, Ney V type has two occlusal rests, and Ney III type has a semilunar clasp arm, which is localized on that part of the abutment tooth which is advantageous for retention.

FPR-42. C – The refractory cast is made of investment material, therefore it is not necessary to remove the wax pattern of the framework before embedding, and the framework is cast on this model.

FPR-43. B – The task of the occlusal rest is to transmit the load to the abutment teeth; therefore it belongs to the denture base functionally.

FPR-44. D – The horseshoe or „U” shape denture base may be reduced in size only on the distal region of the connector.

FPR-45. D – The Ney V type clasp has two occlusal rests.

FPR-46. E – The looping clasp doesn’t have any occlusal rest.

FPR-47. A – Indication of Ney V type clasp is for single molars.

FPR-48. B – During the inverse investment: the artificial teeth will be placed in the upper flask, the denture base will be placed in the lower flask.

FPR-49. C – Only the Preci-Vertix has a plastic retentive clip.

FPR-50. D – Anchoring is provided in a telescopic system by friction.
FPR-51. A – The supporting zone of class 2A is triangular, in the other classes it is defined by four lines (1A) or there is no supporting zone at all (2A/1).

FPR-52. C – The supporting zone of class 1A is defined by four lines.

FPR-53. B – The ratio between the polygon of support and the load bearing area cannot be determined mathematically, generally the stability of the RPD is better if the support is as big as possible and the load distribution is equal.

FPR-54. C – Class II according to Kennedy classification of partial edentulousness, is a unilateral edentulous area located posterior to the remaining teeth.

FPR-55. B – The lingual bar connects the saddles of the removable partial denture.

FPR-56. B – The décolletage of the removable partial denture leaves the marginal gingiva of the residual teeth uncovered.

FPR-57. C – Class 2B can be transformed into class 2A with a fixed bridge replacing teeth in the interrupted arch.

FPR-58. E – The number of remaining teeth in subtotal edentulousness is 1 or 2.

FPR-59. E – The resilience is reversible compressibility of mucosa through load.

FPR-60. B – The masticatory force is the total force of the muscles used when closing the mouth.

FPR-61. D – The supporting field is the convex circumference of the area encircled by the remaining teeth, forces arising within this area do not result in the dislodgement of the denture.

FPR-62. C – The primary rotational axis is the line connecting the supporting points of the teeth standing by the edentulous ridge.

FPR-63. D – Class 1B according to Fábián and Fejérdy classification of partial
edentulousness is, when the torque on the abutment teeth caused by the tooth borne denture may be compensated for by including auxiliary abutments.

FPR-64. D – It is not the task of the saddle to improve the aesthetic function of the artificial teeth.

FPR-65. B – The Ceka attachment belongs to the press button attachment system attachments.

FPR-66. E The pontic in the area of the upper incisors, canines and premolars is the ridge lap. The pontic of the upper molars, lower incisors, canines and premolars touches the ridge on one point. The pontic of the lower molars is sanitary.

FPR-67. B The abutment of the bridge can be natural tooth, root or implant.

FPR-68. E The tasks of the fixed prosthetic appliances – among others - are to replace the teeth, to support the soft tissue, to maintain the contact point system, to maintain the centric occlusion, and to re-establish the aesthetics.

FPR-69. A The shoulder preparation finish line is suitable for making a porcelain jacket crown, because of the appropriate support, and the wedging effect is negligible.

FPR-70. B The impression of the shoulder prepared abutment has to extend over the border of the preparation, in this way the right border line can be defined.

FPR-71. A The pontic of the upper incisors, canines and premolars is ridge lap, the pontic of the upper molars, lower incisors, canines and premolars touches the ridge at one point, and the pontic of the lower molars is sanitary.

FPR-72. E Treatment planning for a fixed prosthetic appliance must take into consideration the bite form, conditions of oral hygiene, relationship of the antagonist teeth, and status of the periodontium.

FPR-73. C The pontic of the upper incisors, canines and premolars is the ridge lap, the pontic of the upper molars, lower incisors, canines and premolars touches the ridge at one point, and
the pontic of the lower molars is sanitary.

**FPR-74.** E The pontic of the upper incisors, canines and premolars is ridge lap, the pontic of the upper molars, lower incisors, canines and premolars touches the ridge at one point, and the pontic of the lower molars is sanitary.

**FPR-75.** A The pontic of the upper incisors, canines and premolars is ridge lap, the pontic of the upper molars, lower incisors, canines and premolars touches the ridge at one point, and the pontic of the lower molars is sanitary.

**FPR-76.** E The pontic of upper incisors, canines and premolars is ridge lap, the pontic of the upper molars, lower incisors, canines and premolars touches the ridge on one point, and the pontic of the lower molars is sanitary.

**FPR-77.** A The abutment of the fixed prosthesis can be natural teeth, roots and/or implants. Support of the fixed prosthetic appliance can be dental, implantal or the combination of the implantal and dental.

**FPR-78.** E Parts of the bridge are abutment, retainer and pontic.

**FPR-79.** E Selection of metal alloys must take into consideration the compound, cost, resistance to corrosion, and castability of the alloys.

**FPR-80.** A The abutment tooth can be restored by zinc-phosphate, polycarboxilate, glasionomer cement and composite filling material. Fletcher is used as a temporary filling.

**FPR-81.** B Sulcus widening is not necessary in cases of supragingival shoulder, because the marginal seal of the crown does not reach the sulcus gingivae. Tangential finish line is not applied at the supragingival finish line.

**FPR-82.** D The marginal seal of crowns is influenced – among others - by the precision of the impression, of the cast, of the technician’s work, and by the cementation.

**FPR-83.** A Characteristics of a prosthetic equator: The place of the prosthetic equator of the abutment tooth depends on the direction of the insertion of the denture, it is determined by the
surveyor, and the prosthetic equator determines the placement of the claspfinger, the prosthetic and the anatomic equator can coincide.

**FPR-84.** C When preparing a removable partial denture it is not necessary to make a clasp holding crown in every case, but it has to be made if the shape, placement or status of the abutment tooth is not suitable for holding a clasp.

**FPR-85.** E The tasks of the artificial teeth in an RPD are: restoration of the chewing ability, to provide the individual aesthetic effect, to support the lip and the facial muscles, to maintain the centric occlusion.

**FPR-86.** A The degree of the reduction in size of the connector of the removable partial denture is influenced mainly by the type of support, material of the denture base, and the load bearing capacity of the remaining teeth.

**FPR-87.** E The parts of removable partial denture are: the flange, artificial teeth, denture base and anchorage.

**FPR-88.** A Slide attachment, press button retainers, bar retainers and resilient joints/attachments belong to the precision attachment.

**FPR-89.** C The types of major connectors of upper RPD are: full base, horseshoe (U) shape, butterfly shape (palatal strap), fenestrated (a window on the framework) and skeletal. The butterfly and the skeletal shape leave the palatal rugae uncovered.

**FPR-90.** E Replacement of a broken clasp, direct and indirect relining, rebasing, and extension of the denture belong to the repairing processes of the removable partial denture.

**FPR-91.** E Dysgnathia, malocclusion, disharmony of occlusion and articulation, and certain illnesses of the parodontitum can cause parafunction and influence the masticatory system.

**FPR-92.** A Consequences of edentulousness are: pathologic abrasion, overeruption, overloading of teeth, TMJ dysfunction, phonetic problems, decreased chewing ability, atrophy of masticatory muscles, tilting of the teeth, aesthetic problems, etc.
FPR-93. E Prosthetic appliances can prevent some consequences of edentulousness, but the hardness, abrasion resistance of the materials, stability of prosthetic appliances, and an optimal occlusal surface are important.

FPR-94. A Removable partial prosthetic appliance may be partial dentures, bridges, and splints.

FPR-95. C Parts of the denture base are saddles, connector, and occlusal rest.

FPR-96. E Theoretically the support of the removable partial denture can be dento-mucosal, dental, muco-dental, and mucosal. The mucosal support is not advised in the case of a definitive prosthesis.

FPR-97. A Materials of the denture base (removable partial denture) can be metal, acrylic, and a combination of acrylic and metal.

FPR-98. E Types of major connector by upper RPD: full palatal denture base, butterfly shape, horseshoe shape, fenestrated and skeletal. The reduced denture bases are butterfly shape, horseshoe shape, fenestrated and skeletal.

FPR-99. D Direct retainers of the removable partial denture: clasps, telescopic systems, and precision attachments. Slide attachment, press button retainers; bar retainers and resilient joints/attachments belong to the precision attachments, but the telescopic system does not belong to the precision attachment.

FPR-100. B Indirect retainers of the removable partial denture: indirect retainers, continuous clasp, continuous strap, certain parts of denture base, etc… Direct retainers of the removable partial denture: clasps, telescopic system, and precision attachment.

FPR-101. C There can be one primary fulcrum line, which becomes an actual axis of rotation after insertion of the denture. The denture rotating around this may sink in one direction. Additionally there can be one or more secondary fulcrum lines. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A. There can be only one fulcrum line,
which becomes an actual axis of rotation after insertion the denture; the denture rotating around this, may sink in one direction. The number of the remaining teeth is a maximum of two. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A/1

FPR-102. E There can be only one primary fulcrum line, which becomes a real axis of rotation after insertion of the denture. The denture rotating around this may sink into one direction. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A. There can be only one primary fulcrum line, which becomes an actual axis of rotation after insertion of the denture; the denture rotating around this may sink in one direction. The number of the remaining teeth is a maximum of two. The class according to Fábián and Fejérdy classification of partial edentulousness is 2A/1. There can be one or more primary fulcrum lines, but after the denture is inserted, neither of these becomes an actual axis of rotation, and no torque arises, the class is 1A. There can be one or more primary fulcrum lines from which one can become an actual axis of rotation; the moment of rotation is small so the dental supported denture’s sinking can be compensated for. The class according to Fábián and Fejérdy-classification of the partial edentulousness is 1B.

FPR-103. B The prosthetic appliances which are suitable for increasing the occlusal vertical dimension: a temporary bridge, a fixed bridge, and RPD with dental support.

FPR-104. D Lingual bar, artificial teeth and flange do not take part in the dentomucosal support.

FPR-105. C The clasp holding crowns and the milled shoulder of the crown do not belong to the part of the removable partial denture.

FPR-106. E The tasks of the clasp of removable partial dentures are to provide retention, and support, decreasing the horizontal and vertical displacing force.

FPR-107. C The tasks of the artificial teeth are: restoration of chewing ability, and the individual aesthetic effect, to support the lip and the facial muscles, maintaining the centric occlusion, to solve the phonetic problems.

FPR-108. B The tasks of the denture base of the RPD are prevention of sinking, bearing the
flange, prevention of tilting.

**FPR-109.** C The telescopic system can be used to anchor the removable bridges and the removable partial denture.

**FPR-110.** B The telescopic system retained denture can be used in class of subtotal edentulousness; there are two parts, primary and secondary. The types of telescopic system are cylindrical, conical, cylindroconical. It can be used with an acrylic and a metal denture base. This system decreases the extra alveolar lever arm; there is greater retention of the removable partial denture. The resilience is not type of telescopic system; it is a property of support.

**FPR-111.** C The precision attachment can be extracoronal or intracoronal. Slide attachment, press button retainers, resilient joints and bar retainers belong to the precision attachment, but the telescopic system does not belong to the precision attachment.

**FPR-112.** D The press button anchors can have metal patrix and plastic matrix or metal patrix and metal matrix.

**FPR-113.** C Wire spring clasp and simple wire clasps belong to the wire clasps.

**FPR-114.** C Wire spring clasp, simple wire clasp, and the Kende clasp belong to the wire clasps. The Ney clasps, ring clasp and the Bonwill clasps are types of the cast clasps.

**FPR-115.** D Wire clasp from spring, simple wire clasp, and the Kende clasp belong to the wrought wire clasps. The Ney clasps, ring clap and the Bonwill clasp are types of the cast clasps.

**FPR-116.** C Ceka and OT-Cap attachments belong to the press button attachments.

**FPR-117.** C Localization of the slide attachment can be extracoronal and intracoronal. (It can be crafted between two crowns as well)

**FPR-118.** A The cross section of the McCollum attachment is rectangular, the cross section
of the Braun-Soerensen is rounded rectangle, and the Roach system has a round cross section. We do not know an attachment with a trapezium shape cross section.

**FPR-119. E** The resilient joints belong to the precision attachments. They provide the possibility for the denture, to sink and tilt independently from the abutment teeth. These are prefabricated precision attachments, and the technician builds them between the attachment and the saddle.

**FPR-120. B** It is a characteristic of the Dolder-system: the cross section is oval or semi ellipse, the rotational movement between the clip bar and sleeve can be maximum 10°. The abutment teeth have to be devitalized and decoronated.

**FPR-121. D** The bar of the Dolder system is 2.5 mm high and 1.5-2.5 mm wide.

**FPR-122. C** Sleeve of the Preci-Horix is plastic and can be changed.

**FPR-123. D** The telescopic system provides a rigid attachment, it provides axially directed load on the abutment teeth, the transversal load on the teeth is small, it is complicated to make it.

**FPR-124. D** The telescopic system provides a rigid attachment, it provides axially directed load on the abutment teeth, and we have to remove a lot from the abutment teeth during preparation. Making a telescopic system retained denture has more steps than making a clasp retained removable partial denture.

**FPR-125. A** The axial wall of the primer crown can be cylindrical, conical, cylindroconical.

**FPR-126. E** The insertion of the removable partial denture depends on the type of anchorage, the number and axis of the remaining teeth, and the extension of the denture base.

**FPR-127. C** The precision attachment can be made only from platinum- gold, or cobalt chromium alloys. These are wear-resistant alloys.

**FPR-128. B** The prosthetic equator of the natural teeth, the path of insertion, placement of
clasps are determined by the surveyor. The number of clasps cannot be decided by the surveyor. The dentist decides it considering the influencing factors.

**FPR-129. C** Third class abutments are the lower first and second incisors. The prosthetic value of wisdom teeth and the second upper incisors depends on their development.

**FPR-130. B** During the try in of a metal framework we have to check the stress free insertion, the retention of the clasps, the occlusal rests, occlusion and articulation.

**FPR-131. A** Conditions of increasing the vertical dimension with prosthetic methods: remaining teeth form an occlusion unit on both sides of the jaw, a necessary width of the interocclusal space; the patient is too old for orthodontic treatment. Stuttering doesn’t associate with deep-bite.

**FPR-132. E** Tasks of the saddle of the removable partial denture: To bear the flange, and the artificial teeth, to stop the horizontal displacement of the removable partial denture, to transmit the load to the mucoperiosteum.

**FPR-133. A** The connector of the removable partial denture connects the saddles, it takes part in the retention of the denture, and it transmits the load to the mucoperiosteum. But the partial denture is not splinted with the abutment teeth.

**FPR-134. E** The consequences of edentulousness may be: food impaction, tilting of the tooth, non-axial load on the tooth, overeruption.

**FPR-135. A** The butterfly shaped framework can be reduced in size on the region of incisive papilla, on the palatal rugae, before the A line. But it must not be reduced on the distal part of upper alveolar ridge.

**FPR-136. D** The primary abutments of prosthetic value are the upper central incisors, upper second molars. Secondary values are the upper and lower premolars, third class abutments are the lower first and second incisors.

**FPR-137. C** Ney clasps are cast clasps; the Ney III type has an occlusal rest and a semilunar
claspfinger. Ney V type has two occlusal rests; Ney II type has two semilunar clasp arms.

**FPR-138. E** Ney I, II types, the Gerber G clasp and the Budlong clasps have at least one occlusal rest.

**FPR-139. D** The prosthetic equator determines the placement of the cast clasp, and it touches at least three retention zones.

**FPR-140. A** Tasks of the occlusal rest: to transmit the load to the teeth, to decrease the lateral movement of denture, it can be also an indirect retainer. It doesn’t protect the denture from the force lifting it from its base.

**FPR-141. D** The telescopic system provides rigid attachment and dental support of the denture.

**FPR-142. C** The slide attachment guarantees rigid attachment and dental support.

**FPR-143. C** The line connecting the clasp is same as the fulcrum line, a line between the clasp holding abutments.

**FPR-144. A** The survey method has to be used for manufacturing telescopic system, slide attachment, and bar.

**FPR-145. A** There is no fourth class tooth of prosthetic value, only tooth with variable value.

**FPR-146. D** The OT-CAP and the Ceka system belong to the press button attachments, the McCollum and the Roach system belong to the slide attachments.

**FPR-147. E** Parts of the Ceka system are: place maintainer, retentive part, base circle, and press button.

**FPR-148. C** Cast cap covers precisely the prepared abutment on every surface and it can also be made on a shoulder-prepared abutment.
FPR-149. B The cast crown covers precisely the prepared abutment on every surface, it has an anatomic shape, and its fabrication needs a precision and a situation impression, antagonist impression and jaw registration.

FPR-150. D Task of the clasp holding crown’s gingivo-occlusal eminence is to protect the marginal gingiva and to provide the clasp retention.

FPR-151. E During the try-in of a bridge framework the path of insertion, the marginal seal of the crowns, the occlusion and articulation and the protection of the interdental papilla has to be checked.

FPR-152. E During the try in of a crown framework we have to check the crown's relationship to the marginal gingiva, to the abutment, to the neighbouring teeth, and to the opposing teeth.

FPR-153. E Inlays, onlays, crowns, post-and-core systems, bridges, and splints belong to the fixed prosthetic appliances.

FPR-154. A Characteristics of the cast crown with an acrylic facing: it can be made on an abutment with or without a shoulder, the facing is retained mechanically, and the incisal edge must be protected by metal.

FPR-155. B Characteristic of the porcelain fused to metal crown: it can be made on an abutment with or without a shoulder, the incisal edge does not have to be protected by metal, abrasion resistant, it keeps its shape and colour, and it has to be placed on the abutment without any stress.

FPR-156. E A post-and-core can be made, if the root is at least 8-10 mm long with a correct root canal filling, 2/3 of the length of the root can be used, the post has to be at least as long as the crown.

FPR-157. D The post-and-core with a cap surrounds the root surface and a porcelain crown can be made on it, too.

FPR-158. A Post-and-core systems are: simple post-and-core, post-and-core with a cap, and
post with an inlay.

**FPR-159.** C The prefabricated post-and-core can be used easily and quickly, and it does not cover the whole occlusal surface of the root.

**FPR-160.** E The abutments of a bridge can be natural teeth, implants, roots, and roots built up with post-and-core.

**FPR-161.** E The anchors of a bridge can be crowns, post-and-core, inlay, and pinledge.

**FPR-162.** D Conditions of making a porcelain jacket crown are: at least 1 mm wide shoulder and the prepared abutment must be at least 3 mm high.

**FPR-163.** B Types of the full veneer crowns are cast crowns, swaged crowns and two part crowns.

**FPR-164.** A The shoulder, sloped shoulder, and chamfer (Orton) finish lines are suitable for porcelain fused to metal crowns.

**FPR-165.** C The abutment can be supplemented by glasionomer cement and composite filling material.

**FPR-166.** E Dual cement, Glasionomer cement, Zinc-phosphate cement and composite cement can be used for the permanent cementing of fixed prosthetic appliances.

**FPR-167.** D "Immediate" means at once, without delay. The immediate denture can be inserted at the same visit with the tooth extraction. It has aesthetic and functional tasks as well.

**FPR-168.** A The open slide attachments permit the vertical movement and sinking of the denture, so the anchorage is rigid, but there is no dental support.

**FPR-169.** E The load bearing is not the physiological task of the mucoperiosteum. The ideal support of the prosthetic appliances is dental, so the treatment planning will be better with maximal dental support of the denture.
FPR-170. B Indirect retainers of the removable partial denture: tilt inhibitors, continuous clasps, certain parts of the denture base, etc…They stabilize the denture against forces that would remove it from its base.

FPR-171. A Reduction of the removable partial denture’s connector (untill the permanent deformation due to stress) depends only on the support of the denture. In case of dental support the remaining teeth bear the load.

FPR-172. C The closed slide-attachment guarantees the dental support of the removable denture, so the denture will have dental or mixed support. The remaining teeth should be splinted (2 teeth per each slide attachment) only in the necessary extension.

FPR-173. C The casting of an impression on a vibration desk is effective because the cast will not have air-bubbles. It doesn’t make easier to remove the cast. It does not depend on the impression materials.

FPR-174. A It is not the physiologic task of the mucoperiosteum to bear the load resulting from the mastication that is why the removable partial denture has to have dental support if it is possible.

FPR-175. C The continuous clasp - as all indirect retainers on the teeth - is placed always above the prosthetic equator; consequently its effect is not based on the elastic tension.

FPR-176. D The dentist outlines the borders of the cast metal framework on the working cast after examining the mouth. After this step the technician makes the refractory cast. Casting is done on the refractory cast.

FPR-177. D The lingual bar is the part of the denture base, but it does not take part in the support of RPD, and doesn’t belong to the indirect retainers.

FPR-178. D In the class 1B of the Fábián and Fejérady classification not only fixed prosthetic appliances can be made. In case of the replacement of one canine with a fixed appliance an extended bridge should be made.
FPR-179. D The task of the prosthesis is to prevent the immediate and late consequences of edentulousness. The good denture restores the versatile function of the teeth in the masticatory system.

FPR-180. C An extended edentulousness can cause overload, and pathologic abrasion of the teeth. The tongue’s increased use in creating bolus causes hypertrophy. The facial muscles generally suffer involution.

FPR-181. E It is not the physiologic task of the mucoperiosteum to bear the load resulting from the mastication; therefore if it is possible the removable partial denture has to be dentally supported, too.

FPR-182. A The removable partial denture is a prosthesis taking more space than the natural teeth, because it covers some parts of the mucosa and replaces the resorpted alveolar process.

FPR-183. B The dentist determines borders of the metal framework of RPD based on careful examination of the mouth. During the altered cast technique the clasp-system can be cast together with the metal framework. Clasps belong to the retainers.

FPR-184. A The reduction of connector depends on the support of the removable partial denture and the material of the denture base. The remaining teeth are bearing the load in case of dental support. The connector of the pure dental supported removable partial denture has only the task to connect the saddles; therefore the denture base can be reduced in size.

FPR-185. C Characteristics of the 2B class according to Fábián and Fejérdy classification: there can be two or more primary fulcrum lines among which one becomes a real axis of rotation after the denture is inserted. The denture rotating around this axis may sink into one direction.

FPR-186. B To make a slide-attachment retained removable partial denture at least two teeth pro slide-attachment have to be splinted by crowns. This principle regards to other precision attachments as well. This way the overload of the abutments can be prevented. No clasp is necessary because slide attachment provides the retention of the denture.
FPR-187. E The dentist determines borders of the metal framework of RPD based on careful examination of the mouth. After this step the refractory cast is made from investment material. The metal framework is cast on the refractory cast. The metal denture base and clasp system can be cast together. The metal denture base done by the altered cast method can be made with an alginate-impression as well.

FPR-188. C The bar anchors the denture well against the lateral movements, that is why the bar retained removable partial denture is considered as an advantageous solution for the 2B and 2A/1 class according to Fábián and Fejérdy classification.

FPR-189. E In case of healthy periodontium the primary value abutments are the canines and upper first molars. The prosthetic value depends on the status of the periodontium. The cantilever bridge has to have at least 2 abutments, independently from the status of the periodontium.

FPR-190. A The primary class teeth of prosthetic value with good parodontal status are main abutments, but additional abutments should be involved, because of the extreme load caused by the expressed arch of the edentulous alveolar ridge, dental anomalies, or dysfunction, in order to protect the overloading of the abutment teeth.

FPR-191. D The removable partial denture may have better aesthetic effects than the fixed partial denture, when the resorped alveolar process has to be also replaced. The porcelain can be modified more individually than the prefabricated artificial teeth.

FPR-192. C The cross section of the wire clasps can be round or half round made from elastic or wire. The spring type resilient joints/stress breakers (stress directors) are prefabricated devices, crafted between the clasp and the saddle, to permit the movement of the denture independent from the abutment teeth.

FPR-193. E Bonyhárd-clasp belongs to the spring (stress breaker) wire clasps; consequently it provides a non-rigid anchorage, therefore the load on the remaining teeth is independent from the load on denture.

FPR-194. B The continuous clasp belongs to the indirect retainers. It can only be effective
together with direct retainers. It prevents the rotation of the denture, but it doesn’t prevent sinking, so the abutment teeth can be dislocated (fan-shaped dislocation).

**FPR-195. A** The saddle-far occlusal rest can act as a tilt inhibitor, because it can increase the effectiveness of clasp by preventing rotation.

**FPR-196. C** The anchorage of the denture can be rigid or non rigid. Anchorage is the fixation of the prosthesis against the force that would remove it from its base (those components of the masticatory force which differ from the vertical direction).

**FPR-197. B** The support of the denture can be dental, mucosal, mucodental and dentomucosal. The clinical anatomic features and the parts of denture have to make a functional unit.

**FPR-198. C** The border of metal denture base, localization of the clasps and the prosthetic equator is outlined on the master cast. The wax-up of the metal framework is made on the refractory cast.

**FPR-199. A** The fit of the finished metal denture base is checked on the master cast, because the working cast is damaged during casting process.

**FPR-200. E** The wax-up of the metal denture base, made by the altered cast technology, is made on the refractory cast. The cast metal framework is put on the master model to check the fit of the denture base.

**FPR-201. A** In case of subtotal edentulousness a telescopic retained denture is often suggested, because the remaining teeth are loaded axially, which is advantageous.

**FPR-202. C** The crowns of the telescopic system can occasionally be abutments of a bridge, but it is a removable bridge, the patient can remove it. The primary and secondary crowns must not be cemented to each other.

**FPR-203. A** A clasp with one arm must not be used, because this way nothing guarantees the reciprocal force, and the periodontium of the abutment tooth is damaged due to the elastic stress
of the clasp.

**FPR-204.** B Only the parts of the cast clasp can be distinguished correctly. The cast clasp is waxed-up from prefabricated parts.

**FPR-205.** A The tilt inhibitors are also called indirect retainers, because they don’t act directly against the lifting forces, they only support the action of the clasps.

**FPR-206.** E The saddle-far occlusal rest and not the saddle close occlusal rest can act as an effective tilt inhibitor (indirect retainer), because the saddle close support doesn’t prevent the rotation of the denture effectively.

**FPR-207.** A Slide attachments provide rigid anchorage, because they permit only vertical movements of the prosthesis.

**FPR-208.** D The prosthetic equator of the natural teeth, the path of insertion, and placement of clasps are registered by the surveyor. The surveyor determines the biggest convexity of the tooth, because the prosthetic equator is often different from the anatomic one.

**FPR-209.** C The pontic of a fixed partial denture should connect the abutments possibly in a straight line, because this form fulfils the biomechanical requirements best.

**FPR-210.** B The alginate impression-materials are used without any sulcus widening, because it is mainly used for anatomic or study impressions, and for these, sulcus widening is not necessary. Alginate can easily be removed from the undercut areas.

**FPR-211.** B Prosthetic rehabilitation is indicated, if due to tooth extraction either an immediate or subsequent damage is possible. A crown can also be made in case of discoloured tooth, tooth with hypoplastic enamel or tooth with wrong placement.

**FPR-212.** E The prosthetic value of the teeth is influenced by the status of the periodontium. Independently of this, the ratio of the clinical crown and root changes during the whole life.
FPR-213. E The electrochemical corrosion can cause subjective symptoms, but it has no direct consequence on the wearing time of the denture.

FPR-214. E The simple post-and-core is not made in order to increase the rigidity of the root; the post does not prevent the fracture or cracking of the root.

FPR-215. C An acrylic crown, made on a post-and-core is recommended only as a temporary appliance, because the acrylic crown is not appropriate for a definitive prosthetic appliance.

FPR-216. D The post-and-core with black plate cannot to be fixed permanently with zinc-oxyde-eugenol cement, because its fixation is not strong enough for a long period. If the facet is damaged, the crown cannot be changed separately it can only be repaired.

FPR-217. D On the root built up with a prefabricated post-and-core, a crown can only be made with an impression, but the using of the prefabricated post makes the casting of the post-and-core unnecessary.

FPR-218. C The teeth adjacent to the edentulous ridge are called the main abutments, although the teeth adjacent to the edentulous ridge have not always the highest prosthetic value.

FPR-219. C The more expressed the vestibular arch of the pontic, the bigger the load on the abutments is, and consequently sometimes additional abutments are needed.

FPR-220. A The prosthetic value of the teeth is greatly influenced by the periodontal status, because the prosthetic value of the teeth depends first of all on the load bearing capacity and on their placement in the dental arch.

FPR-221. E The edge of the temporary crown made on a shoulder prepared tooth must not be made as thin as a knife edge. The temporary crown must not touch the marginal gingiva in case of tangential preparation.

FPR-222. E The surfaces of the tooth have to be isolated and dried when using carboxylate cement.
**FPR-223.** E If the abutments have a great difference in the parallelism of their axis fixed bridgework is not contraindicated. Nor the teeth have to be devitalized preventively.

**FPR-224.** E Generally the metal alloys of fixed appliance do not contain gold, but they are corrosion resistant in the mouth.

**FPR-225.** A Application of appropriate coolant is necessary every time during the preparation of vital teeth, to avoid pulp-damage.

**FPR-226.** B The full veneer crown should have an anatomic form; one reason of this is considering the protection of the marginal gingiva.

**FPR-227.** D
**FPR-228.** C
**FPR-229.** B
**FPR-230.** C
**FPR-231.** D The saddle and the connector of the removable partial denture are parts of the denture base, and they can take part in the anchorage of the denture. The extension of the connector depends mainly on the support of the removable partial denture. They can be made from metal or acrylic. If the prosthesis is only dentally supported these parts of the removable partial denture will not take part in the transmitting of the load to the mucoperiosteum.

**FPR-232.** D
**FPR-233.** C
**FPR-234.** D
**FPR-235.** A
**FPR-236.** C
**FPR-237.** D Only the removable partial denture can be planned in every class of partial edentulousness. Both of them (RPD and FPD) can be provisional or definitive appliances, and the protection of the marginal gingiva is important. Making none of these claims only a precision impression. For none of these is characteristic that they can be applied only in free-end saddle cases. The prosthetic appliance does not influence the physiological vertical dimension.

**FPR-238.** A
The symptoms of denture stomatitis can develop on any of them. The palatum alveolare can bear more load than the palatum proprium and it is same as the oral declination of the upper alveolare ridge. In the middle of the palatum proprium the palatal torus can be located. None of these can guarantee the good support of the lower denture, because these features belong to the upper jaw.

Both of these can take part in support of the denture and bear the flange. The great flexural strength and difficult correction is typical of the metal denture base. The acrylic denture base can be reduced in size very little, but it is an effective heat insulator. The last feature is disadvantageous.

Both of them can be used without veneer crowns, and they belong to the devices of retention. Only the fingers of the cast clasp are placed under the prosthetic equator. Material of wire clasps can be stainless steel crafted with cold processing method. None of these are suitable for anchoring fixed appliances, and reciprocation has to be guaranteed in case of their usage.

More primary rotational axes can exist only when the number of the remaining
teeth is at least three. In telescopic retained appliances we make a delayed resilient dental support in Class 3, because the resilience of the mucosa. A distance of 0.5 mm is provided between the occlusal surfaces of the primary and secondary crowns with a foil. In the Class 3 according to Fábián and Fejérdy classification there can be one or more primary fulcrum lines from which one or more may become a real axis of rotation after the denture is inserted, the denture rotating around them can sink in two directions.

FPR-259. B
FPR-260. B
FPR-261. D The occlusal rest belongs to the metal denture base functionally, but to the clasp morphologically. Enough space has to be provided for the occlusal rest to prevent occlusal interference. The mechanism of the clasp is based on elastic tension they provide non-rigid anchorage.

FPR-262. B
FPR-263. A
FPR-264. A The palatal connector should be adapted precisely where it transmits the load to the mucosa. The lingual bar does not touch the mucosa, it is placed in 1mm distance from the mucosa in the sublingual region. Calculus can be deposited on it, because it is located at the oral opening of the sublingual and submandibular gland. The cross section of the lingual bar is half drop.

FPR-265. A
FPR-266. C
FPR-267. D
FPR-268. C
FPR-269. C Post-and-core, inlay, onlay and pinlay can be additional abutments, but inlay, onlay, pinlay belong to the anchors of bridge or splint.

FPR-270. B
FPR-271. C
FPR-272. D
FPR-273. D
FPR-274. A Both of these have to cover the whole prepared surface. The partial crowns have longer margins than the full veneer crowns. The full veneer crown covers the clinical crown of the prepared tooth. Both can be prepared for filled teeth, and without shoulder preparation.

FPR-275. A
FPR-276. C
FPR-277. B
FPR-278. C
FPR-279. C
FPR-280. D
FPR-281. D The overlaying surface - borderline ratio of the MOD metal onlay is more disadvantageus than of the full veneer crowns. Both of these are made of well castable metal, have to replace the approximal shape and contour of the tooth, and have to replace the occlusal surface. None of these may have a harder material than the dental enamel; their attachment is not based on elastic tension.

FPR-282. A
FPR-283. B
FPR-284. C
FPR-285. C
FPR-286. D
FPR-287. D
FPR-288. C
FPR-289. C The simple post-and-core is not made in order to increase the rigidity of the root and the post does not prevent the cracking and fracture of it.

In both cases the post and the core is cast together. Both are suitable for the correction of axial deviation, the post in the root is shorter than the root itself, they can be made from silver-palladium.
The simple post-and-core covers only the occlusal surface of the root, the post-and-core with cap surrounds the whole surface of the root, but neither of these is suitable for an independent prosthesis. A stainless acrylic doesn’t exist.
Complete edentulousness
Explanations

FPT-1. (D) The artificial tooth is an active part of the complete denture. The functions of the artificial tooth are eating, forming the bite, having aesthetic and phonetic functions, reproducing the centric occlusion.

FPT-2. (B) The buccal frenum is clinical anatomic feature of premolar region. The extension of the denture base depends on it. If we do not take care of this feature, the stability of complete denture can decrease.

FPT-3. (C) The secondary cast of the complete denture is casted of Plaster of Paris because its properties can suit the requirements of the secondary cast completely.

FPT-4. (E) Physical retentive forces of the complete denture are capillary pressure, (adhesion, cohesion), vacuum, gravity and masticatory load.

FPT-5. (A) The stop line is defined as the distal border of the occlusal surface, behind the stop line additional artificial teeth must not be set up.

FPT-6. (B) After inserting the denture the patient will have hypersalivation. More saliva causes temporary symptoms for the patient. It happens in every case if a foreign body is in the mouth.

FPT-7. (C) The flange of the upper complete denture has to be on the border of the movable and mobile mucosa. If the denture base is extended till this border, it will be called an extended denture
FPT-8. (C) The retromolar pad is connective tissue, placed at the distal border of the alveolar ridge. The base of the complete denture can be extended on the first third part of it because of its histological structure.

FPT-9. (D) The interproximal contact point-system of the artificial teeth does not have a functional task; it is checked during the investigation of aesthetics.

FPT-10. (E) The base of an upper complete denture plays a main role in the denture stability. Vacuum is influenced by the borders and the extension of the denture so that base of the complete denture should not be reduced.

FPT-11. (E) One of the consequences of edentulousness is tongue hypertrophy because the tongue will have more tasks while eating and forming the bite. It occupies the available space created by loosing the separation between the cavum oris proper and the oral vestibule.

FPT-12. (A) The lateral pterygoid muscle is the only muscle, which acts upon the protrusion of the mandible. Consequences of edentulousness will be compulsory progenia because the teeth will not arrest the protrusion of the mandible.

FPT-13. (B) The line that connects the lateral teeth’s vestibular and the front teeth’s root-apexes is the apical base.

FPT-14. (A) The flabby ridge is a type of edentulous ridge, the form of the jaws can not be changed by it. If the alveolar ridge is overloaded the bone of the alveolar process will resorb and it will be replaced by connective tissue. A prevalent localisation of this phenomenon is the front region of the upper alveolar ridge if the premolars and molars are missing and the remaining teeth are the lower incisors. It is caused by the overload of the alveolar ridge.

FPT-15. (C) The plica linea obliquae is running along the margo anterior of the coronoidal process and the oblique line.

FPT-16. (E) The transversal retromylohyoid plica starts at the palatoglossal arch, runs the base of the
retromolar pad, ends at the movable mucosa of the oral surface of the ridge.

**FPT-17. (D)** Features of the retromolar area: 1. retromolar pad, 2. tuberculum masseter split, 3. lingual pouch

**FPT-18. (A)** see at 17.

**FPT-19. (B)** see at 17.

**FPT-20. (C)** The retroalveolar fovea is placed under and behind the mylohyoid line in the lingual pouch. see at 17.

**FPT-21. (D)** Palpation of the retroalveolar fovea has prosthetic significance. If it is stable it can be used for increasing the stability of the denture. Base of the complete denture has to be extended on it, if the muscles of the oral diaphragm don’t narrow the pouch.

**FPT-22. (D)** The angle between the lower alveolar ridge and the inner surface of the mandibular ramus is 2°- 24°. It plays a significant role in the extension and retention of the denture.

**FPT-23. (E)** The borders of the recessus mandibulae accessorius (buccal shelf): alveolar ridge – oblique line – tuberculum-masseter split, the area of mesial edge of the second molar.

**FPT-24. (A)** The buccinator split is the buccal pouch if the buccal mucosa is smooth and deviating to the medial plan.

**FPT-25. (B)** The prosthetic significance of the mandibular torus: it is covered by a thin layer of mucosa and sensitive to pressure. It has to be foiled.

**FPT-26. (E)** The mandibular torus is placed on the lingual side of the mandibular residual ridge symmetrically on the premolar area. There are two types of it: symmetrical and asymmetrical. It is not used for support, and anchorage of the denture, because of the thin mucosa covering it.

**FPT-27. (B)** The occlusal surface of edentulous alveolar ridge is covered by tight, attached mucosa, it can be used for retention and load transmitting. The denture base is usually not restricted on it.
FPT-28. (A) Palatal torus is placed on the palate proper, at the area of the midpalatal suture. Due to its localisation and mucosa, it has to be foiled.

FPT-29. (B) The palatine raphe is placed on the palate proper at the area of the midpalatal suture.

FPT-30. (C) Palatal torus is placed on the palate proper, at the area of the midpalatal suture, it has to be foiled, because its mucosa is pressure sensitive.

FPT-31. (D) The palatal fovea can help the determination of the post dam area of the denture. It is placed near the border of the soft palate and the hard palate.

FPT-32. (E) Palatal fovea is placed near the border of the soft and the hard palate, on both sides of the midpalatal suture.

FPT-33. (A) Adhesives are recommended to the patient if additional retention of the complete denture is needed. The other accessory retentive procedures and adhesives are not recommended because they have damaging effects.

FPT-34. (A) The lingual pouch has an undercut surface for the retention of the lower complete denture.

FPT-35. (E) Physical retentive forces of the complete denture are adhesion, cohesion, capillary pressure, vacuum, gravity and masticatory load. The most effective retentive factor of complete denture is vacuum consequently the upper denture usually has a relatively great stability.

FPT-36. (D) Definition of inner border seal: establishing a persistent pressure-differential between the saliva film beneath the denture / impression surface / and the intraoral air by sinking the denture into the thick mucosa

FPT-37. (B) Gravity is an effective physical retentive force only on the lower complete denture

FPT-38. (E) The brachycephal head form is typical of athletomorph-type patient.
FPT-39.  (D) The euryprosop face-form is typical of athletomorph-type patient.

FPT-40.  (A) The dolichocephal head form is typical of leptosome type patient.

FPT-41.  (B) The leptoprosop face-form is typical of leptosome type patient.

FPT-42.  (C) The primary impression can be taken with a stock tray, and it is an overextended and mucostatic impression.

FPT-43.  (E) The anatomic (primary) impression has to be overextended in order to outline the borders of the special tray on it. This principle is true to every type of impression.

FPT-44.  (A) Opening of the mouth can be used for checking the location of the pterygomandibular raphe, compared to the border of the special tray.

FPT-45.  (E) The greatest angulation of the interalveolar line is located at the area of the second molars.

FPT-46.  (C) The inferior labial frenum is placed in the midline of the lower sulcus.

FPT-47.  (B) The gravity is not an effective retentive force for the upper complete denture.

FPT-48.  (E) The special tray can be elevated by the mylohyoid muscle while lifting the tip of the tongue to the hardpalate.

FPT-49.  (E) The palatine fovea is placed near the border of the soft and hardpalate on both sides of the midpalatal suture. It doesn’t need to be foiled.

FPT-50.  (D) The choosing of the artificial teeth does not depend on the patient’s hairstyle.

FPT-51.  (A) The interalveolar line is the line connecting the upper and lower alveolar ridge. If the angle between this line and the occlusal plane is less than 80° in the molar region, the artificial molars have to be set up in cross bite.
FPT-52. (D) All the cusps of the second molar should touch the occlusal metal plate.

FPT-53. (E) The handle of the special tray does not determine the height of the occlusal rim.

FPT-54. (C) A 1.5-2 mm wide space has to be established between the border of the special tray and the functional soft tissue.

FPT-55. A) The relation between the border of lower special tray and the border of the finished denture: the functional tray is 1.5-2 mm smaller than the denture base.

FPT-56. (E) Baseplate wax can not be used for impression taking.

FPT-57. (A) The occlusal rim belongs to the record base, not to the Gerber intraoral tracing system.

FPT-58. (A) The rims of a well-trimmed occlusal rim fit together smoothly in central occlusal position. During mandibular propulsion, a space opens between the posterior parts of the occlusal rims on both sides, opened to the distal.

FPT-59. (E) The transversal (lateral) Christensen phenomenon is: a wedge-like space opened to the distal that develops on the non-working side of the well-trimmed occlusal rim, in lateral position of the mandible.

FPT-60. (B) The depth of the post-dam: 0.3-1.0 mm.

FPT-61. (C) The width of the post dam: 2-4 mm.

FPT-62. (D) Before pouring the functional impression the technician fixes a wax roll in 3 mm distance from the edges of the functional borders of the impression to retain the depth and with of the sulcus on the cast.

FPT-63. (D) The simple hinge articulator can reproduce the centric occlusion but it can’t reproduce the masticatory movements.

FPT-64. (B) Remontage means rearticulating the one-two week’s old complete denture to correct
the occlusion and articulation.

FPT-65. (D) The lower canine leans to the midline and tongue.

FPT-66. (A) It leans to the mesial and the lips

FPT-67. (B) It leans to the distal and towards the throat.

FPT-68. (C) The bite-plane is parallel to the Camper’s-plane (subnasale – porion)

FPT-69. (B) The 72% of canines are darker than the tooth before and after

FPT-70. (A) The reduced denture base does not even cover the whole alveolar ridge.

FPT-71. (B) The conventional denture base covers only the entire alveolar ridge, while the extended denture base is extended to other territories as well.

FPT-72. (C) „b, p, m” belong to the bilabial voices, because their pronunciation involves both lips.

FPT-73. (A) The retentive factors of the upper complete denture: 1. clinical anatomic features 2. physical factors, 3. adhesives or additional factors. Retentive factors of the upper complete denture do not include gravity

FPT-74. (E) Functions of the artificial teeth among all is to restore chewing ability, to re-establish individual aesthetic character, to support the lip and the facial muscles and to keep the centric occlusion.

FPT-75. (A) The materials of the denture base can be metal alloy, acrylic, and mixed

FPT-76. (B) Denture pastes, spring stabilizers and methods of trimming belong to the additional retentive factors of the complete denture.

FPT-77. (B) Molar artificial teeth of the complete denture can be made of porcelain, acrylic, and metal alloy. The decision depends on the aesthetic and functional demands and financial factors.
FPT-78. **(B)** Surfaces of the complete denture: 1. occlusal and incisal surface 2. polished surface, 3. non-polished (tissue) surface. They have to be individualized according to the complex functional theory, in order to serve the retention of the denture.

FPT-79. **(C)** The post dam of the complete denture can be determined by drawing or by the functional method. Determination of it plays a main role in the stability of the denture.

FPT-80. **(C)** The areas to be foiled and the stopline can be outlined on the secondary cast. The stopline is the distal border of the molars. Foiling is: protecting certain areas of the mucosa from excessive masticatory load.

FPT-81. **(D)** The border of the special tray can be drawn on the primary cast or impression by the dentists with touching the intraoral features for gathering information about their clinical anatomic state.

FPT-82. **(D)** The labiodental vowels are „v” and „f”. Setting of the front teeth influences their pronunciation significantly.

FPT-83. **(E)** The types of artificial teeth setting-up concepts: Gysi, Fehr, Fischer and Hildebrant. Using them depends on aesthetic and functional factors.

FPT-84. **(B)** The facial appearance changes because of atrophy of the masticatory system, decreased vertical dimension and the missing support of the soft tissues. These changes can negatively influence the social integration of the patient.

FPT-85. **(B)** The types of the complete denture are: conventional, reduced, and extended. The extended denture base increases stability the most.

FPT-86. **(E)** The lower edentulous ridge forms are: completely preserved ridge, anteriorly preserved, laterally flat ridge, resorbed ridge and deeply resorbed ridge. The form of the edentulous ridge has a major influence on the stability of the denture.

FPT-87. **(B)** The retromolar pad is connective tissue, placed on the distal border of alveolar ridge.
The base of the complete denture can be extended on the most anterior third part of it because of its histological structure. The features of retromolar area 1. retromolar pad, 2. tuberculum masseter split, 3. lingual pouch.

FPT-88. (C) Mylohyoid and superior constrictor muscle of pharynx can influence the extension of the denture flange into the lingual pouch in order to increase the stability of denture.

FPT-89. (A) The glossopharyngeal part of the superior constrictor muscle of the pharynx can influence the extension of the complete lower denture flange into the lingual pouch, to increase the stability of the denture. The denture base’s extension into the lingual pouch produces an extended denture base.

FPT-90. (C) The prosthetic significance of the recessus mandibulae accessories (buccal shelf) is: to reduce the lateral movements of the denture, the mucoperiosteum of it has the maximal resistance against load. If this territory is used, the denture base is named extended denture base. Advantage of it is increased stability.

FPT-91. (B) Types of the buccal mucosa: 1. smooth surfaced, tilting towards the medial plane, 2. smooth surfaced tilting away from the medial plane, 3. lobular. This feature has a major effect on the shaping of the polished surface of the lower complete denture.

FPT-92. (C) The areas of the oral diaphragm are the sublingual, and paralingual area. They are symmetric or slightly asymmetric.

FPT-93. (B) 1. genioglossal muscle, 2. geniohyoid muscle, 3. glossopharyngeal part of superior constrictor muscle of the pharynx. These are the muscles of the oral diaphragm with an origin above the mylohyoid muscle. The extension of the base of a complete denture is influenced by them.

FPT-94. (E) The muscles with an origin under the mylohyoid muscle: 1. anterior belly of digastric muscle, 2. posterior belly of digastric muscle, 3. hyoglossal muscle, 4. styloglossal muscle. The extension of the base of a complete denture does not depend on them.

FPT-95. (B) Types of mucosa in the mouth are: 1. tight, attached mucosa, 2. movable, 3. mobile. The border of the denture base depends on the type of the mucosa.
FPT-96. (C) Buccal frenum and lower labial frenum are the mucosal folds that can be found in the lower vestibular sulcus. The denture base, in effect stabilizing the denture, does not cover these areas.

FPT-97. (D) Parts of the hard palate are the palatal process of the maxilla and the horizontal lamina of the palate bone. The upper complete denture is extended until the border between the hard palate, and soft palate.

FPT-98. (C) The hard palate has two parts: the palate proper and alveolar palate. The area of alveolar palate is covered by thick layer of mucosa with submucosa and the palate proper is covered by thin layer of mucosa that is painful for pressure. The planning of the denture base of the partial denture depends on it.

FPT-99. (D) The distal border of the hard palate is the crista palatina and the posterior nasal spine. The distal border of the upper denture base is on the vibrating line.

FPT-100. (C) In the area of the intermaxillary suture are the palatal torus and midline raphe. It is covered by thin layer of mucosa consequently it is recommended to be foiled.

FPT-101. (E) In the midline of hard palate are the incisive papilla, the palatal torus, the midline raphe and the posterior nasal spine. This region is usually sensitive to pressure, covered with thin mucosa. Thus it is suggested to foil this region.

FPT-102. (D) The prosthetic significance of the incisive papilla: 1. it is sensitive to pressure, thus it should be foiled 2. its relative position to the residual ridge indicates the amount of bone resorption. It can be found in general in the midline of the palate.

FPT-103. (E) Physical retentive factors of the complete lower denture are capillary pressure, vacuum, gravity and masticatory load. There are physical retentive factors, clinical anatomic retentive features and additional retentive factors.

FPT-104. (C) The most common undercut area of the maxilla can be found usually at the vestibular surface of the maxillary tuberosity and at the vestibular surface of the ridge between the right and left buccal frenum. Favourable denture stability can be achieved if the base is extended to these regions.
FPT-105. (A) The surface tension of the saliva in conjunction with the cohesion between the saliva-molecules, adhesion between the saliva- and the mucosa-molecules establish the capillary action between the mucosa and the tissue surface of the full denture. They belong to the physical retentive factors.

FPT-106. (B) Physical retentive factors of the upper complete denture are capillary action, vacuum, and masticator load. Besides the physical retentive factors there are clinical anatomic features and additional retentive factors.

FPT-107. (E) The indications of using adhesives in case of adequate prosthetic procedure of denture construction are: 1. to ease the incorporation phase of the first denture, 2. to increase the functional capacity of the immediate denture, 3. to shorten the incorporation period, 4. to increase the retention of the prosthesis in case of maxillo-facial defects. Besides the additional retentive factors there are physical and clinical anatomic retentive features.

FPT-108. (B) The primary impression can be taken with a stock tray, it is an overextended and mucostatic impression. alginate or silicone impression materials are used for taking the primary impression in most cases.

FPT-109. (A) Plaster of Paris, alginate or silicone impression materials can be used for taking the primary impression.

FPT-110. (C) The border of the special tray can be drawn on the primary impression or on the anatomic (primary) cast by the dentist.

FPT-111. (B) Steps of taking the secondary (functional) impression: 1. individual adjustment of the special tray, 2. taking the secondary impression, 3. checking the secondary impression. For taking second impression functional movements are necessary.

FPT-112. (D) If the occlusal rims are trimmed and fixed in propulsion there will be occlusal contacts only in the molar region, the distance between the lower and upper incisors in the sagittal plane is higher than it should be, the occlusal vertical dimension will be higher than optimal; consequently the jaw registration must be repeated.
**FPT-113. (B)** The stopline is defines the distal border of the occlusal surface, behind stopline must not set up any artificial tooth. It will be outlined 15-20 mm before the retromolar pad.

**FPT-114. (C)** Principles of setting up incisors for a complete denture: the lower incisors have to be always positioned upon the alveolar ridge, realize the smoothness of the lateral symphysis path. The lower and upper incisors are not in contact in CO, the upper incisors may be positioned anterior to the alveolar ridge, if the aesthetic considerations require it.

**FPT-115. (D)** Simple hinge articulators: their axes are not identical with the condylar axes, are suitable for reproducing solely a definite CO. It is not suitable for simulating even approximate masticatory movements, as having no guiding surfaces.

**FPT-116. (C)** For individual adjustment of both the upper and lower special tray, mouth opening and lip-primping should be performed. Swallowing and tongue movements should be performed only during the individual adjustment of the lower special tray.

**FPT-117. (A)** When making complete denture for a patient with progenia: the horizontal distance between lower and upper alveolar ridge, and the occlusal vertical dimension has to be reduced. Front teeth should be set up in edge-bite or cross-bite occlusion and the occlusal surface should always be reduced.

**FPT-118. (E)** Retentive factors of the complete denture are adhesion, cohesion, vacuum, gravity, masticatory load and neuromuscular factors.

**FPT-119. (A)** Consequences of permanent edentulousness: flattening of the mandibular condyle, horizontal expansion of the tongue, the mandible comes into a forced protrusive position. But the angle of the sagittal condyle path and the occlusal plane will decrease.

**FPT-120. (E)** As a consequence of the atrophic processes in the mandible and the maxilla, the dimension of the maxillary alveolar ridge-arch is decreasing, whereas that of the mandibular ridge–arch is increasing or remains unchanged. But the high of both alveolar ridges will decrease.

**FPT-121. (A)** Parts of complete denture are artificial gum and teeth, denture base.
FPT-122. (E) Tasks of denture base are support, protection of mucoperiosteum, retention and holding the artificial teeth and gum.

FPT-123. (E) Tasks of artificial gum: replacing the missing alveolar process, improving the acquired phonetic disturbances, artificial reconstruction of the vestibule, and retention.

FPT-124. (B) Tasks of artificial teeth: artificial reconstruction of the vestibule, to maintain the CO, and decreasing and distributing the compressive masticatory forces.

FPT-125. (B) Borders of the neutral zone are the upper and lower edentulous ridges, lateral side of the tongue and the vestibule. The sublingual fold does not confine with this area.

FPT-126. (A) Palatal torus is located on the palate proper, over the median palatine suture (intermaxillary suture). It is covered by thin mucosa, without submucosa, thus it is inadequate for load-bearing, and therefore it has to be foiled.

FPT-127. (B) The displaceable flabby ridge can be caused by incorrect denture construction. It does not interfere with the peripheral seal of the upper denture base; therefore its surgical removal is usually not indicated. It is developed as a connective tissue hyperplasia in the oral mucosa usually in conjunction with atrophic processes in the underlying bone.

FPT-128. (D) Swallowing and movement of tongue are the functional movements for individual adjustment of the special tray border at the paralingual area.

FPT-129. (B) Consequences of overlooked lateral Christensen phenomenon during jaw relation registration, if the patient’s mandible is in CO during the try-in denture: there is a midline misalignment between the upper and lower front teeth and the ideal intercuspidation is missing, there are occlusal contacts only on one side and the occlusal vertical dimension is higher than ideal.

FPT-130. (D) The prerequisites of sagittal Christensen- phenomenon are well-trimmed occlusal rims and propulsive position of the mandible.
FPT-131. (B) Mouth opening, symmetrical abduction of the corners of the mouth and lip-primping are the functional movements used for individual adjustment of the vestibular margins of the lower and upper special trays.

FPT-132. (C) Light curing resin and acrylic resin can be used for special tray construction.

FPT-133. (D) Tasks of the immediate denture are: aesthetics, to restore the chewing ability immediately, to keep the centric occlusion etc..."immediate" means immediately, at once so it can be inserted at the same visit with the tooth or teeth extraction.

FPT-134. (D) The statically ideal setting up would be, if the teeth were on the alveolar ridge, but the incisors can be set up in front of the ridge for esthetical reasons.

FPT-135. (A) The wax beading can maintain the depth and width of the functional impression. This preserves the most important information about the details of the functional movement, which is the dynamic component of the functional impression.

FPT-136. (C) The mechanical properties of the denture base do not depend on the investment method. An advantage of the one part gypsum investment method is keeping the denture base and the artificial teeth in the same flask, consequently preserving their original spatial relation. As a result, the vertical dimension of the denture is preserved.

FPT-137. (C) The functional impression or the cast is not more exact than the anatomic impression or cast. The functional impression or cast has more details and information of the functional movements. This is the dynamic component of the functional impression.

FPT-138. (B) Indications of the denture adhesive pastes or denture fixatives: to reduce the adaptation phase; to encourage rapid denture adaptation, to increase the stability of the denture in case of disadvantageous clinical features. Increasing the stability of the immediate or rebased denture’s stability.

FPT-139. (B) During the jaw registration of the full denture’s centric occlusal position, the well trimmed upper occlusal rim has to be parallel with the ala-tragal line, but this has no connection with the fact, that the ala-tragal line, is not parallel with the condylar-path.
FPT-140. (B) The zinc-oxid-eugenol pastes give back a very detailed impression of the fine mucosal relief. But this has no connection with the second part of statement. The expressed torus palatinus almost always has to be covered by a foil, because the denture will be tilting around it, and the decreased the stability may cause denture fracture and soreness.

FPT-141. (C) The exact location of the landmarks on the skin can not be reproduced, because they have to be marked again at each stage of denture construction.

FPT-142. (C) The oroplastic material becomes plastic at oral temperature. When using it for functional impression the beading material should be a wax, plastic at room temperature, because the functional sulcus can be damaged or can be melt by high temperature if we use materials of higher melting point.

FPT-143. (E) The shaping of the artificial gum is influenced by aesthetic and functional factors.

FPT-144. (E) "Immediate" means immediately, at once, so it can be inserted at the same visit with the tooth or teeth extraction. The properly shaped acrylic denture base fastens the healing of the socket, it also functions as a special bandage, and it prevents the resorption of the alveolar process.

FPT-145. (E) Decreasing the horizontal movements of the denture is not only the task of the denture base. The artificial teeth, and the artificial gum also take part in this important function.

FPT-146. (B) The task of vestibular polished surface of the denture is to support the lip and facial muscles. There is no connection with the fact that the complete denture is a mucosally supported prosthesis.

FPT-147. (C) The artificial teeth and gum do not belong to the additional retentive factors of the denture; in fact they are parts of the complete denture. The additional retentive factors are adhesives, spring stabilizer etc…

FPT-148. (E) The artificial teeth do not determine the rest vertical dimension because it does not depend on the state of the teeth. The rest vertical dimension is measured between the landmarks of Subnasale and Gnathion, on the skin.
FPT-149. (B) Features of the retromolar area: 1. retromolar pad, 2. tuberculum masseter split, 3. lingual pouch

FPT-150. (E) The dimension of the transversal retromylohyoid plica starting at the palatoglossal arch, running to the base of the retromolar pad, ending at the movable mucosa of the oral surface of the ridge, is not a diagnostic feature of the lingual pouches utilization. In fact this feature hardly bears any load, and makes the extension of the denture base into the lingual pouch even more complicated.

FPT-151. (B) The denture base of the complete denture should be extended into the lingual pouch- if it is possible- in order to increase the stability of the complete denture.

FPT-152. (A) The mandibular torus is covered by thin pressure sensitive mucosa so it has to be protected from the masticatory load by foiling.

FPT-153. (A) Facial seal is: the vacuum force achieved by the buccal mucosa’s pressure and parallel contact with polished surface of the denture flange. Border seal is: the vacuum which is achieved by sinking the border of the denture base into the thick mucosa.

FPT-154. (C) On the vestibular surface of the edentulous upper jaw, between the two buccal frena, thick mucosa, with submucosa can be found, consequently both facial and border seal can be established in this area.

FPT-155. (C) Surgical removal of the flabby ridge is not indicated. In fact we have to use impression methods, which prevent torsion, and provide a precise negative replica of this feature. One possible impression taking method is with perforated custom tray.

FPT-156. (B) The facial seal can be established with the parallel connection of the buccal and the vestibular mucosa and the polished surface of the denture thus providing vacuum.

FPT-157. (D) Facial seal is: the retentive force achieved by the buccal mucosa’s pressure and parallel contact with the polished surface of the denture. Inner border seal is: the vacuum which is achieved by sinking the border of the denture base into the thick mucosa.
FPT-158. (C) The facial seal can be established with the parallel contact of the buccal and the vestibular mucosa and the polished surface of the denture thus maintaining vacuum. Consequently the polished surface of the complete denture doesn’t sink into the mucosa rich in submucosa.

FPT-159. (E) The thin serous saliva is more disadvantageous than the mucous saliva from the aspect of complete denture’s physical retentive factors, because the adhesion between the molecules of the saliva film in the capillary-gap between the denture's impression surface and the mucosa is lighter.

FPT-160. (C) The volume of the load effecting on one unit is smaller if the load is transmitted to a larger surface.

FPT-161. (C) Suction chambers are inserted into an upper denture by the technician. The working principle of these chambers is that the patient actively evacuates air, thus providing vacuum. The retention with suction chambers is active only for a short period of time. As a consequence mucosal hyperplasia develops, thus their usage is disadvantageous, and contraindicated.

FPT-162. (A) The rubber suction cups are destructive to the underlying soft and hard tissues, they can cause bone necrosis, deformation of the palate, in some cases leading to precancerous state. Consequently it must not be used in the dental practice.

FPT-163. (C) Consequences of edentulousness: Bone resorption occurs in both the maxilla, and mandible. The muscles of this region lose their hard tissue support, and the nasolabial and mental grooves will become more expressed.

FPT-164. (E) The denture-induced hyperplasia: The hyperplastic tissue may decrease in size if the denture is not worn for period of time or if the flange is reduced from the affected area, the prognosis is promising. Thus a correct denture can be made without any surgical intervention. However if the lesion is located in the fornix or ceasing the irritative factors does not reduce the volume of the lesion, surgical removal is indicated.

FPT-165. (D) The soft sublingual area, which can be easily pushed in, has more advantages from prosthetic aspect because it may be suitable to develop facial seal. The movements of the supporting muscles will be perpendicular to the border of the denture base.
FPT-166.  (B) The flabby ridge usually does not reduce the retention of the complete denture, in fact occasionally the vacuum is stronger. Its sensitivity to masticatory load is high, however it doesn’t influence the efficacy of chewing significantly. Therefore its surgical removal is not necessary.

FPT-167.  (E) The facial seal has got a primary role in denture retention at the area of the tuber-cheek split. The denture base should not be extended on the pterygomandibular plica because this would displace the denture during mouth opening.

FPT-168.  (D) Using the acrylic baseplate method the secondary cast is damaged during the processing and deflasking, consequently a new cast has to be made under the finished denture base, to be able to mount it into the articulator. The recorded jaw relationship will be more precise due to the increased stability of the definitive denture base.

FPT-169.  (A) During registration of the centric relation position, the correctly trimmed occlusal rims have a parallel full surface contact. In the mandibular propulsive position a distally widening space opens between the rims, as a consequence of the condylar path’s angle. If the dentist overlooks the propulsive position and considers this situation as a centric relation position, the space will be filled with wax, to achieve full contact, and the artificial teeth will be set up in this position by the dental technician. During the try-in phase there will be occlusal contacts only in the molar region in centric relation position.

FPT-170.  (E) When a single denture is constructed (the other is intact) registration of the vertical dimension is still necessary, because this is the only way to determine the available vertical dimension of the denture, which includes the height of the artificial teeth, and gum.

FPT-171.  (C) The lateral edge of nares defines the width of the artificial teeth, because the lateral edge of nares is on the same line with the cusp of the upper canine.

FPT-172. (D) The zincoxid eugenol-like impression materials can reflect the fine-relief of the mucosa. The oroplastic impression materials don’t reflect such a precise impression of the mucosa. So the relatively low-detail of the impression results in avoidance of mucosal damage caused by movements of the denture base.

FPT-173.  (D) During the set-up of the upper incisors the edge-line of the artificial teeth should
follow the contour of the upper border of the lower lip when smiling, because the aesthetic aspects have primary importance in front teeth set up.

**FPT-174. (C)** The bilateral balanced occlusion will decrease the destabilizing forces only if there are occlusal contacts between the opposing teeth. If there is a bite between the occlusal surfaces, there is no direct contact between the opposing teeth, therefore the stabilizing effect is not realized.

**FPT-175. (A)**
**FPT-176. (B)**
**FPT-177. (C)**
**FPT-178. (D)**
**FPT-179. (A)**
**FPT-180. (B)**
**FPT-181. (A)**
**FPT-182. (A)**
**FPT-183. (B)**
**FPT-184. (C)**
**FPT-185. (C)**
**FPT-186. (D)**

**FPT-187. (D)** The base of the upper complete denture is much larger than the lower base. Materials of lower and upper denture base can be acrylic or metal alloy. If it is necessary it can be foiled. The upper dentures’ border seal can be established in most cases, its most important retentive factor is vacuum. Heat, shape and taste sensations are influenced by the base of the upper complete denture, significantly. The masticatory pressure has a main role in the dentures stability. Gravity, as a physical retentive factor, influences the stability of lower denture greatly; but the stereotyped shaping of the polished surface can decrease the stability of both upper and lower complete dentures. The sagittal reduction of the occlusal surface can increase the stability.

**FPT-188. (A)**
**FPT-189. (A)**
**FPT-190. (B)**
**FPT-191. (B)**
**FPT-192. (C)**
**FPT-193. (C)**
**FPT-194. (D)**
Functions of the denture base are: transmitting the masticatory load evenly to the mucoperiosteum, distributing the masticatory load. Functions of the artificial gum are: replacing the alveolar process, supporting the facial and lip muscles. Functions of both of them are reducing the horizontal movements of the denture, providing the facilities of correct phonation, but restoring the centric occlusion and restoring the centric relation are not their functions.

During the try in phase of denture construction and insertion of the finished denture: the spatula probe has to be performed, the occlusion and articulation has to be checked. During the try-in the areas to be foiled have to be checked. The shape and colour of artificial teeth and gum have to be checked and the final occlusal adjustment should be done during the insertion of the denture. The patient should be recalled for control. At the recall, we adjust the areas causing mucosal erosions.

The denture base with conventional concept only covers the edentulous alveolar ridge, it is not extended over its boundaries, and consequently it employs only some of the retentive forces. The extended denture base covers the mucosa outside the borders of the edentulous alveolar ridge to increase the retention of the denture.

A thin layer of mucosa, which is sensitive to pressure, covers the mandibular torus. If the denture base is extended on it, it has to be foiled. The pterygoid hamulus is also covered by a thin layer of mucosa without submucosa, consequently the denture base shouldn’t be sunk in the mucosa of this region.

The most important retentive factor of the upper complete denture is vacuum. Forces
of adhesion and cohesion provide the capillary pressure. Both of these retentive forces are reduced by xerostomia and incorrect secondary impression.

**FPT-215. (A)**

**FPT-216. (C)**

**FPT-217. (B)**

**FPT-218. (C)** The primary impression is usually taken with stock tray. It is an overextended and mucostatic impression. The secondary impression is a mucodynamic impression taken with a functional tray, overextended only in the distal region of the palate. Both of them can be taken with plaster of Paris.

**FPT-219. (C)**

**FPT-220. (B)**

**FPT-221. (D)**

**FPT-222. (D)** Mouth opening is an important functional movement used for upper and lower secondary impression as well. Swallowing is only used as a functional movement of the lower secondary impression. The others are not used as functional movements.

**FPT-223. (D)**

**FPT-224. (B)**

**FPT-225. (C)**

**FPT-226. (D)** The stopline is defined as the distal border of the occlusal surface, behind this artificial tooth must not be set up. The interalveolar line is the line between the upper and lower alveolar ridge. If the angle, determined by the interalveolar line and the occlusal plane is less than 80° in the molar region, the artificial molars have to be set up in cross bite. None of them can modify the distal border of the lower denture base.

**FPT-227. (A)**

**FPT-228. (B)**

**FPT-229. (A)**

**FPT-230. (D)** The rest vertical dimension has to be measured at the rest position of the jaws, with all chewing muscles in relaxed state, between the Subnasale and Gnathion landmarks on the skin. This vertical dimension is influenced by body posture and emotional state. The occlusal vertical dimension is the vertical dimension measured while the mandible is in centric occlusal position.

**FPT-231. (C)**

**FPT-232. (C)**

**FPT-233. (C)**

**FPT-234. (A)** The oroplastic impression material and the compound impression material are also
thermoplastic. In high temperatures they become plastic therefore it is reversible, and can be used for secondary impression taking. The compound impression material is mainly used for forming the functional borders, the oroplastic impression material can be used for making impression of the mucoperiosteum. The oroplastic impression material becomes plastic already at mouth temperature, consequently it has to be stored in cold water after impression taking, to avoid deformations.

Orthodontics

Explanations

FSZ-1. (D) The expression ‘retrusio’ means backward tipping, backward location. It is often used for the back localisation of single tooth-groups. The other expressions sign the localisation and size of the mandibles.

FSZ-2. (D) The most frequently extracted permanent teeth are the first premolars. These teeth are next to malpositioned front teeth, and the missing of them is less disturbing aesthetically. Besides, caries is rather frequent, their endodontic treatment is sometimes difficult due to their root-relations. See also FSZ-152!

FSZ-3. (C) Supraocclusion means the tooth exceeds the level of the occlusal plain. The other expressions mean the horizontal movement of the tooth, the absence of the vertical growth and tooth rotation

FSZ-4. (B) If the first permanent molars are in normal occlusion, the mesiobuccal cusp of the lower first molar occludes between the upper second premolar and the first permanent molar in both sides. In the case under question, on the right side there is a correct bite, on the left side there is a distal bite. Because of the sagittal protrusion of the incisors, the Angle-diagnosis is: Class II/1 (on the left side).

FSZ-5. (B) The torque of the tooth means that first of all the root of the tooth is moved in orovestibular direction. For this it is necessary that the segment of the arch wire – the shape of the cross-
section – be square, and not turn in the slot. The other listed features are not important from this respect.

FSZ-6. (E) The width of the upper dental arch (and the whole palate) is influenced by the pressure in oral cavity and the presence of the teeth. Lying on the back does not have such effects; this can form the situation and the sagittal and vertical location of the mandible.

FSZ-7. (A) The sagittal relation of the maxilla and the mandible can be characterized by the difference between the angle of the upper jaw (SNA) and the lower jaw (SNB). This is the ANB-angle. The remaining two values show vertical relations.

FSZ-8. (C) The prevalence of orthodontic anomalies differs author by author; it is over 50% on the average. According to Hungarian survey, (Dénes, 1986) 16.8% of patients need treatment definitely.

FSZ-9. (C) At the age of 5-6 yrs., the appearing of physiological interdental spacing between front teeth shows the right development of dental arches. If this process does not occur, this predicts in 50% of the cases a crowding in the permanent dentition.

FSZ-10. (B) The chondrocranium is the cartilaginous performing part of the skull – mostly the basicranium and the nasal capsule – which gives the shape and the direction of the growth of the head with its primer expansive growth. Other parts of the head bones, the skull first of all, develops directly from the periosteum. The chondrocranium is the embrional cartilaginous part of the head.

FSZ-11. (C) The membrana buccopharyngea separates in depth the stomodeum, - which is surrounded by the embrional facial processes - from further parts of the later digestive tract.

FSZ-12. (B) In the sixth week of the embrional life, the medial nasal-, lateral nasal- and the maxillary processes fuse and form the primary palate. From this develops later the middle of the upper lip, the frontal part of the maxillary alveolar process and the part of the hard palate which is located frontally to the canalis incisivus (premaxilla by its collective name). See also the FSZ-14. and FSZ-57.!

FSZ-13. (E) The processus palatinales develop on the oral surface of the maxillary processes and are located vertically on the two sides of the tongue. They arise forward from back and lie towards each
other between the 8th and the 12th week then they fuse with each other and with the septum nasal process, thus forming the secondary palate, the real one. See also FSZ-14.!

FSZ-14.(D)Between weeks 8-12, the palatal discs arise forward from the back and lie towards each other, then fuse backward from the front with each other, and with the nasal septal process, thus forming the secondary palate, the real palate. The lacking of the fusion causes cleft palate, which can be of different seriousness and expansion.

FSZ-15. (C)
See FSZ-14.!

FSZ-16.(C)The essence of the cephalometric X-Ray is using the parallel X-Rays to register the bones from a perpendicular direction, laterally to the face. On the picture, the facial bones and the teeth are superimposed, so the dental arches, the order of the teeth cannot be examined.

FSZ-17.(C)The bone loss may occur on its surface, or in the case of an excessive force, on the other side, on bone-marrow surface of the cortical. This is called as undermining (indirect) resorption.

FSZ-18.(D)The size of the jaws is compared to the skull and to each other. If the upper jaw is too small, and the lower jaw is overdeveloped, the middle part of the face is plate-like haggard-shaped.
The size of the jaws is compared to the skull and to each other. If the upper jaw is too big, protruding, and the lower jaw is too small, underdeveloped, the middle part of the face, the nose and the upper alveolar process is protruding similar to a bird.

In the case of a normal occlusion, the threefold unit of the upper and lower teeth is realized in the way, that an upper tooth cusp bites between the lower antagonist and the one, which is behind it. Thus, the upper canine occludes between the lower canine and the first premolar.

In normal occlusion the threefold unit of the upper and lower teeth is realized in the way, that an upper tooth cusp bites between a lower antagonist and the one, which is behind it. If the lower teeth move distally in one premolar width, the occlusion of the upper canine occludes between the lower canine and the lower lateral incisor.

In normal touching of the first permanent molars: the mesiobuccal cusp of the upper first permanent molar interlocks with the groove between the mesial and the distal cusps of the lower first permanent molar on both sides. In question under discussion, there is a normal bite on the left side, and a distal-directed sliding of the lower teeth occurred on the right side. Because of the incisors are protruded, the Angle-diagnosis is Class II/1 (on the right side).

According to Tweed, the lower incisors are perpendicular to the mandibular plane (Go-M line), they close an angle of 90 degrees.

On the cephalometric X-Ray, the meeting of the maxillary- and the mandibular plane cannot be seen or measured, as this appears behind the splanchnocranium. The mentioned angles appeared on the X-Ray.

In normal position the buccal cusps of lower lateral teeth occlude between the buccal and lingual cusps of the upper teeth. Deviation from the normal bucco-lingual relationship is the cross-bite. On one or both sides the touching of the upper and lower teeth differ from the previous one sliding in buccal or lingual direction. In the given case, the horizontal touching on the right side is normal, there is a cross-bite on the left side.
In normal occlusion of the first permanent molars, the mesiobuccal cusp of the lower molars bites between the upper second premolar and the upper first permanent molar. In question under discussion, the right side occludes normally, but on the left the first permanent molar is mesialized with the half premolar width, and so the distobuccal cusp touches the mesiobuccal cusp of the upper first permanent molar.
The Lundström-analysis involves the value of the crowding or spaces between the teeth in the dental arch. The sum of the individual mesiodistal tooth width is compared with the length of the whole arch. The other measures can be connected to the Korkhaus, Pont and Moyers.

The support zone means in orthodontics the area of the deciduous canine and molars in a quadrant. These teeth support the incisors and the first permanent molars during the mechanism of second dentition, and insure the space for the permanent canine and the second premolar.

Angle’s diagnostic system describes the occlusion of the first permanent molars, the sagittal position of the upper incisors and the malposition of individual teeth. He did not consider the size of the jaws, other developmental anomalies of single tooth, the transversal and vertical relations of dental arches.

Reverse headgear (Delaire-masque) is an extraoral orthodontic apparatus – placed out of the mouth – which is supporting on the forehead and on the chin. It stimulates the growth of the maxilla. The other appliances (the Rickett-quadhelix, the Schwartz-plate, the Derichsweiler-plate, the lip-bumper) are all intraoral ones.

The expression ‘overbite’ shows that in central occlusion how many mm. is covered of the lower incisors by the upper incisors. In the case of the overlap of an incisor in vertical plane more than 3 mm, we talk of deep bite. The distance between the upper and lower incisors in the horizontal plane gives the overjet. If in occlusion an upper tooth bites behind a lower one in bucco-lingual relationship, we talk of a cross-bite of a tooth. The early touching of a tooth or teeth is the traumatic occlusion.

Retrusion means the tipping of incisors backward, while the apices remain on their place. If apex positions are similar and the front teeth tip forward, we talk about protrusion. If more upper front teeth bite linguually compared to the lower ones, we talk about anterior cross-bite; and if this occurs in the field of the lateral teeth, we talk about a lingual cross-bite. If the totally developed tooth is not able to erupt, there is a retention or an impaction.

The ideal occlusion of the European population is the scisors-bite: psalidontia,
when the overlap of the incisors is 1-2mm, (so that the upper incisors bite in front of the lower ones). In connection with overbite and overjet see FSZ-31. Prognathia is one of the dysgnathias occurring in the jaws, which means that the maxilla is protruded or overdeveloped. Oligodontia means fewer teeth, the absence of one or more tooth germ.
FSZ-34.(A) We talk about early extraction of deciduous teeth; if a deciduous tooth is extracted at least one year before the eruption of the permanent successor can be expected. Its importance is given by the fact that if one year or more passes before the eruption of the permanent tooth, in general we have to maintain the place of the tooth in order to avoid a constriction of the dental arch. If the eruption expects in three month, space maintainer is not necessary, but the case must be monitored. See also FSZ-101.

FSZ-35.(E) The gnathion is the most anterior inferior point on the bony chin. The lower most point of the margo orbitalis is the orbitale. The central point of the curve between the ramus and the basis mandibulae is the gonion. The most inferior point of the top of the chin (in the midsagittal plane) is menton. The most mesial point of the top of the chin (in the midsagittal plane) is the pogonion.

FSZ-36.(E) The sagittal lengthening of the lower alveolar arch is characteristic of the skeletal Angle’s Class III. The other listed symptoms occur in Angle’s anomaly II/1.

FSZ-37.(C) Aplasia is the absence of a single tooth germ. The lack of the germ involving more teeth and the absence of tooth groups together is oligodontia or partialis anodontia. Complete absence of all teeth is a total anodontia. As for the lacking of the wisdom teeth we use no special expressions.

FSZ-38.(C) The open bite is not always dentoalveolar of origin; it can also be a skeletal anomaly. The other listed declarations are correct referring to the open bite.

FSZ-39.(D) In the case of functional appliance the source of the force needed for moving of a tooth is not the appliance itself, but the activated muscular strength. The other listed characteristics refer to the functional appliances.

FSZ-40.(F) At the right application of the Delaire-masque, the maxilla rotates forward along the sutura frontonasomaxillaris, that is why, on the cases of Angle’s III. it can be indicated, but in the cases of Angle’s II/1. its using is not advisable. Extraoral part of the appliance is supported by the forehead and the chin, and by the elastic joining of the upper dental arch stimulating the growth of the maxilla.

FSZ-41.(E) Tertiary crowding may be caused by the eruption of the wisdom teeth, after the
shedding of the teeth. The early lost of the deciduous teeth may be the cause of a secondary crowding, the other factors alone do not cause crowding.
FSZ-42.(E) From the listed appliances the hyrax can be used efficiently in the treatment of a severe upper dental arch-constriction. This appliance is able to expand the upper dental arch by the splitting of the sutura palatina mediana. The activator and the bionator are suitable first of all for mesiodistal deviations, the inclined plane can be used in treating cross bites. The transpalatal arch can be used for preventing the rotation of the upper first permanent molars in treatment with fixed orthodontic appliance, and for minimal tooth movement as well.

FSZ-43.(E) Deep bite is not caused by the supraocclusion of the molars (which may lead to open bite), but by their infraocclusion. All the other things listed may cause deep bite.

FSZ-44.(D) The Derichsweiler plate is suitable for the expanding of the suture palatine. By activating it on every second day, expansion of 10-15mm can be reached. The other symptoms listed cannot be treated with this appliance because of its form and its position.

FSZ-45.(A) The coaxial round arch, which is used in the first phase of the treatment with the fixed appliance, consists of four, five or six thin steel arch wires rolled on a central arch. The other listed variations do not have a coaxial system.

FSZ-46.(B) The Pont index signs the degree of the dental arch constriction at the area of the upper premolar and molar. If the extent of crowding is under 5 mm, the extraction is generally not necessary, the expanding with the appliance is enough, but by a crowding over 5 mm, the extraction may be necessary. By a crowding at the area of the upper - and the lower front teeth such indices are not used. Other methods can be used for prediction of the degree of the tertiary crowding and that of the mesiodistal deviation of the jaws.

FSZ-47.(C) An excessive curve of Spee is characteristic of the deep bite from the listed below. The increased gonion angle is characteristic in mesial bite (skeletal Angle class III.), and in skeletal open bite. In the case of deep bite the interarticulation space is not smaller, but big, more than 5mm. The enlarged basis angle is not characteristic of the deep bite, as in the case of such skeletal deviation this angle is decreased. In Angle’s Class I. any vertical anomaly, so the deep bite may also occur.
The surgical procedure following the orthodontic treatment and preventing the relapse is – from the list – septotomy: a surgical cut interdentally between the teeth moved, which reduces the tendency to relapse, according to Skogsborg, who described it. The corticotomy made before beginning the orthodontic treatment, the osteotomy of the cortical layer of the alveolar bone between the roots, in the sake of the faster and more secure orthodontic movement of the teeth occurs. It belongs to the operations supporting the orthodontic treatments. Block osteotomy is the extension of corticotomy, on the course of which the alveolus is totally cut through, and the teeth can be moved together with the alveolus. This surgical intervention involves the eliminating of single tooth and tooth groups anomalies. Alveolectomia is a procedure for promoting bodily movement of teeth in adulthood, which is mostly used by the closing of the diastema. It belongs to the surgical procedure supporting the orthodontic treatments. The frenulotomy is the cutting through of the frenulum linguæ for eliminating the ankyloglossia in childhood, which may cause speech disorder in some cases. This group of the soft tissue surgery completes the orthodontic treatments. See also FSZ-183!

The real progeny may be accompanied by open bite, too. All the other assertions may be characteristics of the cases with real progeny.

The cephalogram of the prognathia is characterised, by an increased ANB angle. The SNA angle is bigger than usual. The angle closed by the axis of the upper incisors and the maxillary plane is increased. The incisal angle reduced compared to the usual angle. The protraction of the upper incisors compared with the A-B line is overextended the average value.

Köle developed the prognathic surgery used even nowadays. Downs, whose name is on the list, can be connected with the facial angle in cephalometric analysis. Berényi and Obwegeser are connected to progeny operations, septotomy is linked with name of Skogsborg (the surgical intervention following the orthodontic treatment in order to prevent the relapse).

The earliest date for operation of prognathia is 2-4 years after the eruption of the second permanent molars, after the growth of the mandibles completed. All other dates are too early or uncertain. With relapse one must count at any age (it is influenced by various factors).

Chin cap is an extraoral appliance, which prevents the mesialisation of the
mandible. Its usage is not suitable for retention even after surgical procedures. It is not attached to teeth, it is connected to the head cap by means of a flexible rubber ribbon, its pulling effects works on the tip of the chin. In case of an anterior cross bite, the sliding backward of the mandible cannot be assured automatically by the chin cap, in deciduous dentition grinding is the solution, in permanent teeth using an inclined plane is the best method.
FSZ-54.(D) Tipping movement of the teeth labially, palatally, lingually, rotation and intrusion can be performed with removable orthodontic appliance. Torque cannot be made with a removable appliance.

FSZ-55.(C) A tooth in supraocclusion means that the tooth reaches over the occlusal plane. Tortoocclusion: a tooth turned around its axis, infraocclusion: the tooth does not reach the occlusal plane. If the tooth is located inside the dental arch: palato- or linguo-occlusion, if it is outside of it: labioocclusion.

FSZ-56.(B) The Fischer-screw in the orthodontic appliance (e.g. in the active plate) expands 0,30 mm by a quarter turn. For reaching the other values given in the list one turn is not enough.

FSZ-57.(B) Clefts form during the embryological development, the cause is the incomplete fusion of facial processes. The clefts of upper lip originate from the incomplete fusion of the processus nasofrontalis and one or both processus maxillaris. The union occurs normally in the sixth week of the intrauterine life. See also FSZ-12 and FSZ-14.

FSZ-58.(C) On longitudinal cephalometric examinations show in cases with clefts that the lower face height usually grows. The other assertions are usually characteristic to the cases with clefts.

FSZ-59.(D) Jarabak described the light wire technique, and Downs the facial angle. Björk is famous for his implantation experiments in connection with development. Tweed is known for his diagnostic and prognostic descriptions in cephalometric analysis. McNeil became well known for the palate-closing plate used in the early treatment of the patients with clefts.

FSZ-60.(C) The cephalogram gives no information from the list about the symmetrical relationships of the jaws. The orthopantomogram gives information about this.

FSZ-61.(B) The orthopantomogram gives no information from the list about the sagittal relationships of the jaws; this is done by the cephalometrics.
The normal value of the interincisal angle is 135 degrees. This may increase in the case of progeny.

The suture palatine median ossifies during the pubertal age. This fact gives a possibility for expanding with a removable appliance in the period up to the pubertal age.
FSZ-64.(C) The normal value of the gonion angle is 123 degrees. This may increase in the case of progeny and skeletal open bite.

FSZ-65.(A) The Angle class II/2 is characterised by: distal bite of the lower first permanent molars, the upper incisors are retroclined, the deep bite or even complete overlap, which is accompanied by the deepening of the mentolabial sulcus.

FSZ-66.(D) Besides the relation of the first permanent molars, Angle’s diagnostic system describes the sagittal position of the upper incisors and the malposition of individual teeth. He did not take into consideration the size and position of the jaw, other developmental anomalies of single tooth and the transversal and vertical occluding of the dental arches.

FSZ-67.(E) The causal therapy of the crowding is the extraction. Other adequate procedures are the lengthening of the dental arches, i.e. the protruding of the incisors, the straightening of the curve of Spee. The transversal expanding of the dental arch is another appropriate procession, even together with the splitting of the suture palatine. The choice is determined by the degree and place of the crowding.

FSZ-68.(E) In extraction treatment - for the choice of the tooth to be removed – more factors have to be taken into consideration, such as the level and place of the crowding, the malposition of individual teeth, and the symmetrical relationship. The cariological status must not be disregarded.

FSZ-69.(C) On the course of the serial extraction, which was described by Hotz, during the changing of the incisors, the deciduous canines are removed (early extraction), then the first primary molars are extracted for accelerating the eruption of the first premolars, this is followed by the extraction of the first permanent premolars, if the eruption of the permanent canines has begun.

FSZ-70.(A) In normal occlusion, the buccal cusps of the lower teeth occlude between the buccal and lingual cusps of the upper teeth. The deviation from the normal bucco-lingual relationship (transversal anomaly) is the cross bites. The narrow dental arch is expanded in transversal direction in bilateral cross bite, and in the case of unilateral cross bite, supporting on the correct side is necessary.
The transversal expanding of the dental arches is possible with an appliance, which proclines the teeth (sagittally cut Schwarz-plate, Andresen-Häupl-activator) or retroclines them (multiband). The oral screen is suitable for treatment of sagittal anomalies.

The cranial measuring points involve Sella point (S) and Bolton-point (Bo). The reference points of the mandible are the gnathion (Gn) and the gonion (Go).
The vertical relation of the maxilla and the mandible is characterized by the angle of the maxillary plane (ANS-PNS) and the mandibular plane (Go-Me), (the average value is 20 degrees), and by the proportion of the total anterior face height (TAM) and the posterior face height (HAM; 64%). The remaining two angles (SNA, SNB) show sagittal values.

The head part of the embryo is the encephalon; its anterior brain protrusion is the prosencephalon. The processes surrounding the stomodeum develop in this territory, from which the face develops. The developmental anomaly of the prosencephalon is the holoprosencephalia.

The fusion of the palatal processes occurs from front backwards. A severe form of the cleft secondary palate is the cleft hard palate. Sometimes, the cleft is covered by the mucous membrane, this is, the submucous cleft. The mild form of the cleft palate is the cleft uvula, the uvula bifida, when the fusion does not occur only at this part. The cleft lip is not the abnormality of the palate, but of the primary palate. See also FSZ-14. and FSZ-140!

On the sixth week of the embryological period the medial nasal, the lateral nasal and the maxillary processes fuse and form the primary palate. If the fusion does not occur, primary cleft (lip, proc. alveolaris) develops. The palatal processes and the vomer form the secondary palate. See also FSZ-12. and FSZ-13!

The temporally remaining parts of the chondrocranium after birth are the synchondrosis sphenoccipitalis, the s. sphenoethmoidalis and the s. intersphenoidalis. The os occipitale and the os ethmoidale do not touch with each other, so a synchondrosis ethmooccipitalis does not exist.

The rests of the chondrocranium after birth are the synchondrosis sphenoccipitalis, the s. sphenoethmoidalis and the s. intersphenoidalis. The synchondrosis sphenoethmoidalis ossifies over the age of 7-8 yrs., while the s. sphenoccipitalis at the last part of childhood, approximately at the age of 16-17yrs.

The bone-tissue is a rigid structure, incapable for interstitial growth. Its growth is a superficial one, which is characterized by replacement and remodelling.

Five processes surround the stomodeum: the processus nasofrontalis (frontal process) from above, from two sides the left- and right-side processus maxillaris, from below the right- and
left-side processus mandibularis. The maxillary and the mandibular processes are parts of the first pharyngeal arch (branchial arch), which take part in the forming of the stomodeum.
The teeth erupt into an environment, where a balance of force is present, which is created by the tongue and the external muscular bridle. So, the following forces have an effect on the erupting tooth: the eruption force, the power of the tongue and the power of the external lips and the strength of masticatory muscles.

The symmetrical relations of the jaws, i.e. the right and the left side together can be seen and valued on the AP-picture and on the panoramic radiograph. On the cephalometrics the sagittal and vertical relations can be valued, the Nitsche-Vályi-picture is an intraoral picture.

Interceptive orthodontics means an intervention into the developmental process of anomaly in order to promote the right development. The listed interventions are all suitable for this.

The parts of the face are the nasomaxillary unit and the mandible, together with the dentoalveolar superstructure. So, all of the listed belong here.

Angle’s Class I. anomalies mean, the occlusion of the first permanent molars are correct in sagittal plane, but other anomaly of single tooth or, tooth groups, and occlusal disturbance may occur. So, each of the listed forms of anomalies may appear in Class I.

Those parts have to be made from „spring-hard” stainless steel material, which have to transmit power-, or have to resist to some force. Because of this, the Adams-clip and the Quad-helix are made from this kind of material. On the other hand, the bandage wire (ligature) and the multiband ring are made of “soft”metal.

All listed forms of the permanent successors may cause the persisting of deciduous teeth.

According to the law of action - counteraction, a force produces a counter-force. In orthodontics this means that the methods and formulas giving the support of the orthodontic appliances must be totally utilized. The listed methods are all suitable for enhancing the anchorage.

The Begg-, Ricketts- and Andrews-techniques are the forms of multiband
treatment. On the other hand, the Crozat-technique applies a welded removable appliance bent from wire, which is fastened on the dental arch by clips.
FSZ-90. (C) The supporting zone in orthodontics means the area of the deciduous canine and molars in a quadrant. These teeth support the incisors and the first molars, they secure the place for the later erupting canine and premolars during the time between the first and second changing of the teeth. So, the bigger this area in the deciduous dentition is, the more certain, that the crowding will not develop after the changing of the teeth. If the permanent tooth germs are placed loosely, and the deciduous molar crowns are wide that means bigger supporting zone.

FSZ-91. (E) All of the listed characteristics show the lack of place within the dental arch in the territory of the incisors, the supporting zone and the molars.

FSZ-92. (C) The lingual occlusion of the lower lateral teeth means, that the buccal cusps of the lower teeth occludes with the palatal cusp tips of the upper teeth, or with the palatal surface of the lateral teeth. This is one form of cross bite, the latter being the scissor bite.

FSZ-93. (C) The axis of the lower incisors normally closes an angle of 90 degrees with the mandibular plane (Tweed-angle), and an angle of 130 degrees with the axis of the upper incisors (Steiner). The axis of the lower incisors is not compared to the maxillary plane and the Sella-Nasion – line.

FSZ-94. (E) Retention is the last, important part of the orthodontic treatment. Each of the listed possibilities serves as retention.

FSZ-95. (A) In bodily movement the useful tissue-reactions are the hyalinisation, degeneration and the resorption of the alveolar tissues. Pathological change is the resorption of tooth roots.

FSZ-96. (D) After removal of the brackets, some bonding material remains on the surface of the teeth, which is then removed by wolfram-carbid (tungsten) drill. The polishing by a diamond-drill is forbidden, because it cannot be properly controlled. The fluoride application of the polished surface is compulsory.

FSZ-97. (A) Direct-bonding technique joins all teeth into the power-system, and all kinds of movement of teeth can be made with it. The precondition of bonding is the acid etching of the tooth surface. Most of the components used are metal in multiband technique.
All in the list belong to the hereditary features. Especially important is the size of the jaws. The hereditary characteristics are difficult to treat, and have a tendency to relapse.
FSZ-99. (C) Ectopy is if the tooth displaces outside or inside of the dental arch. The tipping of the front teeth forward is the protrusion backward is the retraction. See also FSZ-32!

FSZ-100. (E) The clefts, the diastema medianum, and narrow arches may also occur as hereditary anomalies, the crowding of the teeth – as it develops because of the narrow dental arches – can also be considered as inherited.

FSZ-101. (E) Because of the premature primary tooth extraction (mostly lower or upper deciduous molar) arch shortening develops (secondary tooth crowding) and the permanent successors (lower or upper premolars) erupt out of or inside the dental arch as a consequence, perhaps it may not be able to erupt at all. Sometimes the last erupted canine can be displaced buccally, lingually or palatally (canine ectopy). If more deciduous molars are removed, the lateral zone will be missing, and the bite deepens (deep bite). See also FSZ-34!

FSZ-102. (E) Each of the listed, as they are the developmental and growth disturbances (dental arch constriction, prognathia, progeny, acromegalia), they may be endocrine related anomalies.

FSZ-103. (D) Maxillary measuring points are the Orbitale (see FSZ-35.) and point A (Subspinale) from the listed. The Porion- (the uppermost, outermost point on bony external auditory meatus) and the Sella point (the mid-point of the sella turcica) are cranial reference points.

FSZ-104. (C) The development of Angle’s Class III, i.e. the mesial bite – if the anomaly is dental origin– may be caused by the labial tipping of the lower incisors, and the palatal tipping of the upper incisors. The lingual tipping of the lower incisors, and the labial tipping of the upper incisors may occur generally in Angle’s Class II/1 relationship.

FSZ-105. (C) Neutroocclusion is characteristic of Angle’s Class I (the occlusion of the lower and upper sixes is normal), i.e. the correct mesiodistal relation between the two dental arches. The other two assertions are not right, as open or deep bite and the crowding of the teeth may occur in any of Angle’s classes, even in Angle’s Class I.

FSZ-106. (D) The advantage of the Angle diagnostic system is that it describes not only the mesiodistal relations but includes the malposition of individual teeth. From a practical point
of view it is easy to use, as most of the anomalies can be placed in it. Its great disadvantage is however, that the upper first molars are always considered to be in correct position, and the anomalies are caused by the deviations of the lower jaw. Another disadvantage is that it examines only the mesiodistal relations, and does not describe the vertical and transversal anomalies.

FSZ-107. (E) Each of the listed characteristics may cause the diastema medianum in the upper dental arch. The enlarged frenulum labii superioris can also be detected clinically, which must be removed surgically before the orthodontic treatment. The absence of lateral incisors, the malpositioned germs and the erupted or clinically not erupted mesiodens can be diagnosed on the X-ray. The latter must be removed surgically before the orthodontic treatment.

FSZ-108. (C) We talk of deep bite in the case, when the upper incisors overlap the lower incisors more than 2 mm. This anomaly is a vertical disorder. The deep bite, is not always dentoalveolar of origin, it can also be skeletal. The infraocclusion of the molars may create deep bite. In such cases it is typical, that the interocclusal space increases in rest position. See also FSZ-43. and FSZ-47!

FSZ-109. (E) It is characteristic of the mesiodens, that it is located between the two middle incisors or behind them (erupted or impacted), it is often malformed, generally it inhibits the development of ideal dentition (causing diastema medianum), that’s why its removing is indicated.

FSZ-110. (A) Disadvantages of the fixed orthodontic appliance (especially the labial bracket) are: it is aesthetically objectionable, it is difficult to clean the teeth increasing the caries risk, in the case of inadequate application, it may create root- or bone resorption, but the level of power force is well controllable and applicable.

FSZ-111. (C) One of the successful conditions of using the inclined plane is, that in cross bite teeth need to have space available to align in the arch. If by the cross bite a crowding of teeth also occurs, before using the inclined plane, one has to create the space needed with another appliance, otherwise the oblique plane will be ineffective. Opposite to a tooth in
cross bite, at least three suitable antagonists are needed to support the appliance in order to minimize, eliminate the pathological power forces. If the tooth has just been erupting, the sufficient overbite does not exist to retain the result, after removing the appliance, the anomaly will return.

FSZ-112. (C) The suitable appliance for treating the upper dental arch constriction is the active plate with screw, which effects by expanding the suture palatine median. The other suitable appliance from the list is the hyrax, which is used for “rapid maxillary expansion”, by splitting the suture palatine median. The Nance-appliance is suitable for blocking the sixes. The positioner is a removable retention appliance.

FSZ-113. (B) Characteristic of deep bite is the deep sulcus mentolabialis, an excessive curve of Spee and the big interocclusal space; over 5 mm. Deep bite is not characterized by the masseter-, but the temporal type of chewing.
FSZ-114. (E) Thumb sucking is the most frequent cause of open bite (see also FSZ-168). The casual factor may also be the rachitis, which is very rare nowadays, the tongue-thrust swallow, which mainly produces anterior open bite, and the strong oversized tongue, which also occurs rarely.

Fsz-115. (A) The characteristic of uncompensated skeletal open bite, which appears also clinically, is the increased basal angle, the speech defects and the vertical direction of growth. In the case of skeletal open bite, the gonion angle is increased.

FSZ-116. (D) The characteristic of Angle’s Class II/2 anomalies is the deep bite and the distal bite. The upper incisors are retroclined (mainly the central incisors in retraction, the lateral ones in protrusion). The upper incisors in protrusion and the mouth breathing are characteristic in, Angle’s II/1 anomaly.

FSZ-117. (A) The appliance-types, which are suitable for the early treatment of Angle’s II/1 anomalies: the oral screen (first of all to eliminate protrusion), the Schwarz expansion plate with palatal bite block, and the activator (both for ceasing distal bite and protrusion). The treatment with local fixed appliance combined with the extraction of the deciduous molar is not suitable for the early treatment of the anomaly, because the extraction is in general not recommended under the age of ten (except the Hotz serial extraction), and the removable appliances are more effective at this age by influencing the growth.

FSZ-118. (D) The characteristic of the dento-alveolar Angle’s Class III is the mesial bite, which is caused by the unfavourable tilting of front teeth. The negative ANB-angle and the increased SNB-angle are characteristic of skeletal Angle’s Class III due to defect of the mandible.

FSZ-119. (A) Disadvantage of the treatment combined with extraction is that intact teeth (mostly premolars) are removed in most cases. An unwanted tipping of teeth may occur – especially in the case when removable appliances are used –, besides, in some cases the loss of anchorage may appear, in the first place when the patient is not willing to cooperate. In these cases fixed appliance may be used, when the essential conditions are present. In the cases, which are combined with extraction, the danger of relapse is reduced, so extraction may be advantageous.
On the course of the treatment with fixed appliance, one is able to use arch wires with round (e.g. 0.18 inches), square (e.g. 0.18 x 0.18 inches) or rectangular (e.g. 0.18 x 0.22 inches) cross-section. Arch wires with elliptical cross-section are not used.
FSZ.-121 (E) The orthodontic arch wires used by the treatments with fixed appliances may be made from stainless steel (the main components are chromium and nickel), chromium-cobalt-nickel, nickel-titanium alloy (Nitinol), and lately beta titanium arch wires are widespread (titanium-molybdenum), which have great flexibility, little hardness, so they make possible the optimal control of the tooth movement.

FSZ.-122. (D) Vertical anomalies are open bite and deep bite. Angle’s Class III is a mesiodistal anomaly and the dental arch constriction is a transversal disturbance.

FSZ.-123. (A) The characteristic of the secondary crowding of the teeth is, that it develops during mechanism of second dentition. It is often caused by the crowding as a result of premature deciduous tooth loss (see also 101.) and by the mesial movement of the teeth. After the mechanism of second dentition, the eruption of the wisdom teeth can also cause crowding, but this is the tertiary crowding.

FSZ.-124. (A) The deepening of the bite may be caused from the listed by the early loss of the deciduous molars, physical factors caused by the intense abrasion of the teeth and deep bite may also be hereditary. The thumb sucking may cause open bite, if remains over the age of 4 yrs., we have to use an appliance in order to stop thumb sucking and eliminate the open bite (e.g. oral screen).

FSZ.-125. (C) The excessive curve of Spee and the deep sulcus mentolabialis is characteristic of deep bite. The infraocclusion of the front teeth or the lateral teeth, the tongue-thrust swallow as an etiological factor are characteristic of open bite.

FSZ.-126. (A) The serial extraction by Hotz aims at the normal alignment of the upper incisors, with which it is theoretically able to prevent the ectopic eruption of canines. At the age of 7-8 yrs., the upper primary canines are removed from both sides, after the alignment of the incisors, the first deciduous molars, then the first premolars are extracted, and so a regular dental arch develops. For the treatment well-educated specialists and thorough diagnosis is needed. The goal is reached mostly by the combination of a treatment with an appliance. The extraction of the first permanent molars does not belong to the treatment. See also 69!
The circular cutting of the marginal gingiva fibres and the septotomy are the surgical interventions, which prevent the relapse, stabilizing the orthodontic result. Corticotomy and alveolectomy are surgical procedures, which support the orthodontic treatment. See also 69!
FSZ.-128. (B) In the case of progenia vera, i.e. real progeny is characterized -from the listed features- by the increased SNB-angle, the significant shifting of the mandible corpus – ramus proportion towards the corpus and the increased gonion-angle. The Downs-facial angle is increased significantly.

FSZ.-129. (D) The prognathia is characterized -from the listed features- by the protrusion of the front teeth and the short philtrum. The increased muscle function of the upper lips is not characteristic (this rather lessens). Cover bite is characteristic of Angle’s Class II/2, in the case of prognathia, sagittal overlap occurs.

FSZ.-130. (D) A characteristic consequence of deep bite may be that the lower front teeth occludes with the upper palatal mucous membrane, so this part of the mucous membrane may sustain a trauma, and the teeth involved may become functionally overloaded due to the pathological power forces. Angle’s Class II/1 combined with mouth breathing, is characterized by chronic gingivitis, the increased cariogenicity is the characteristic of the crowded dentition.

FSZ.-131. (E) The cause of relapse -following the orthodontic treatment- may be any of the listed: the failed extraction during the treatment, if there is a loss of space, which cannot be compensated otherwise, the wrong choice of the type of the appliance, if the treatment is inadequate, the change of the direction of the power during the treatment, as this disturbs the right rebuilding of the tissues and the stabilization of this. The eruption of the wisdom teeth after the treatment, -following a longer period without complaint-, may cause a late, tertiary crowding, so the preventive extraction of them is indicated.

FSZ.-132. (E) For retention reasons all of the listed types of appliances can be applied according to the followings: the usage of the activator is optimal after the treatment of mesio-distal abnormalities, the vestibular plate is optimally used following the treatment of Angle’s II/1, combined with extraction of the fours, if a spacing has remained between teeth three and five. The Hawley- retention plate (simple plate with labial arch and clips) is mostly used after fixed appliance treatment. The positioner is an appliance used after the treatment of the mesio-distal deviations with fixed appliance, extended to the lower and upper dental arch, which is suitable for eliminating the small interdental spaces too.
Retention time following the active orthodontic treatment is not influenced by the patient’s patience, and the attitude towards wearing the retention appliance, because most of the patients would take the chance not to wear it, which leads to numerous relapses. The patient’s satisfaction with the results is not an influence factor either, the expected results must be clarified with the patient verbally and also in writing, before treatment. If the patient’s general state, lifestyle and nutrition are all right, retention period may be shorter. At a younger age the process of the tissues rebuilding is quicker.
The direction and degree of the movement of the teeth are well controllable in treatment with fixed appliance. The treatment takes relatively short time, because of the constant wearing.

The essence of the tongue thrust swallowing is, that the tongue presses between the dentitions. The muscle of the tongue is incomplete only in the case of developmental anomaly (cleft tongue).

Puberty is one part of period between ages 12-15 yrs., which means rapid and extensive growth (pubertal peak), that’s why has to be considered an active period. During puberty the growth of the jaws is also increased.

The activator forms the dental arches with adapted surfaces in contact with the teeth moving them like an oblique-plane. The force is transmitted by the bite of the patient, so there is no overload. See also 148!

The usage of the orthodontic appliance, especially of the fixed one increases plaque formation activity, because the patient’s dentition – even if the appliance is used as required – is not capable of self-cleansing. When the appliance is worn for the right length of time, sometimes there is no possibility for the frequent tooth brushing. That’s why the prevention programme is needed; like fluoride-application and the usage of the suitable cleansing tools.

The most frequent teeth remaining in retention are the lower third molars, then the upper canines. The latter ones are in general the last teeth to change, and enough space does not remain for their eruption. There is no connection with the fact that the canine develops in the fossa canina.

During the 8-12th week, the palatal plates arise from back to forward and lie together, then fuse with each other and with the nasal septum process from the front to backwards, thus developing the secondary palate, the real palate. The moving of the plates and the direction of their fusion is not in connection with each other. At the same time, as a consequence of the fusion from the front to backwards, the mildest, final form of clefts is the uvula bifida. See also 75!
FSZ.-141. (A) On the course of the 8-12th week, the palatal plates arise from back to forward and lie together, then fuse with each other and with the nasal septum process from the front to backwards, thus developing the secondary palate, the real palate. The moving of the plates and the direction of their fusion is not in connection with each other. At the same time, as a consequence of the fusion from the front to backwards, the mildest, final form of clefts is the uvula bifida, which forms during the 12th week. See also 140!

FSZ.-142. (A) On the embrional 6th week the medialis nasalis process, the lateralis nasalis process and the maxillar process fuse, and form the primary palate. If this does not occur, the primary facial cleft, the cleft of the lip and of the alveolar process can develop. See also 76!

FSZ.-143. (A) Bad habits (like thumb-sucking), parafunctions (tongue thrust swallowing) may cause most of the orthodontic anomalies. On the other hand, abnormal dentition often does not make normal functions possible, children with open bite compensate with their tongue during speech. This may lead to speech defects, and at the same time it aggravates the anomaly.

FSZ.-144. (A) On the course of the human phylogenesis the size of the jaws significantly reduced, but the tooth did not become smaller. Because of this, such discrepancy appeared between the two sizes, which can be treated by decreasing the number of the teeth – i.e. with extraction.

FSZ.-145. (A) Tooth eruption is the physiological guiding of the development of the alveolar processes. So, if the tooth is directed to the right place during eruption (interceptive intervention), healthy periodontal tissues develop. If the tooth supporting tissues are rebuilt afterwards, the normal bone structure and periodontal fibre-system are more difficult to form (there is the danger of relapse).

FSZ.-146. (A) The law of effect - counter effect says that the force produces a counter-force. In orthodontic treatment this means, that all forms and methods of support must be totally utilized and strengthened in orthodontic appliance as an anchorage. Such a method is for example the extra oral pulling with the help of headgear.

FSZ.-147. (A) The effect of the activators is based on the Harvold-effect. If the bite is raised by a removable appliance, passive eruption of molars occurs into the increased interocclusal space, setting the required bite. The increased dimension should be at least of 4-5 mm, that
the orthodontic appliance can also be used at night, because the greater the vertical change is, the more certain is the sagittal correction. See also 151.

FSZ-148. (A) The activator forms the dental arches with adapted surfaces in contact with the teeth moving them like an oblique-plane. The force is given by the masticatory function of the patient. If the orthodontic appliance is placed only on the teeth and the alveolar process, the force will also concentrate only to these areas. Thus, the activators have a reduced framework with positive effect. See also 137!

FSZ.-149. (A) The upper Schwartz plate may sometimes be completed – with mesial constructed bite – with an oblique plane formed to the lower incisors. Biting onto this, the lower dental arch pulls the upper plate in distal direction, and through the labial curve, also the upper incisors.
FSZ.-150. (A) The teeth erupt and settle into the gap of muscular balance formed by the tongue and the external muscular bridle. If keeping away of the muscles on either side breaks the balance, there will be a force effect only from one side on the teeth, and they move towards the other direction. This is used e.g. by the Fränkel- or the Klammt-activator.

FSZ.-151. (A) The effect of the activators is based on the Harvold-effect. If the bite is raised by a removable appliance, passive eruption of molars occurs into the increased interocclusal space, setting the wanted bite. The upper molars erupt down- and forward, the lower teeth upwards, vertically to the mandibular plane. See also 147!

FSZ.-152. (B) Most frequently the upper fours are extracted. From orthodontic point of view, these teeth are next to malpositioned front teeth, otherwise their absence may not be aesthetically disturbing. Besides, their cariogenicity is high, their endodontic treatment is often difficult because of their root-relations. See also 2!

FSZ.-153. (A) If there is a severe constricted upper dental arch in a narrow maxilla compared to the lower dental arch, that makes it possible to expand the palate e.g. with the splitting the suture palatine, and at same time bringing the upper dental arch into a more favourable transversal position. See also 175!

FSZ.-154. (D) The irregularities of dentition, dental anomalies may cause more kinds of pathological alterations. These anomalies are in connection with TMJ, the periodontium, and with the crowding, enhanced cariogenicity. In spite of all these, most patients visit the orthodontist for aesthetic reasons

FSZ.-155. (A) In the case of the crowding, plaque formation activity increases, the level of self-cleansing and the possibilities of tooth brushing are worse, caries appears sooner, so especially on the approximal surface, which is difficult to clean, both the primary and the secondary caries may develop more easily.

FSZ.-156. (B) The severe occlusal anomalies (e.g. cover-bite, open- or cross-bite) may play a part in the development of the periodontal diseases, because of the unfavourable direction and size of the forces, which affects it. Chewing – independently of the above assertion –, induces the growth and development of jaw bones, it has a great importance in the normal development, in insuring the right function and self-cleansing
FSZ.-157. (B) Diastema medianum can be caused by the aplasia of the lateral incisors, even may cause speech defects. These belong to the group of functional disturbances. The aplasia of the lateral incisors, and the diastema medianum are also disadvantageous aesthetically, so independently of the previous assertion, the orthodontic treatment is often necessary because of the unfavourable aesthetic effect.
FSZ.-158. (A) See also 34. and 101!

FSZ.-159. (B) The apical basis (the virtual line connecting the root apices of the front teeth and the buccal root apices of the lateral teeth) is the highest limit of bone rebuilding, which can be reached with orthodontic treatment, which must be considered in every case in the practice. Independently of this, in the case of the ab ovo increased coronal base (the virtual line connecting the edge of the front teeth and the buccal cusps of the lateral teeth) the expanding of the dental arch is not recommended, as this would tilt the teeth even more labially.

FSZ.-160. (C) In the case of protrusion the teeth tip labially, but their root apices remain in their place.

FSZ.-161. (A) Traumatic occlusion means the early touching of teeth. In this case pathological forces in direction (and often in size) affect the teeth. This may lead to the damage of the periodontium.

FSZ.-162. (A) The shape and size of the dental arch are in close connection with the shape and size of the skull bone anatomically, so the narrow, undeveloped jaws and its consequences, high, (gothic) palate and the crowding of teeth are characterised by dolichocephal persons.

FSZ.-163. (C) The abnormal swallow (tongue-thrust) can cause, distal bite and the protrusion of incisors, that is, Angle’s II/1 anomaly. In its therapy, the treatment of the functional disorder must be remembered!

FSZ.-164. (E) Following the treatment of inherited deviations, there is a greater tendency to relapse and their treatment is ab ovo much more difficult than that of the acquired one. The genetic determination of the development and rebuilt of bones is not simple, often impossible to influence. It is important to recognize early the abnormality, to begin the early treatment, to take a thorough dental history, and being aware of it throughout the treatment. Such cases often lead to compromise or surgical solutions.

FSZ.-165. (C)
See 164!
In the case of anterior open bite the front teeth, in the case of lateral open bite the lateral teeth are not in occlusion, so in these cases we cannot talk about normal occlusion. Because of this, the efficiency of chewing function lessens.
If the inhibited nasal breathing (e.g. as an effect of adenoid vegetation, sepal deviation) exists continuously, the child becomes a mouth-breather. Because of this abnormal function besides protrusion of the incisors, distal bite also develops. Other characteristics are the thinning of the upper lips, the shortening of the philtrum, and the chronic gingivitis as a result of the dry gingiva.

In the case of thumb sucking, over the age of 4 yrs., the child has to be treated, as the anterior open bite due to bad habits causes not only the aesthetic disadvantage, but it may also cause speech defects. Besides, chewing problems may also develop. See also 166!

The rachitis – although quite rare nowadays – in serious cases it may cause a severe open bite, besides disturbances in structure of the tooth; enamel hyperplasia. The enamel hypoplasia with rachitis does not predispose to caries.

On the course of the morfogenesis of the skull the chondorous base of the skull, the nasal capsule and the Meckel-cartilage own growing gives the sagittal length of the face. Independent of this assertion, at the beginning of the third month, more ossification centres appear in the chondrocranium, most of which ossifies chondrally in the foetal period.

From the soft parts, the nose compared to the other ones goes through especially great changes in puberty. On average it grows 1mm per year, from which 0,5 mm is directed downwards. On the course of the growth it becomes more and more prominent, but its later shape and size is difficult to predict because of the unexpected changes.

The traversal directed expansion of the sutura palatina is a way of the orthodontic treatment in the case of a narrow upper dental arch. The execution usually happens with the help of the hyrax appliance. On the course of expanding of the dental arch with quad helix, the expansion occurs in the lateral region, an asymmetrical widening is possible with the help of it. This appliance is not suitable for suture splitting. See also 153.

The removable orthodontic appliance - is also named as “night” appliances – have to be worn not only at night, but also during the day, as much as possible. To reach the desired effect it has to be worn at least for 12 hours a day, the patient has to be informed about this at the beginning of treatment.
The removable orthodontic appliances apply the force to the teeth by means of articular anchorage, spring, or the margin of the plate. This force causes the tipping of the teeth. On the other hand, the brackets of the fixed appliance mean a rigid anchorage, and the tooth can be bodily moved in all directions.

The removable appliance can be used to tip the teeth (outward), so it can also be suitable to expand dental arches. At the same time it requires a greater collaboration from the patient, who has to wear it daily for the right period of time. The fixed appliances are able to move the teeth bodily in all directions.

The anterior cross bite and the canine ectopy are frequent deviations in the upper dental arch. In the case of cross bite, sometimes by removing a lower incisor, the lower dental arch can be narrowed, so creating a chance to form the upper dental arch. The canine ectopy is often solved by removing the upper first premolars.

The malposition of the front teeth may be caused by more factors, such as the abnormality of the jaws (prognathia), the abnormal size of the tongue, or malfunction. The protrusion of the upper front teeth may be caused by rather bad habits, such as thumb sucking or the chewing of the lips, while the anterior open bite may be caused by the oversized tongue, protruding jaw, and thumb sucking.
The deviations of the jaw and the dental anomalies may sometimes be characterized by a symptom complex. These are the progeny; its symptoms are the wide lower dental arch, the anterior crossbite and macroglossia. In general this is an inherited anomaly, while the Class II/1 anomalies may also be caused by the lack of breastfeeding. The symptoms are the high palate, the narrow dental arches, and the deep bite. Both anomalies appear already in the deciduous dentition.

In orthodontic diagnosis, the metric analysis of the dental arches on the cast models is an important factor. Lundström-analysis examines partly the given space relationship – crowding or spacing– in total permanent dental arch length, or Moyers-index shows the size of the supporting zone in mixed dentition, predicting the crowding or spacing of the territory. The previous, records the sum of MD width of all teeth, while the latter, it takes into consideration the sum of the MD width of the lower permanent incisors. Neither procedure regards the transversal size of the dental arches.
The presence of the teeth in the jaw increases the growth of the jaw bone, at the same time the extraction of the teeth makes arch shortening and decelerates the growth of the jaw. From a jaw tooth must not extract, which is smaller anyway, rather the expansion of the arch must be performed. In class II/1 anomaly, extraction is forbidden from the lower dental arch, because it becomes even smaller and the deep bite increases. Extraction should be avoided from both dental arches in diseases where the number and quality of the existing teeth are not correct e.g. ectodermal dysplasy. At the same time, the casual therapy in crowding is the extraction.

The treatment with fixed appliance has more stages: active phases; correction of malposition of individual teeth (alignment), forming the dental arches separately and to each other, (arch-forming phase) and refined corrections, the setting of the final occlusion (contraction phase). In the case of removable appliances the treatment cannot be divided into such phases. In the case of both methods the final passive phase, the retention is very important.
On the course of the orthodontic treatment for moving of the teeth forces are used, which result in the bone loss of the alveolar wall on the pressed side, and the bone apposition on the pulled side. If the force is too great, the resorption is not able to occur on the pressed alveolar surface, it will rather be transferred onto the marrow cavity. This is the undermined resorption. On the other hand, an over excessive force may cause the movement of the anchor teeth, which support the orthodontic appliance, so it can cause a loss of anchorage. An overdose of the power develops rather by fixed appliances. A loss of anchorage may follow the extraction therapy, if after the removing of the teeth, the distal teeth are not supported and the monitoring does not occur.

According to Angle’s diagnostic system the cases with distal bite belong to the anomalies in Class II, which can be divided further on the basis of other features. In Angle’s Class II/1 anomaly the protrusion of the front teeth occurs, while in Angle’s Class II/2 besides the retrusion of the front teeth (at least of the two central incisors), an excessive overlap is also a characteristic feature. Both alterations can be treated successfully already in mixed dentition, i.e. before the finishing of the mechanism of second dentition.

The two types of cells taking part in the structural changes of the bone tissue are the osteoblast, which is responsible for osteogenesis, and osteoclast, which is responsible for bone resorption. The lifetime of cells is 15-20 days, the 60-day-lifetime is not characteristic to either of the cell types. Both the activity of the osteoclast and the osteoblast cells grow as a consequence of the force of the orthodontic appliance: on the pressed places bone loss, at the pulled places bone building happens. So the bone is rebuilt.
FSZ.-212. (C)

FSZ.-213. (A)

FSZ.-214. (B)
Deep- and open bites are vertical deviations. Deep bite is characterized by temporal type of chewing. In the case of Angle’s Class II/1 anomaly the open bite goes together with protrusion, the thinning of the upper lips, and the shortening of the philtrum, causing chronic gingivitis due to the drying of the gingiva. Any of the vertical deviations may appear in normal mesiodistal relations, i.e. in Angle’s Class I.

Extraoral radiograms, like the orthopantomogram and the cephalometrics are often used in orthodontics. The panoramic radiogram gives a general survey (about the dentition, e.g. supernumerary teeth, absence of germ, the presence, and position of teeth in retention and in impaction, etc.) and besides, it reveals the symmetrical relations. In cephalometric analysis the soft parts can be examined, and with the reference points, planes and angles, the type of the disturbances can be separated, which means, weather an anomaly affects also the bones of the skull (skeletal), or is “only” of dental origin. This is important from therapeutic and the prognostic point of view.

The orthodontic appliances according to the anchorage may be intraoral, extraoral and extra-intraoral ones. Headgear belongs to the latter group, while the chin cap - head cap is completely extraoral appliance. The extraoral rubber ribbon is the important part of both appliances, which is positioned laterally in the case of the chin cap - head cap, and in the case of headgear, it is fixed on the occiput or the skullcap. The chin cap - head cap is used in the early treatment of mesial bite, the headgear is suitable for moving the upper sixes distally and the front teeth backwards, the period before the eruption of the sevens. See also 53!
FSZ.-224. (C)

FSZ.-225. (C)

FSZ.-226. (B)
(B) The common characteristics of the signed removable orthodontic appliances (the removable plate and the bimaxillar appliances) are that they may contain expanding screw in typical or atypical location, and they can be combined with extraoral appliances (with headgear) when it is needed. The simple removable plate or the expansion plate is placed only on single jaw (either only on the upper or only on the lower, or on both, but in the latter case that means two different appliances), the bimaxillar appliances affect both the upper and the lower jaw considering their functioning. Their usage is advisable in the case of mesiodistal deviations. For the mesiodistal setting of the jaws, constructional bite has to be taken.

(C)

(B)

(C)

(D) Activator and Hansa belong to the group of functional appliances, which affect the function by means of eliminating abnormal muscle function, thus stopping the harmful environmental factors, which maintain the anomaly. From the two types of the appliances, the activator may contain expansion screw - depending on the type - the Hansa always contains one. The functional appliances utilize the natural forces of muscle function. On the basis of the effect mechanism, their usage is indicated during the mechanism of second dentition, in mixed dentition, or in the active growing period.

(C)

(D)

(B)

(A) Two special forms of the fixed appliances are the quad helix and the hyrax. Both are suitable for expanding of the dental arch, although not on the basis of the same effect mechanism. The hyrax is suitable for splitting of the suture palatine in the case of a severe arch constriction. The quad helix can be used to expand the supporting zone.
FSZ.-236.  (A)

FSZ.-237.  (C)

FSZ.-238.  (B)
FSZ.-239. (D) Supernumerary teeth and the absence of tooth germ belong to numerical anomalies. A supernumerary tooth is usually located between the two upper incisors (mesiodens). In the case of absence of tooth germ, or supernumerary tooth are suspected, radiogram should be taken. This is also true in the case of an erupted supernumerary tooth, as more, even unerupted supernumerary teeth can occur, which cannot be observed clinically. The absence of lateral incisors is the most frequent. Both anomalies are independent of the mesiodistal deviations, they may occur also in Angle’ Class I. (the group of local deviations). See also 107!

FSZ.-240. (B)

FSZ.-241. (A)

FSZ.-242. (C)

FSZ.-243. (A)
See also 48!
GNA-1. (E) Reversible temporomandibular disc dislocation (RDD) is usually characterised by specific joint noises. These noises can be heard either during the first phase of mouth opening or at the final phase of closing (reciprocal clicking). In this disorder the disc is located more anterior than in normal cases and the condyle is situated on the pathologically thinned posterior band of the disc or on the bilaminar zone, which is a soft connective tissue behind the disc. When the mouth opens the translation of the mandible forces the disc forward in front of the condyle. At a certain level of opening the condyle jumps into its normal position and from this position the disc is recaptured and the opening path is normal. The clicking noise is produced by a sudden separation of condyle from the above soft tissue before recapturing. At the end of the closing near the intercuspal position the increased intraarticular pressure forces the disc out from the space between the articular surfaces and it assumes a more anterior and medial position in front of the condyle. In RDD usually there are no noises, in contrast to the arthrosis, where crepitation is a frequent sign. In myofascial pain syndrome and synovitis non-specific joint noises, if any, can be heard.

GNA-2. (C). In rheumatological diseases the involvement of the temporomandibular joint (TMJ) can lead to high anterior open-bite due to the rapid and extensive condylar destruction. In arthrosis the condylar bony destruction is lasting and moderate and it usually does not cause malocclusion. In diseases such as irreversible disc dislocation, capsulitis and myofascial pain syndrome condylar destruction and malocclusion cannot be detected.

GNA-3. (A). From the listed disorders only the irreversible disc dislocation (IDD) is characterised by significant restriction of the contralateral side movement of the mandible, without pain (however in some cases painful myospasm associates to the disease). In myositis and myofascial pain syndrome the patient usually can carry out sufficient side movements despite the pain perception. There is no direct relation between the joint luxation and the laterotrusive movements.

GNA-4. (D). The tricyclic antidepressants are used to relieve mental depression, however, they are also effective in the treatment of chronic pain syndromes (particularly the amitryptiline containing drugs). The other drugs in the question have not proved useful in pain management because of their insufficient pain relieving effects or their undesirable side effects (gastrointestinal, psychotic, haematological adverse effects can develop after their chronic application).

GNA-5. (B). Those treatment modalities, which alter the occlusal surfaces irreversibly, are not used in the initial phase of temporomandibular disorder (TMD) management. In this phase permanent prosthetic rehabilitation is also not used (later when the symptoms are significantly reduced or the
disease has been successfully treated permanent occlusal rehabilitation could be performed). The other reversible and conservative ways of treatment - listed in the question - could be used in the early phase of treatment in temporomandibular disorders as well as in other musculoskeletal diseases.

**GNA-6.** (E) The most effective conservative therapy in irreversible disc dislocation is the occlusal appliance (nightguard) therapy. It is especially effective in the acute phase of the disease. During this treatment the mandible is established to a protrusive position with the properly formed occlusal surface of the appliance. Other supportive methods (e.g. nonsteroidal anti-inflammatory drugs) may integrate into the management of the patient, but they should not be considered as causal treatment. Symptomatic therapies are indicated when pain and inflammatory reactions dominate the case. Occlusal correction (grinding in of teeth) and prosthodontic rehabilitation are contraindicated in the first phase of therapy since they lock the mandible into its pathological position.

**GNA-7.** (D) The definition clearly fits the myofascial pain syndrome. In ankylosis the mandibular range of movement is very restricted and there are radiological signs too. Bony ankylosis can be diagnosed with traditional x-ray but in fibrous ankylosis a soft tissue depicting method (MRI) should be used. In IDD opening path deflection of the mandibular midline is typical but pain is usually not associated to symptoms. The MRI can show the dislocated disc. Excessive pain, exaggerated by mandibular function, is a usual symptom for myositis. In this case the mandibular midline deflection during mouth opening depends on the location of the muscle. An EMG survey can confirm the diagnosis. The arthrosis and the myofascial syndrome can be differentiated with radiographic findings.

**GNA-8.** (E) In panoramic images the condyle may be partially covered by the lateral part of the articular fossa, therefore the film cannot be evaluated with certainty. In opened mandibular position the condyle emerges out from the fossa and it is seen clearly in the x-ray. Each condyle should be depicted in two positions; one with opened and one with closed mouth. With these projections the dentist can evaluate either the integrity of the condyle or the extent of mandibular translation.

**GNA-9.** (A) According to epidemiological studies about one third of the general population has at least one temporomandibular symptom.

**GNA-10.** (C) Clicking from the temporomandibular joint has usually been heard before the acute form of IDD occurs. After dislocation the disc has been situated in front of the condyle and blocks the condylar translation. The history of the patient generally reveals that clicking was heard before the IDD occurred, but after the dislocation the clicking disappeared.

**GNA-11.** (A) Masticatory muscle spasm is a frequent painful accompanied sign of the temporomandibular disorders. Sometimes sensitivity in rest is the main complaint of the patient, however increased pain with function is more common.
GNA-12. (B) In medication of TMD, those drugs that are recognised to play a role in cartilage formation and repair (chondroprotective medicines), are not used. Unlike other joints of the body (covered by hyaline cartilage), the TMJ is covered by fibrous tissue that does not respond well to chondroprotective therapy.

GNA-13. (D) The dental literature is contradictory about the TMJ implant prosthesis. Although early studies appeared hopeful, but over some years more and more failures disclosed, with reports of severe pain and joint destruction. The other surgical interventions could be used when conservative treatment modalities have proved unsuccessful and conditions for surgery are right.

GNA-14. (A) The posterior band of the disc and the neck of the condyle are connected by a non-stretchable collagen sheet, which main functions are the stabilisation of the disc over the condyle and avoiding the dislocation of disc. This sheet is the inferior component of the bilaminar zone located behind the condyle. Some authors say that the superior stratum of the bilaminar zone – which is an elastic sheet between the disc and the posterior wall of the articular fossa - retracts the disk during closing.

GNA-15. (E) The rheumatoid arthritis is a chronic inflammatory disease that causes the immune system of the body to attack the joints. It can occur with or without generalized manifestation. The disease starts in the synovial membrane, which becomes thick and stiff, following massive invasion of inflammatory cells. This process with the ligamentous and muscle changes may restrict the mandibular movements severely. The disease could spread to the articular surfaces in a later stage. The other statements are correct.

GNA-16. (E) When a disorder causes mandibular movement restriction, the translation of the condyle is usually shortened. The restricted movement of the diseased side, which is basically caused by the shortened translation, deflects the mandibular midline toward the affected side.

GNA-17. (B) In irreversible disc dislocation there are usually no joint noises during jaw movements. The other diseases can cause degenerative joint changes, in which crepitus (cracking noise made on articular movements) can be perceived over the joint.

GNA-18. (D) In reversible disc dislocation the mandibular midline deviates during opening. The midline pathway of the mandibular opening deviates and then returns to its original position. During this midline interference the condyle moves over the posterior band of the disc to the normal position. Once the condyle-disc relationship has normalised the pathway of the lower midline becomes normal too. The other disorders, listed in the question, are characterised by the other midline interference that results in the deflection.

GNA-19. (B) The temporomandibular joint arthrosis is a chronic disease with slow progression. During propagation there is a simultaneous and continuous adaptation in the masticatory system,
therefore the occlusion does not change noticeably. Although rapid destruction of the condyle (e.g. in rheumatoid arthritis) may result in occlusal discrepancies, but in this case the mandible „rotates“ clockwise, which would have led to an anterior and not a posterior openbite.

**GNA-20.** (C) When the mandibular movement is severely restricted and the maximal opening point reveals a soft end-feel phenomenon, there is usually a muscle disorder in the background. Intraarticular diseases generally manifest in a hard end-feel phenomenon. Def.: “end-feel“ is a subjective clinical finding, which can be taken as a resistance of the restricted mandible against passive opening, carried out by the dentist.

**GNA-21.** (A) From the displayed diseases only the irreversible disc dislocation causes a sudden onset of mouth opening restriction. Patients usually complain about a previous catching sensation in the joint, without pain. The fibrous ankylosis is a consequence of chronic joint diseases and it does not occur as an acute event in young patients. In patients with myofascial pain syndrome, capsulitis and osteoarthritis pain is an essential symptom.

**GNA-22.** (B) The myofascial pain syndrome is a local pain condition that is characterized mainly by sensitivity of the masticatory muscles and the fibrous elements. The articular surface destruction is a sign of the arthritis and arthrosis, but it is not characteristic in myofascial pain.

**GNA-23.** (A) The most frequent sign of the occlusal trauma is the pathologically increased tooth mobility. In periodontal disease the abnormally increased load from parafunctional activity may increase the damage of the periodontal tissues.

**GNA-24.** (E) The main indication of the selective grinding of teeth is the optimal rearrangement of occlusal forces. Since the exact relationships between occlusal interferences and temporomandibular disorders are not known, the elimination of tooth interferences is contraindicated as a preventive method in clinical management. In the clinical practice the selective grinding can be used, when the diagnosis has been confirmed, and it has been proved that the symptoms are related to the defective occlusal contacts. Morphological concerns, to improve the dental aesthetics, are not accepted as indications for selective grinding.

**GNA-25.** (A) According to clinical investigations occlusal interferences can be found most frequently between the mesial ridges of the palatal cusp of the upper first premolar and the distal ridges of the buccal cusp of the lower first premolar.

**GNA-26.** (C) The occlusal overloading can induce increased attrition in the enamel, thickened periodontal space, sclerosis or loss of continuity in the lamina dura and overproduction of root cementum. The tooth mobility usually increases. These changes, however their incidences are different, can be observed in occlusal traumatism. The occlusal trauma could be a cofactor of
periodontal diseases, but as a single etiological factor it does not induce periodontal disease or attachment loss.

GNA-27. (C) Each statement is correct but the definition of the Balkwill-triangle. The Balkwill-triangle is formed between the occlusal plane and the Bonwill-triangle (a 10 cm equilateral triangle bounded by lines connecting the contact points of the mandibular central incisor’s incisal edge to each condyle and from one condyle to the other). Its mean value is 22°-25 °. It is used for arbitrary mounting of casts on the articulator.

GNA-28. (C) Since with age the stability of the temporomandibular joint falls (as the size of the condyle reduces and the extent of the fossa increases) the possibility of joint luxation is more likely in the older population. The clinical relation of this question is, when the repositioning of the dislocated joint is not done with care, the structures of it could be damaged. In old patients the neuromuscular coordination of the mandible could be deteriorated, therefore the occlusion and morphology of the articulation could change substantially. These changes could affect the main positions of the mandible (e.g. centric relation, maximal intercuspation and the rest position).

GNA-29. (E) From the listed options only the rest position of the mandible is not part of the outline of border movement of the mandible (i.e. Posselt’s diagram). The rest position is always localised inside the diagram.

GNA-30. (D) The false statement refers to the poles of the mandibular head. The lateral pole is more flat and it is near the plane of the mandibular neck, but the medial is projected significantly.

GNA-31. (D) The most cranial point of the centric relation path of the mandible (i.e. RCP or retral contact position) is located more downward than the maximal intercuspal position (ICP). From RCP the mandible usually moves upward, forward and sideways on the surfaces of the contacting teeth to reach the maximal intercuspal position. The other statements are correct, since ICP is an occlusion related position, centric relation is a joint related position, but the RCP is related both to the occlusion as well as to the joints.

GNA-32. (A) For the investigation of the occlusal contacts the gypsum casts are mounted to the articulator in centric relation position. This position is independent of tooth contact and it is a bone-to-bone relation, which depends on the anatomy and physiology of the TMJ and the neuromuscular system. From this position the casts can be directed into intercuspal position meanwhile the occlusal guidance is inspected and recorded. The occlusal interferences, which guide the casts into maximal intercuspation, are designated as centric interferences. The investigator should register the length and direction of the guiding pathway from RCP to ICP.

GNA-33. (D) The kinematic face-bows or hinge axis face-bows are the most precise instruments, with which we can localize the transverse hinge axis of the mandible. It works with a caliper-like end
piece, which can be adjusted in the condylar region, in order to find the hinge axis. When the dentist determines the hinge axis with this instrument, and mount the upper cast in relation to the axis, the vertical dimension of the articulator can be changed without the risk of occlusal inaccuracies. Using the traditional or Snow-type face-bows the arbitrary hinge axis point should be recorded in the line between the tragus and exocanthus of the eye at 13 mm (and not at 21 mm) from the distal border of the tragus. Since face-bows could use different anatomical landmarks and reference planes, the operator should apply the instruments according to the manufacturer’s instruction. In the clinical practice the quick-mount or ear-piece face bows are used with success.

GNA-34. (B) For the registration of centric relation the presence of teeth in the mouth is not obligatory, but properly occluding teeth may improve the precision of the wax registration. In patients with severe tooth loss, when there are insufficient numbers of occluding teeth, the accuracy of the centric wax record construction and the mounting of the casts with the record could be erroneous. In this situation fabrication of occlusal rim can improve accuracy of the record. The rim should fit in the mouth with maximal stability. During the registration, the surface of the occlusal rims should not be subjected to mechanical load because it leads to mucosal compression and dimensional inaccuracies of the record after all. To determine the angle of the sagittal condylar path the record should be taken in a 3-5 mm protrusive mandibular position. If the protrusion is less than 3 mm, the angle in the articulator would be steeper than it is in the patient. On the other hand more than 5 mm protrusion will result in flatter angle.

GNA-35. (C) The articular disc can be divided into three main portions (anterior band, intermediate zone and posterior band). In closed mandibular position the condyle is located on the thinnest, central (intermediate) zone of the disc. The anterior and posterior bands are thicker than the central portion, which is a very important biomechanical factor of the disc movement.

GNA-36. (B) In chronic orofacial pain syndromes the patient’s subjective pain localisation is contradictory. In the head and neck region benign disease can cause severe pain sensation (that is true for the temporomandibular region), and on the other hand serious diseases (e.g. neurological, otolaryngological and surgical diseases) can develop without pain or discomfort, therefore the statement is false. In chronic pain disorders the psychological symptoms (anxiety, despair and depression) are common.

GNA-37. (E) Deflection is an uncorrected or continuing more than 2mm side shift of the mandibular midline on opening, which is symptomatic of diseases caused by restriction of mandibular movement. In protrusion we can also see it (protrusive deflection) but in this case the evaluation is more difficult than in opening. The reversible dislocation is characterised by - the other midline interference - the deviation (see question 18). In myofascial pain syndrome sensitive hyperactive points can be palpated
in the main masticatory muscles. Mechanical stimulation of these „trigger points” can evoke pain in a remote area in the head-neck region. Depending on the etiological factor the temporomandibular arthrosis could be primary (idiopathic) or secondary. In primary arthrosis the cause of disease is not clear, but in secondary arthritis there is an etiological factor (e.g. trauma, systemic causes) in the anamnesis of the patient, which can be connected to the joint destruction.

**GNA-38.** (A) The effectiveness of the interocclusal dental appliances is based on biomechanical, physiological, and psychic factors. However the precise mechanism, with which these appliances accomplish their effects, is not known. The placebo effect takes a considerable (40-50%) part from their effectiveness. In bruxism the appliance (nightguard or mouthguard) effectiveness is maximal when the appliance is constructed in the most stable musculoskeletal position of the masticatory system, which is the centric relation position. If the occlusal surface is not adjusted properly the occlusal interferences may worsen the state of the patient. After the adjustment of the occlusal surface only the supporting cusps of the opposing arch should be in contact with the appliance in closed mandibular position. These centric holding cusps will sustain the vertical position. The nonsupporting cusps should be removed from contact because they can prevent the smooth excursive movements of the mandible.

**GNA-39.** (C) When the occlusion is physiological the excursive movements of the mandible are smooth and unobstructed. The occlusal guidance from RCP to ICP should be less than 2 mm; therefore the 3 mm guidance represents a malocclusion. The stability of the maximal intercuspal position is a very important factor of physiologic occlusion, which helps to protect either the temporomandibular joints or the masticatory muscles from adverse loading. Since the reliability (and especially the specificity) of mandibular movement analyzers are questionable, it is a relatively frequent finding that the sagittal or lateral condylar paths of the axiographic registrations show some alterations even in healthy patients. Consequently, a disturbance in the curvatures of these tracings does not necessarily imply pathology. It is known from scientific studies that the lateral condylar path, because of anatomical reasons, is usually steeper than the sagittal one.

**GNA-40.** (A) After a trauma to the temporomandibular joint the condyle position could be changed, which generates acute malocclusion. In discus dislocation the disc does not separate the articular bones anymore, and either the condyle position or ultimately the occlusion is changed. In the latter case the occlusal contacts are heavier on the side (ipsilateral) of the disorder meanwhile some degree of disocclusion can be observed clinically on the contralateral side. Myositis can also induce malocclusion, however the degree and form depends on the hypertonicity and location of the affected muscle. The temporomandibular arthrosis normally does not cause any clinically detectable occlusal
changes, because it is a chronic disease with slow propagation and the masticatory apparatus has sufficient time for compensating the changes with continuous adaptation.

**GNA-41.** (A) The temporal muscle attaches to the coronoid process of the mandible. This area can be palpated intraorally, when the dentist raises his finger upward along the anterior border of the ramus. The deep fibres of the masseteric muscle can be palpated extraorally in front of the condyle under the line of the zygomatic arch. The superficial part of masseter is in front of the deeper fibres and it is examined with simultaneous intra- and extraoral palpation. The last statement is false, because the lateral pterygoid cannot be investigated reliably with palpation. This muscle is located too deep in the tissues and this area - even in normal conditions – is generally sensitive.

**GNA-42.** (B) The success of the temporomandibular treatment depends on the patient’s education about the disorder and the home-care modalities. It is important, to inform the patient, about her/his role in the management of the disease, before the treatment begins. Some forms of management need the patient’s contribution (jaw exercises, thermotherapy, cognitive behavioral therapy, diet, massage), which could be valuable only when the patient has the necessary information about the problem and the possible modalities of the treatment. The chance of success is usually increased when we combine methods of treatment (e.g. the occlusal appliance therapy can be combined with physiotherapy or medical treatment). The main cause of the tension type headache is the hyperactivity of the temporal muscle. Some studies have described the effectiveness of dental appliance treatment in tension type headache. In the treatment of reversible disc dislocation, the selective grinding in of teeth is not used. In this disorder the occlusion anomaly is a consequence of the disc-condyle disturbance, therefore the treatment should intend to improve the disc-condyle relationship (e.g. with an anterior positioning appliance), but adjusting the occlusion. With the tooth grinding we would have confirmed only the malocclusion and the pathologic maxillo-mandibular relationship, which may worsen the case.

**GNA-43.** (E) Each consequence – displayed in the question - could be a part in a well-prepared and successful jaw exercise therapy.

**GNA-44.** (C) Rheumatic diseases increase the risk of temporomandibular diseases. In rheumatoid arthritis the temporomandibular involvement is about 50%. The parafunctions (e.g. bruxism) also enhance the risk of temporomandibular disorders and particularly the risk of the myogenic disorders. In elderly the prevalence of painful disorders lessens, but the pregnancy does not represent a risk factor for temporomandibular joint disorders, according to the dental literature.

**GNA-45.** (D) The reversible disc dislocation is marked by reciprocal clicking (means a pair of clicks, one of which occurs during opening movements and the other during closing movements), but movement restriction does usually not associate with this disorder. In contrast to the previous, in irreversible disc dislocation the midline deflects to the affected side during mandibular opening and
the jaw movement is restricted. The articular surface destruction and ipsilateral disocclusion are not typical of the two diseases.

GNA-46. (C) The MRI is the most reliable radiological method in the diagnostic process of the disc and soft tissue diseases. It can reveal intraarticular blood and fluid (the T2-weighting technique is especially appropriate for this). One of the MRI shortcomings is that it is not reliable in diagnostics of disc perforation and there is a tendency to produce false positive results for internal disc derangements. The disc perforation can be investigated with arthrography - but arthroscopy is a preferred method - when the conditions are suitable.

GNA-47. (D) Clinical investigations have shown that consequences of bruxism are manifested in about 50% of 12-year-old children. There are several explanations for bruxism and some of them suggest the key role of central neural processes. Emotional factors and psychological stresses are among the factors that can initiate and perpetuate bruxism. The nocturnal bruxism can be regarded as a type of sleep disturbance, which is in intimate connection with the emotional state of the patient. Scientific data have not yet proved that occlusal interferences are main etiological factors of bruxism. Since the bruxism is a chronic process it is difficult to decide whether the occlusal facets would refer to an occurring or continuing parafunctional activity or if they are consequences of a process that had happened in the past. When there are tooth impressions on the tongue or on the buccal mucosa the bruxism or parafunction is more likely an ongoing than a past event. These soft tissue lesions can heal fast, so some days after the parafunction has terminated they disappear from the mouth.

GNA-48. (A) The success rate of conservative treatment of temporomandibular disorders is about 90% according to the literature. This can explain that in the initial phase of patient management the irreversible treatment methods, which can change the occlusal relationships permanently, must not be used. During the treatment of our patient we should always take into consideration that the activity of some temporomandibular disorders – just like in the other musculoskeletal diseases - usually fluctuates. The patients could experience spontaneous partial or complete remission of symptoms during the course of the disease, but symptoms later reoccur. The myofascial pain is a cyclical condition that can flare up, and then go into remission, in accordance with the intensity of psychosocial stresses acting on the patient. Contrarily, the course of the acute irreversible disc dislocation is not fluctuating and without treatment irreversible changes occur in the surrounding soft and hard tissues. After some time the disease spreads to the articular surfaces and bone degeneration and disfigurement develop.

GNA-49. (C) The intraarticular steroids are used rarely in temporomandibular treatment, but they could be indicated when the conservative modalities of therapy have failed to provide desirable relief of symptoms. The bensodiazepines and recently the tricyclic antidepressants are used to manage
chronic pain patients. The muscle relaxants have not proved effective in the orofacial region, so their usage is usually not suggested. When non-steroidal anti-inflammatory drugs or (NSAIDs) are used, it should be calculated that it may take up to 4 weeks to reach the maximal effect of the drugs.

GNA-50. (C) The myofascial pain disorder is especially widespread in females between 25 and 45 years of age. The character of pain is continuous and dull with a fluctuating course (spontaneous remission and escalating of symptoms is usual). In fibromyalgia there are scattered sensitive nodules in soft tissues of the body, especially in muscles, tendons and areas over joints (these sensitive areas are designated as tender points however their nature is rather controversial in the literature). In myofascial pain disorder the symptoms are localised to the orofacial region.

GNA-51. (D) From the nature and etiological background of the temporomandibular disorders, symptomatic treatment methods are used frequently to relieve the symptoms (e.g. painkiller to reduce painful complaints). These methods represent an important part of management, since they could help to hold up the progression of the disease and improve the adaptation of the tissues. The transcutaneous nerve stimulation (TNS) is intended to reduce pain and other complaints disturbing the patients. The physiologic explanation to the TNS mode of action is that electric impulses stimulate the mechanosensitive receptors in the superficial tissues, which (according to the gate control theory of pain perception) reduce the patient’s complaints. In diabetes mellitus the disorder of the small vessels may cause circulation defects in peripheral parts of the body, consequently instead of the cold application the warm packing is recommended, as an alternative form of temporomandibular treatment. The ultrasound therapy is contraindicated when there is a possibility of acute inflammatory or neoplastic diseases in the region.

GNA-52. (E) The myogenic temporomandibular disorders could in whatever range restrict the mandibular movement, in accordance with the severity of muscle involvement and accompanied pain. Since in disc dislocation the disc is situated in front of the condyle, it reduces the mandibular translation to a 30-35 mm distance and restricts the mouth opening. At this level the opening path of the jaw is blocked, however the opening capacity of the patient can be further enhanced with 1-3 mm by the dentist (the dentist assisted opening is the passive mouth opening). The maximal opening position of the mandible is marked with hard-end feel clinical finding (the resistance of the mandible to passive opening is firm). When the acute restriction of the opening is large, there should be a painful protective muscle disorder or a muscle disease behind patient complaint.

GNA-53. (B) Deflection is a non-corrected eccentric displacement of the mandibular midline by opening, in which at the end of the opening the midline shift is greater than 2 mm. When the muscle, which is foreshortened by muscle spasm, is located on the lateral side of the joint (e.g. masseter) the mandible is pulled towards the affected muscle. In this case the opening path interference is
designated as ipsilateral deflection. We could see similar phenomenon when a painful disease affects the joint and the protrusive path of the condyle is restricted. In reversible disc dislocation the mandibular midline after a certain degree of deviation returns to its original position.

GNA-54. (C) The protective muscle splinting is usually accompanied by movement disturbances (dysfunction) of the mandible, sensitivity to movements and pain. At rest the patient is usually asymptomatic, since this disorder is not inflammatory in origin.

GNA-55. (C) In reversible disc dislocation the typical noise pattern heard from the joint is the reciprocal clicking (means a pair of clicks, one of which occurs during the first phase of opening and the other during the last phase of closing, near the ICP). The relationship of the clicks to the degree of mandibular movement is dependent mainly on the stage and severity of the disorder. In this disc movement disorder the midline-interference is represented by the deviation and not the deflection. In the closed mandibular position in this disorder the disc is located antero-medially from the condyle. Despite the bad disc position the movements of the mandible are not restricted. Either the opening or the excursive movements are normal in length, since the disc does return to its normal position during the first phase of movement and then the disco-condylar relationship remains normal.

GNA-56. (B) The centric relation is a clinically reproducible maxillo-mandibular relationship, in which the masticatory muscles are at minimum level of their physiologic activity. The most cranial point of the centric relation is determined by a tooth contact (RCP), which in most of the cases (in 90-95%) is not in the maximal intercuspal position (i.e. ICP or centric occlusion), therefore this contact is considered as a premature contact. From RCP the mandible can slide into ICP. Since this contact in most of the cases forces the mandible to deviate from the final closure along the centric relation path, it is considered a premature contact (occlusal interference). Centric relation is not the rear (most posterior) position of the condyle since the most posterior point is located 0,5-1 mm behind the centric relation position.

GNA-57. (A) The first phase of mandibular opening starts with a rotation, which extent depends on the occlusal characteristics and the anatomy of the temporomandibular joint. At closed mandible position the condyle is on the central part of the disc, but by the end of the opening it gets onto the anterior band of the disc. It is possible if during opening the condyle movement is relatively faster than the disc movement, and that is the reason why the condyle gets onto the anterior part of the disc till it reaches the endpoint of the opening. The vector of opening path tends to direct forward and downward, so does the curvature of the sagittal condylar path. The immediate side shift is a mandibular side shift, where the balancing side condyle moves basically medially when it leaves the centric relation. It dominates the beginning phase of laterotrusion. The sagittal condylar path is a protrusive pathway and has no relation to the immediate side shift (Bennett-shift).
GNA-58. (C) Rheumatoid arthritis (RA) is a chronic autoimmune disease, which causes inflammation and deformity of joints. In about 50% of cases the RA produces local TMJ involvement. First it attacks the synovial membrane of the capsule and later the inflammation spreads to the articular surface, which then usually becomes severely destructed. Significant loss of the condylar bone results in an open bite restricted to the frontal part of the dental arch (i.e. anterior open bite). Extraarticular manifestations of the disease can involve salivary glands, neuromuscular system (even the masticatory muscles), eyes, lungs, heart, vascular, and haematogenic system. When the articular surfaces are destructed crepitation can be perceived as a characteristic joint noise. TMJ radiography can confirm the diagnosis, because it can reveal radiological signs of structural bone changes.

GNA-59. (E) Some authors indicate headache among the main signs of the temporomandibular diseases, because of its high frequency. Clinical studies have described that temporomandibular disorders can cause tension type headache. In this case the symptoms of the headache significantly alleviate with dental appliance (nightguard) therapy. Unlike in neurological headache when the headache is induced by a temporomandibular disorder, prodromal symptoms cannot be revealed in the history of the patient.

GNA-60. (C) The masseter and the temporal muscle can be investigated properly with digital palpation as they are located in well accessible anatomical regions. The medial and lateral pterygoid muscles are not evaluated reliably with palpation. The palpation of the medial pterygoid causes extreme discomfort to the patients or it can even induce gag reflex. When in closed position the masticatory muscles are clenched a small part of the muscle can be palpated at the inner peak of the mandibular angle, however this method is little more than a theoretical curiosity. (For the investigation of the lateral pterygoid, see the question GNA-41.)

GNA-61. (D) The false statements are referred to the Spee-curve, which was described in 1890 by Ferdinand Graf Spee a German anatomist. By definition, the imaginary curvature starts at the peak of the lower cusp, then goes along the buccal cusps of the premolars and molars and passes near the anterior border of mandible to the condyle, where it finishes. This curvature has a sagittal (and not transversal) running. Its clinical relevance is that if the curve of Spee is increased, flatter cusps of posterior teeth are required to avoid occlusal interferences.

GNA-62. (D) The 2nd and 4th statements of the question are correct. Condylar guidance is an important factor controlling the cusp inclinations of posterior teeth. If the angle of the sagittal condyle path decreases flatter cusps should be used in the molar zone to assure free excursive movements of the mandible and avoid the possibilities of occlusal interferences. Similarly, we should accept that back teeth with flatter and shorter cusps should be used, if the anterior guidance is reduced (or flat).
GNA-63. (B) The condylar path - as might be expected - has a greater impact to the movements (and occlusal surfaces) of those teeth, which are located closer to the condyle. Since the molar teeth are closer to the condyle than the premolars they are affected more than the premolars. The spatial movements of the lower teeth are mainly affected by three important guiding factors. These are the anterior guidance, the condylar path and the mechanisms of the neuromuscular system. The closer a tooth to a guiding factor the greater the effects of the factor to the tooth movements. The statement, about the lateral movements of the mandible, needs to be explained further. The lateral movement theoretically and very simplistically can be divided into two main components, namely the mandibular side shift and the lateral excursion. The most influential form of the mandibular side shift is the immediate side shift. The immediate side shift (Bennett-shift) is the first part of lateral mandibular movement, which can be observed as the mandible leaves the centric relation position toward the working condyle. During this movement the working-side condyle translates mainly laterally, meanwhile the non-working side condyle moves medially. The extent of this lateral shift is between 0 and 3 mm. The lateral movement of the working condyle can combine with a downward, upward, forward or backward component. This movement is different in patients; however an imaginary cone with 3 mm height and 60° opening angle can enclose the average range of movement tracings. The apex of the cone is located at the axis of rotation. The individual mandibular movements during immediate side shift vary greatly within the area of this cone. The direction of working side condyle movement may be more important than the extent of it from the aspect of restorative dentistry, since it has a great impact on the occlusal surface of the side teeth. The immediate side shift is controlled by individual anatomical factors (e.g. wall configuration of the glenoid fossa on the working and non-working sides, tightness of articular ligaments). Lateral excursion, i.e. the other component of the lateral movement, means an orbiting movement while the non-working condyle moves anteriorly, inferiorly and medially around a vertical axis located on the working side.

GNA-64. (B) There is no anatomical connection between the medial pterygoid muscle and the disc, therefore this muscle does not affect directly the disc movement. The other statements are correct.

GNA-65. (C) Since the sagittal condylar path is typically a curvilinear line, the articulators with rectilinear condylar path are not able to reproduce that curve. The only positions these articulators can reliably reproduce are the centric relation position and the positions of the eccentric bite registrations. Articulators with a curved condylar path may approximate more accurately the occlusal relationships of the patient.

GNA-66. (B) From the factors listed in the question only the presence of artificial dentures may have negative effects on the biting force. The presence of complete dentures reduces significantly either the biting or the chewing forces.
GNA-67. (D) The surface of the articular eminence of the temporal bone is double convex. The antero-posterior convexity is more emphasised than the medio-lateral one. The inclination behind the eminence is steeper than the other one in front of the eminence. During protrusion the condyle proceeds forward and downward along the distal inclination (slope) of the eminence. When the movements of the joint are unrestricted (in normal cases) the condyle at the end of mouth opening passes the crest of the eminence.

GNA-68. (A) The dorsal border of the mandibular fossa is formed by a bony process of the temporal squama (processus postglenoidalis ossis temporalis). The petrotympanic fissure, through which the chorda tympani nerve enters into the cranium, is located behind the process. The chorda tympani and the surrounding vessels are out of the confined area of the articular capsule so the condyle cannot compress them mechanically. The temporomandibular ligament limits the extreme retrusion of the condyle. The posterior part of the articular capsule attaches to the postglenoidal process. The most important stabilizer of the joint, i.e. the temporal or lateral ligament ties the bony element of the joint on the lateral side. Its medial counterpart is missing, but the two temporal ligaments on the two sides are functioning as collateral ligaments.

GNA-69. (E) The two temporomandibular ligaments on the two sides working as collateral ligaments. In the centric relation position the mandible can rotate around a transverse hinge axis, and this rotation could mean an opening or a closing movement. This movement is restricted by the temporomandibular ligament, because at the end of the centric opening it becomes so tight, that it blocks any additional rotation. From this point only if the mandible begins translation would the opening continue. The other important role (mainly of the inner horizontal part) of the ligament is the limitation of the extreme mandibular retrusion. The first stage of the lateral excursion (the immediate side shift) is also controlled by this ligament. When the ligament is loose or elongated the side shift of the mandible is more extensive. Consequently, this ligament is a significant determinant of the tooth movements and side teeth occlusal morphology (see GNA-63).

GNA-70. (C) The central portion of the disc normally is under constant mechanical stress, and as a result, it is free from vessels. The opposite is true for the peripheral part, where the mechanical stress is lower and the tissues are looser, hence the disc is thicker and there are nerves and vessels in it. The temporomandibular joint and the surrounding and overlying tissues (muscles, ligaments, skin) are innervated by the 3rd division of the trigeminal nerve (according to the Hilton-rule from anatomy, the joint and the associated muscles are always innervated by the identical nerve). The neurophysiologic base of the jaw-jerk reflex is the proprioceptive reflex of the jaw-closing muscles. Proprioceptors provide information from periphery to the central nervous system, concerning the joint and bone positions. Muscle spindles (like it is stated in the question) monitoring the tension of the intrafusal
muscle fibres, and afferent nerve fibers carry information (impulses) to the mesencephalon, in the central nervous system. The efferent neuron, which is located in the brain stem, supplies the fibres of mandibular-closing muscles with motoric impulses. This very simple monosynaptic reflex plays a major role, when the normal muscle tonus of the body or postural rest position of the mandible is maintained. Moreover it is even more important in predators when they grab their preys and hold on tight between clenched jaws. János Szentágothai, a Hungarian anatomist had a main role in the research of this reflex mechanism. The jaw-opening reflex can be provoked first after birth in the orofacial region, and it is of elementary importance in the breastfeeding of the newborn. It is a nociceptive, two- or multisynaptic reflex, which receptors are in the joints, periodontal tissues, mucosa, and scattered in the skin of the orofacial region. The efferent motoric neurons transmit impulses mainly to the digastric muscle (the lateral pterygoid muscle may be involved in the response too).

GNA-71. (D) To maintain the stability of the rest position of the mandible a continuous and meticulous regulation of the masticatory and neck muscle activity is elementary. In the rest position there is a mutual balance between the activity of the opening and closing muscles (considering even the effects of gravity). According to the latest studies the activity of the masticatory muscles is minimal at a slightly opened position but not in the rest position. Although the minimal activity of the masticatory muscles is not a clear electrophysiological phenomenon, nevertheless minimal EMG signs of muscles can be recorded at about an 8-10 mm opened mouth position. It is certain, that in the rest position the muscle activity is larger than the “minimal” activity. The chewing process can be initiated or interrupted voluntarily whenever you like it because it is under the control of the cortex. Perhaps the cortex or other subcortical centers affect the parameters of chewing, but is has been proved that the chewing “centre” or more precisely the central pattern generator of the mastication is located in the brain stem (medulla oblongata). This centre is less independent than e.g. the respiratory centre but, as we know, its physiological role is less important too. During chewing the maximal chewing forces can be detected near the occlusal position. These forces are about 10-40% of the maximal biting force. The frontal view of the three phase chewing pattern (described by Zsigmondy, a Hungarian dentist) is teardrop shaped. This theory has remained an accepted explanation for the mechanism of mastication until nowadays. According to the theory the mandible after an opening phase moves sidelong then returns to the occlusal phase. These masticatory movements are characterised either by their directions or their velocity. Near the occlusal position the chewing movements are slower than those close to the maximally separated position.

GNA-72. (B) That is an undesirable biomechanical condition when the sum of the occlusal force vectors acts on the slope of a cusp, since the horizontal component of the occlusal force transmits
nonaxial destructive load to the tooth and the surrounding tissues. It has been published that the periodontal ligament better accepts vertical forces arising from occlusal contacts than the horizontal forces. Consequently the occlusal contact points should be placed so that the sum vector of force, generated by the centric supporting cusp, (upper palatal and lower buccal cusps) runs along the axis of the opposing tooth (to an opposing central fossa or marginal ridge), when the mandible is in ICP. The other statements are correct.

GNA-73. (D) The articulators can help the dentists in planning procedures of fixed and removable dentures, selective grinding of the patients teeth, orthodontic therapy, before and after oral surgery, and in occlusal analysis. In the ARCON-type articulators, similarly to the patient the upper member of the articulator carries the artificial fossa articularis and the lower member carries the condyle. When the casts are mounted on the articulator in centric relation position, it can be found that the tooth contacts are not stable in a vast majority of the cases, such as in the patients. On the casts, mounted in centric relation, the first tooth contacts are usually on the surface of first premolars or the second molars, when the articulator is closed after removal of interocclusal bite record. (See tooth contacts in RCP). From this instable position the casts could be guided into stable maximal intercuspal position (RCP-ICP guidance).

GNA-74. (A) The intercondylar distance of a fully adjustable articulator can be adjusted properly with a pantograph record. If the hinge axis of the mandible was localized with an ear-peace or conventional face-bow record (it means average location), instead of kinematic face-bow recording, the closure of the articulator may result in certain inaccuracies, because of the imprecise localization of the axis. This inherent fault can be reduced when the wax bite record is taken with minimal thickness. Even in this case the teeth cannot perforate the wax record and the teeth should not be in contact under the registration. The occlusal surface of posterior teeth is affected by either condylar guidance or anterior guidance. The steeper the anterior guidance the more dominant its effects comparing the influence of condylar guidance. That is the reason why in cases where the anterior guidance is insignificant, the accurate registration of the condylar path is an elementary importance. Consequently when the anterior guidance is not well developed the usage of an articulator is more justified. The tracing of the sagittal condylar path may vary in patients and even the two sides of the same patient are usually differing. Therefore if we take individual records with axiograph or pantograph both sides should be recorded consecutively. Then the articulator has to be installed on both sides according to the registration.

GNA-75. (A) The sagittal condylar path directs downward and forward and it is usually not linear but curved. The Bennett angle can be detected on the nonworking side during laterotrusion. In group function occlusion during lateral movement of the mandible there is contact only between side teeth.
These teeth are usually the canine and the first premolar but rarely even the second molar is associated to the group. Although this type of tooth guidance is an excellent way to distribute the occlusal load and protect the periodontium from undesirable mechanical stress. But the adjustment of the occlusal surface of the artificial teeth, to contact simultaneously during lateral movements, is very difficult. Any mistake, either in the patient’s individual parameter registration in the dental office or in the transfer of values to the articulator in the laboratory, makes the accurate construction of group guidance impossible. In contrast to the previous, the build-up of the canine guidance is much easier in normal circumstances. In the vast majority of the patients the intercuspal position is located more mesially than the centric relation although in about 10% they are identical.

GNA-76. (B) From the statements only the third one is false, because in group function during laterotrusion there are teeth contacts on the working side. The balancing side, which should be free of contacts, is in disocclusion.

GNA-77. (C) The mandibular opening restriction with hard end-feel terminal position is characteristic to some intraarticular diseases (e.g. irreversible disc dislocation, adhesion, and ankylosis). But the synovitis, which is an inflammatory disease, is one of the exceptions (it is usually with traumatic event in the anamnesis). In this disease the protective muscle splinting produces soft end-feel restriction (for definition see GNA-20).

GNA-78. (D) In irreversible disc dislocation the disc is in front of the condyle and blocks the translation of the mandible, although the rotational movement is possible. The rotation and the compensatory movement of the other joint results in a reasonable mouth opening (if the other joint is healthy). The average mouth opening is 30-35 mm in this case.

GNA-79. (A) The condyle cartilage is a main location of the mandibular jaw growth, which is active until 16-18 years of ages. It improves the growth of either the ramus or the whole jaw. A serious complication of rheumatoid arthritis is micrognathia, when the mandible is seriously underdeveloped comparing to the surrounding bone. The main cause of the patient’s face deformity is the destruction of the condylus and the condylar cartilage.

GNA-80. (E) The distal band of the disc is thicker than the mesial one and the most frequent disc dislocation is the antero-medial disc dislocation.

GNA-81. (B) In bruxism the attrition of the occlusal surfaces is much faster than in normal cases, as a result of the pathologically increased friction forces. The soft tissue lesions on the buccal and tongue surfaces are more reliable signs of an ongoing oral parafunction than the presence and quality of attrition (see GNA-47).

GNA-82. (A) Since the deep portion of massteric muscle is located just in front of the condyle the digital palpation of the lateral side of the joint could cause diagnostic failure. Studies show that the
palpation of the distal side of the joint from the external acoustic meatus can notice the joint pathology more reliably than the lateral palpation.

GNA-83. (B) It is true, that the occlusal contact pattern of teeth in disc dislocation changes (see GNA-40), although this change is not caused by the hyperactivity of the lateral pterygoid muscle, but the spatial shift of the mandible, which is induced by the displaced disc. However some authors say that the pathologically increased hyperactivity of the lateral pterygoid muscle may be partially blamed for the development of the discus dislocation. It is likely that in those cases where pain accompanies to the symptoms, the muscle hyperactivity is an important etiological factor.

GNA-84. (C) Arthrography is a reliable and valid tool in the diagnostic process of the disc interference disorders. As the arthrography is invasive, complex and expensive, it is rarely used. Nowadays MRI is regularly used in disc diagnostics.

GNA-85. (C) The origin of the lateral pterygoid is on the inferior surface of the greater wing of the sphenoid bone and the outer surface of the lateral pterygoid plate. Its insertion is on the neck of the lower jaw, disc, and articular capsule. Since the origin is located more anteriorly and medially than the insertion, this muscle is active during laterotrusion, protrusion and mouth opening, but it has no function in mandibular reclusion.

GNA-86. (A) After the dislocation has developed the disc is usually positioned in front of the condyle and blocks the condylar translation. Since the translation is blocked on the diseased (dislocated) side the mandibular midline deflects to that side during opening.

GNA-87. (A) The bruxism can cause muscle hyperactivity and can increase the signs or symptoms either in painful (e.g. myofascial pain, tension type headache) or non-painful (muscle hypertrophy) myogenic disorders. The severe attrition in bruxers can induce postural disturbances of mandible (abnormal mandibular positioning) in the masticatory system, which in some patients can cause temporomandibular disorders. In the clinical practice bruxism should be evaluated cautiously as it could be a predisposing, initiating or perpetuating factor of temporomandibular disorders.

GNA-88. (C) The upper head of the lateral pterygoid attaches to the capsule and the disc and pulls them forward and medially during contraction (although some say that there is no direct connection between the muscle tendon and the disc, but the muscle is attached to the disc by the capsule). The two parts of the muscle have different functions. As the inferior part is the chief protractor of the mandible the main function of the superior part is to stabilise the disc when the teeth are closed or pressed together (e.g. in clenching, bruxing, chewing). When the patient clenches the teeth together, the intraarticular pressure increases and this stress may force out the disc from the intraarticular space if the muscle and other ligamentous elements are not stabilising it. It can be concluded that the
functions of the two heads of the lateral pterygoid are not the same and they do not function at the same time.

GNA-89. (C) The healthy joint is free from noises but the presence of noises does not necessarily mean joint pathology. Sounds are a common sign and patients frequently complain about it. However they are very different in quality, sounds could signal dental disorders or adverse conditions (malocclusion, deep bite, bruxism) or could develop as a phenomenon of adaptation to those conditions. If the sound does not disturb the patient and there are no accompanied symptoms of temporomandibular disorders, treatment is not required, but the education of the patient is. However, we should know that there are some characteristic noises (e.g. reciprocal clicking, crepitation), which are diagnostically or therapeutically relevant.

GNA-90. (C) According to laboratory and clinical investigations in 95% of the population the terminal hinge axis of the mandible can be registered by average value face-bows with 5 mm accuracy. Despite that, a vertical dimension rising in the articulator, after average registration, can cause occlusal disharmony in the prosthetic work. Therefore, for extensive dental work individual registration of hinge axis with kinematic face-bow transfer is suggested.

GNA-91. (E) In the past it was believed that the bruxism was induced by occlusal discrepancies. Lately, it is suggested that the bruxism is controlled significantly by central neural processes and peripheral factors (e.g. malocclusion) have little importance. The nocturnal bruxism is a sleep disorder, which is closely related to psychological conditions of the patient. The selective occlusal correction (tooth grinding) of tooth surfaces has strict dental indications and in bruxism this treatment is not recommended in order to cease the parafunction.

GNA-92. (C) The rheumatoid arthritis can cause severe condylar destruction and usually both sides are affected. The early radiographic signs are the partial or full reduction of the articular space and loss of the cortical bone layers. Later on a major part of the condyle may disappear by severe bone destruction. Reduced mandibular mobility is common and in some cases ankylosis is behind it. The rheumatoid arthritis can affect the muscles too, which result in weakness, muscle pain and loss of mobility.

GNA-93. (C) Trauma is a very common cause of irreversible disc dislocation. It could be a macrotrauma from an accident, or internal microtrauma from bad occlusal relationship. After trauma the anchoring ligaments of the disc are elongated and the posterior band of the disc is thinned. These changes predispose the joint to disc dislocation. After the onset of the disorder articular sounds cannot be heard any longer over the joint. However, later when degenerative processes develop, sounds (characteristically crepitation) can turn up.
GNA-94. (D) Wear facets can signal disorders but they are found in normal occlusal circumstances depending on the age, sex and diet of the patient. Their extents and atypical location may indicate the presence of an occlusal parafunction (e.g. bruxism, clenching), or two occlusal positions (Sunday bite). Evaluation of facets is an important part of the occlusal analysis and it is especially important in bruxism.

GNA-95. (A) In semi-adjustable articulators the adjustability of the sagittal condylar path is obligatory but the possibility of the lateral condylar path setting is optional. With an axiograph the condylar parameters can be determined for the articulator installation. The other way of the adjustment is using protrusive or laterotrusive bite records. Both statements are correct and they are related with each other.

GNA-96. (C) Like it is stated correctly, the inferior head of the lateral pterygoid moves the condyle forward, downward and medially. During the registration of centric relation position it is not allowed to force the mandible backward. When the mandible is forced back an adverse spasm is generated in the masticatory muscles, which deflects the mandible from the centric position and therefore the registration becomes inaccurate.

GNA-97. (D) With face-bow transfer the maxillary cast and the hinge axis of the mandible (on the articulator that is the opening axis of the articulator) could be aligned accurately on the articulator. Before this process the hinge axis of the patient’s mandible has to be located, therefore only the reason for the statement is correct.

GNA-98. (D) The quick-transfer face-bows are practical clinical instruments, with which we can register the alignment of the arbitrary hinge axis of the mandible with the maxilla. This registration is reliable in most of the clinical situations where average or semi-adjustable articulators are used, although in complex cases (e.g. full mouth rehabilitation, bruxism) kinematic face-bow registration is suggested.

GNA-99. (C) It is true that the nonworking side condyle movement is more extensive than the working side one, but the working side movement occurs near the centric position, which stresses its importance. The movement of the working condyle exerts its greatest influence on tooth movement and morphology during immediate side shift, when the condyle movement is nearly transversal. In addition, the working condyle is nearer to the working side teeth than the other two determinants (i.e. balancing condyle, anterior guidance). It is concluded from the before mentioned that the reproduction of the working condyle movements in the articulator is essential.

GNA-100. B

GNA-101. A
The most important finding in myofascial pain syndrome is the presence of firm hypersensitive bands in the affected muscles. Mechanical stimulation of these bands (trigger points) can refer pain, sometimes in a remote area. The neuropathological base of this pain mechanism is the central excitatory effect in the CNS. The destruction of articular surface is seen in arthrosis; therefore positive radiographic findings can be expected in this disease. The other signs of the arthrosis are the crepitation and complex joint sounds because of the hard tissue degeneration. On the other hand in myofascial pain there are no sounds specific to the disease. Increased pain with function is an important symptom of temporomandibular disorders. In arthrosis the pain is a consequence of bone degeneration, but in myofascial pain the muscle changes are responsible for the pain sensation.

The lateral pterygoid muscle could not be investigated adequately by palpation but by functional manipulation. The palpation is effective only if the muscle is located in a well accessible place (e.g. temporal or masseteric muscles). When the lateral pterygoid is shortened by a painful spasm the condyle is pulled downward, forward and inward along the posterior slope of the eminence. This malposition of the condyle induces disocclusion on the ipsilateral molar region and simultaneous heavy occlusion on the contralateral anterior region. The deep portion of the masseter should be palpated extraorally in front of the joint; this part of the muscle is not accessible for intraoral palpation. Only the superficial part can be palpated either intraorally or extraorally. The medial pterygoid is not palpable reliably, because of its bad location.

In reversible disc dislocation the clicking noises – which occur at the beginning/middle of the opening and at the end of the closing - are well reproducible. They appear at the same levels of mandibular movements. In the irreversible disc dislocation the movement restriction develops suddenly and there is no sound effect from the joint. In this disease the disc keeps staying in front of the condyle - irrespectively of the movement of the mandible - and blocks the translation. When the mandible is closed in reversible dislocation, the elevated intraarticular pressure forces the disc out between the articular surfaces and it dislocates to the space in front of the condyle. However during
opening the disc recaptures its normal position and the disco-condylar movement becomes normal. None of the disorders are characterised by articular surface destruction but the chronic stage of the irreversible dislocation may lead to arthrosis.

**GNA-112. B**

**GNA-113. B**

**GNA-114. D**

**GNA-115.** (C) In myositis the mandibular midline deflects to one side with more than 2mm during opening. The direction of the deflection depends on the location and function of the muscle, meanwhile the rate of it is mainly affected by the seriousness (painfulness) of the disease. When the translation is blocked by an adhesion in the disco-temporal joint compartment, the midline deflects to the affected side. In this case the midline runs down straight as long as the rotation is possible, then it deflects markedly. After the capacity of rotation has finished further opening is possible only by the translation of the healthy side, which deflects the midline to the affected side. The deviation does not necessarily mean reduction of movement capacity (e.g. in reversible dislocation despite the presence of deviation there is no movement reduction). Contrarily, the deflection generally occurs with movement reduction, except the case of habitual mandibular dislocation. In this case, because of joint hypermobility, in the end stage of opening the condyle passes the eminence further than it does in normal cases and jumps (snaps) over the eminence while clicking sound is heard. The midline deflects toward the normal side and the maximal opening distance is larger than it is in the general population. Either the deflection or the deviation can occur in disc interference disorders.

**GNA-116. B**

**GNA-117. A**

**GNA-118. C**

**GNA-119.** (D) The neurophysiologic base of pain is the nociception, irrespectively if it is an acute or chronic pain. The algogenic substances accumulating at the periphery modulate the chronic pain. Primarily because of the activity of the peripheral factors the chronic pain is self-limiting and self-regulating. The intensity of pain changes in time in a typical manner. In acute pain there is no local regulatory mechanism and the pain intensity is chiefly affected by the intensity of the nociceptive stimulus. When the stimulus or the cause of the pain is eliminated (e.g. with extirpation of an inflamed pulp tissue) the pain disappears. The chronic pain becomes mainly independent of the etiological factor or the local pathophysiologic processes (i.e. the root cause). The elimination of the root cause does not necessarily mean the elimination of symptoms. Therefore the management of the chronic
pain is a complex multidisciplinary task. But the chronic disc dislocation is usually a painless disorder, except the cases where muscle spasm associates to it.

GNA-120. C
GNA-121. B
GNA-122. B
GNA-123. (D) The face-bow transfer improves the accuracy either of the non-adjustable or the semi-adjustable articulators. While the latter instrument basically needs the face-bow transfer, on the non-adjustable articulators the average mounting of the cast (based on the Bonwill-triangle) is acceptable. To make the average mounting easier, mounting tables can be used. In some types of semi-adjustable articulators the intercondylar distance can be set according to the patient’s findings (e.g. in SAM instruments the dentist can read this finding on the arms of the face-bow). The possibility of sagittal condylar path setting is available in every semi-adjustable articulator, because this parameter is very important. The condylar path can be set either with an axiographic registration or an eccentric bite registration. In nonadjustable articulators the intercondylar distance and the condylar path setting is not possible, since these instruments are manufactured with unchangeable (average value) parameters. Panthographic recording is not mandatory for either of the instruments. The advantages of the semi-adjustable articulators can be utilized completely with face-bow, axiography or eccentric registration. The findings of pantography are applied to install the fully adjustable articulators.

GNA-124. B
GNA-125. B
GNA-126. C
GNA-127. (A) The centric relation position is independent from tooth contact but it basically depends on the positions of condyles or more precisely the disco-condylar complexes. Contrarily the maximal intercuspal position (i.e. intercuspal position or centric occlusion position) is determined by the way the upper and lower teeth best fit together. In this position the mandible and maxilla are closest to each other. The intercuspal position is a definite “static” position, but the centric relation is a movement-range, which builds the superior part of the mandibular border movement (actually it is one part of the Posselt’s diagram). Consequently the centric relation is represented by an about 20 mm curved line in the Posselt’s diagram, while the centric occlusion is represented by a point in the upper part of the diagram. Ideally the most cranial point of the centric relation arc coincides with the centric occlusion position (ICP = RCP, some authors designate this position as centric relation occlusion).
In maximal intercuspation the dental arches are pressed together by the contraction of jaw-closing muscles, but the rest position of the mandible is maintained by a continuously balanced activity of both muscle groups. Moreover the rest position is not affected significantly by the occlusal morphology, but the position of maximal intercuspation is fundamentally determined by the tooth morphology. The vertical distance, is measured between the base of the nose and chin in rest position, is the physiologic vertical dimension. The condyle is in the fossa in both cases; however their positions are slightly different.

While the immediate side shift is a bodily translation of the mandible toward the working side, the protrusion is translation too, but in a forward and downward direction. In the first phase of protrusion, until the mandible reaches the edge-to-edge position, a certain amount of rotation occurs, but this movement has no clinical relevance. The two main components of the working condyle movement are the immediate side shift and - in the last phase of the side movement - rotation around a vertical axis (this movement is in debate in the literature). As the protrusion is a symmetrical movement, therefore there is no sense to use “working or balancing side” terms in connection with it. The immediate side shift exerts a significant impact on the early balancing side movement especially where the anatomy of the fossa allows medial translation for the condyle. This medial translation of the balancing condyle later is followed a substantial forward and downward movement. In a small percentage of the population the side shift is not detectable.

The centric bite record should not be perforated by teeth, since tooth contact is prohibited during registration. Tooth contacts during the procedure may provoke protective muscle reflexes, which deflect the mandible from the centric position. The registration in maximal intercuspation is taken reliably when this occlusal position has either vertical or horizontal stability. Proper number of teeth with good alignment in the arches is needed to such stability. The morphology
of teeth affects the stability of occlusion; therefore marked attrition in bruxism can prevent the precise recording of the intercuspal position. In these situations the reproduction of the intercuspal position in articulators may not be accurate. On the other hand, in certain occlusal situations interocclusal wax registration is not necessary for the correct articulation of the casts. Both of the positions could be exactly recorded in patients with complete dentures.
GYE-1. (B) The most characteristic oral manifestation of scarlet fever is the white „strawberry” tongue (the white coated tongue shows a scattered pattern of hyperemic fungiform papillae), 2-3 day later this coating is lost and the red edematous fungiform papillae dominate the clinical picture (red „strawberry” or „raspberry” tongue).

GYE-2. (C) Morbilli (measles) starts with catarrhal symptoms: cough, fever and photophobia; on the second day Koplik’s spots occur on the buccal mucosa as greyish-white maculae surrounded by a slightly erythematous zone, at the occlusal level opposite to the lower second premolar and first molar. This is the diagnostic sign of morbilli. Spots disappear 2-3 days later when exanthemata occur.

GYE-3. (D) Parotitis epidemica (mumps) is a viral infection affecting the parotid glands mostly in children. It causes long-term immunity. The complications might be otitis media, meningitis and orchitis.

GYE-4. (B) Scarlet fever is common disease in childhood caused by beta haemolytic streptococci, spreading mainly in winter. The bacteria can be cultured from the throat secretion.

GYE-5. (C) The symptoms of cleidocranial dysostosis are: clavicles are absent or defect, fusion of cranial bones is delayed, there are many unerupted normal and supernumerary permanent tooth germs.

GYE-6. (C) Intrusion of primary teeth causes mechanical injuries on the homologous permanent tooth germ most frequently.

GYE-7. (E) Invagination is most frequent in the upper lateral permanent incisors. Many authors suggest that the deep foramen coecum of lateral incisors should be radiographed, because the clinical examination is not sufficient to differentiate it from invagination.

GYE-8. (C) Regular use of dummies dipped in sugar can cause the circular caries of upper incisors.

GYE-9. (D) Infraocclusion means that the tooth does not reach the occlusal level.

GYE-10. (C) Secondary infraocclusion of a primary molar can be the result of the aplasia of the homologous permanent germ. In this case, the probable aplasia must be checked on an X-ray.

GYE-11. (D) Herpangina is a coxsackie virus infection causing fever and vesicles restricted to the soft palate and the posterior pharynx. See also: PE-1, PE-2, PE-3, PE-4.

GYE-12. (B) Turner tooth is a structural anomaly of the enamel.

GYE-13. (B) Twin teeth (geminatio dentium) is a type of double formation attributed to an incomplete division of a tooth germ. There is no reduction in the number of teeth in the dental arch. The root and the pulp chamber are common. It can occur both in the primary and the permanent dentition, and is mainly inherited.
GYE-14. (A) Fusion (confusio dentium) is defined as a union in dentin and/or enamel between two or more separately developed normal teeth. It is more common in the primary dentition. It is either inherited or the result of lack of space. Fusion leads to a reduced number of teeth in the arch.

GYE-15. (E) Concrescence (concretio dentium) is defined as a condition where the roots of two or more teeth are fused only in the cementum. This anomaly can be the result of crowding or dislocation of tooth germs during root formation. It is occasionally seen in the area of the second and third molars of the maxilla.

GYE-16. (D) Traumatic injury of a primary tooth can cause the dilaceration of the homologous permanent tooth. In this case the crown and the root of the permanent tooth meet at an angle.

GYE-17. (D) The morphological anomalies described by Hutchinson (barrel shaped incisors, and hypoplastic lower molars of irregular shape) are caused by Treponema pallidum (Spirocheta pallida) infection. The infection disturbs the function of ameloblasts and causes enamel hypoplasia.

GYE-18. (B) Scarlet fever is caused by beta haemolytic streptococci. (see PE-4.)

GYE-19. (D) The inflammation surrounding the apex of the primary tooth (resulting from injury or caries) can severely disturb the mineralization of the homologous permanent tooth. This hypomineralized, brown coloured tooth is the Turner tooth.

GYE-20. (D) The clinical picture of ectodermal dysplasia is: rare hair (hypotrichosis), absent or reduced perspiratory glands (hypo-seu anhydrosis), and severe hypodontia in the primary and permanent dentition.

GYE-21. (E) All of these are numerical anomalies: hyperdontia, mesiodens, dens paramolaris (accessory teeth); hypodontia (reduced number of teeth)

GYE-22. (A) The accessory tooth of regular size and shape is called dens supplementarius (supplemental tooth).

GYE-23. (B) The accessory tooth of irregular size and shape is called dens supernumerarius (supernumerary tooth).

GYE-24. (B) The innate tooth of a newborn baby is called dens connatalis. The tooth erupting in less than a month after birth is called dens neonatalis.

GYE-25. (C) The distobuccal and palatal roots of upper primary molars may be partly united.

GYE-26. (E) With clinical examination we can differentiate between primary and permanent teeth in the mixed dentition based on the size and shape of the teeth. Primary incisors are similar to permanent incisors; second primary molars are similar to, but smaller than first permanent molars. First primary molars have a special shape and have no similar counterpart in the permanent dentition. The colour of primary teeth is bluish-white, permanent ones are yellowish-white. In the mixed dentition, we find attrition only in primary teeth.
GYE-27. (D) Mesiodens can hinder the eruption of a permanent incisor, or make the neighbouring teeth erupt in an irregular position (for example diastema medianum).

GYE-28. (C) Tuberculum molare is the thickening of the enamel on the mesiobuccal surface of first primary molars.

GYE-29. (B) Lower first primary molars have two roots (mesial and distal), which strongly diverge.

GYE-30. (C) Upper first primary molars have three roots (mesiobuccal, distobuccal, palatal).

GYE-31. (D) First primary molars have a special shape and have no similar counterpart in the permanent dentition.

GYE-32. (C) The front area cannot properly be evaluated on the orthopantomogram, therefore a periapical picture is necessary for the proper diagnosis in this area.

GYE-33. (D) Radiographic examination is necessary in primary dentition in case of a swelling of unknown origin. In the other mentioned cases X-raying is not necessary neither for the diagnosis, nor for the proper treatment plan.

GYE-34. (E) Radiographic examination is necessary in all the mentioned cases.

GYE-35. (C) Circular caries is an early type of caries affecting the primary incisors, resulting from the regular consumption of sugared tea and other sweet drinks (“baby bottle syndrome”).

GYE-36. (D) see PE-35.

GYE-37. (B) The orthopantomogram is not suitable to define the sagittal correlation of dental jaws.

GYE-38. (A) The lateral cephalogram is suitable to define any of the mentioned relations except the symmetrical relation.

GYE-39. (B) The upper lateral incisors have to be in occlusion at the age of 10. In case of its absence, aplasia can be assumed. To make the proper diagnosis radiographic examination is necessary.

GYE-40. (B) Aplasia of the upper central incisors is very rare.

GYE-41. (A) First premolars are extracted most frequently for orthodontic purposes.

GYE-42. (D) The Tomes fibres are the protoplasm appendices of the odontoblasts.

GYE-43. (A) The enamel organ was originally derived from ectoderm, making enamel an ectodermal product.

GYE-44. (D) Circular caries has both endogenous and exogenous causative factors. Exogenous is the sugar tea and dummies dipped in sugar; all the others mentioned here are endogenous.

GYE-45. (C) see PE-13.
GYE-46.  (A) The eruption sequence of permanent teeth is: first molars at the age of 6; incisors at the age of 8; premolars at the age of 9-10; canines at the age of 11; second molars at the age of 12.

GYE-47.  (E) All these statements are true except the last one: the pericoronal space can be found between the crown of the permanent tooth and the stratum corticale.

GYE-48.  (B) Amelogenesis imperfecta is a hereditary structural anomaly of the enamel. All the others mentioned here can possibly be the consequence of the injury of a primary tooth.

GYE-49.  (A) Based on international scientific data the most exposed teeth to traumatic injury in the permanent dentition in childhood are the upper central incisors (80 to 90 per cent of all injuries).

GYE-50.  (D) The primary lower central incisor is the smallest human tooth.

GYE-51.  (A) The enamel organ was originally derived from ectoderm, making enamel an ectodermal product.

GYE-52.  (E) Considering international data, the traumatic injury of permanent teeth is most frequent at the age of 10.

GYE-53.  (A) Statistics say that patients most frequently go to the dental office on the day following the injury of a permanent tooth (30-40 per cent). (On the day of the injury 15-20 per cent; on the second day following the injury 8-10 per cent go the dental office.)

GYE-54.  (E) The periapical, the crown and the OP radiography are commonly used methods. Upper occlusal radiography is often made to locate impacted canines. The Parma -type radiography is suitable for the examination of the TMJ, and used very rarely in childhood.

GYE-55.  (C) The optimal period of applying a rigid splint after the replantation is 7-10 days. A period shorter than that would not ensure fixation. After 10 days, on the other hand, the risk of the development of ankylosis is higher.

GYE-56.  (D) All of these are true except D. During the application the material should be fluid, so that it can properly fill the whole fissure.

GYE-57.  (B) Determining the number of Actinomyces viscosus is not a suitable method to define caries risk factors (although it has some role in the development of root caries). All the others (plus the number of Candida albicans) are suitable methods.

GYE-58.  (E) Dental sac will produce the peridontium, the supporting tissues of the tooth: cementum, periodontal ligament, alveolar bone. The dental sac is originally derived from mesenchyme; thus, the supporting dental tissues are of mesenchymal origin.

GYE-59.  (B) We should administer medicine from the macrolid group for the antimicrobial treatment of a patient with Penicillin allergy. see also PE-129. PE-131.

GYE-60.  (D) We should wait for 1 week after a long-lasting salicylate intake to perform an intervention causing bleeding.
GYE-61. (D) Lower second primary molars have five cusps: three buccally and two lingually; and have two roots: one mesially, the other distally.

GYE-62. (E) Upper second primary molars have three roots (two buccally, one palatally), and generally four cusps. A supernumerary cusp (Carabelli) might occur on the palatal side. The distobuccal and palatal roots may be partly united.

GYE-63. (B) Angle Class II/1 is a predisposing factor for the traumatic injury of incisors (because of the protrusion of the maxilla and the labial tilting of upper incisors).

GYE-64. (C) According to the Bolk terminal reduction theory, the last members of each tooth group disappear form the human dentition. International data confirms that (out of the mentioned ones) aplasia of the upper lateral incisors is the most frequent.

GYE-65. (A) According to statistics, impaction of the upper canines is the most frequent (followed by the lower and upper wisdom teeth).

GYE-66. (B) All of these might cause ankylosis, the most frequent being trauma in childhood.

GYE-67. (D) All the mentioned can be possible complications, except D. In boys a severe complication might be orchitis and sterility as its consequence (so sterility is not a result of impotential in this case).

GYE-68. (B) The size of the roentgen film for primary teeth is 22x35 mm. Also, a 24x40 mm film can be used in mixed dentition; and a 31x41 mm film is commonly used for periapical X-rays in adults.

GYE-69. (A) see PE-2.

GYE-70. (C) see PE-2.

GYE-71. (C) In case of morbilli, exanthemata occur on the third day first on the head (at the edge of the hair), then on the face, neck, trunk and limbs. Exanthemata are most frequent on the face and the upper part of the body. Lesion can typically be found in the perioral region as well.

GYE-72. (B) In case of scarlet fever, exanthemata appear first on the face, then the body and the limbs. The skin has a light red tone with deep red pin-point sized erythema, which is most frequent on the limbs. Exanthemata disappear first around the mouth (“perioral triangle”).

GYE-73. (C) In hand-foot-and-mouth disease vesicles appear scatteredly and not in groups. The other statements are true.

GYE-74. (B) Herpangina causes high fever, and no subfebrility. The other symptoms are true. see PE-11.

GYE-75. (B) A varicella is a viral disease caused by herpes virus varicellae. Exanthemata start as macules, which later become papules, and then vesicles. Lesions do not appear at the same time, so different phases can be found simultaneously. Vesicles occur on the oral mucosa, too (on the soft
palate, the tongue, the buccal and the lip). They are sometimes very small and burst up easily, therefore they are difficult to notice.

Hand-foot-and-mouth disease is a rare, infectious, vesicular illness caused by the coxsackie virus. After a few days of subfebrility, loss of appetite, and nasal discharge, vesicles surrounded by inflammation occur one by one on the oral mucosa, and then on the hand and foot.

Gingivostomatitis herpetica is an inflammation caused by the HSV starting with high fever. Typical oral symptoms are the pinpoint sized vesicles, then erosions, on the swelled, inflamed gingiva. For morbilli see PE-2.

**GYE-76.**  
(B) Herpangina is an acute viral disease caused by the coxsackie A virus. It is the vesicular inflammation of the pharynx and the soft palate resulting in high fever and a sore throat. For varicella see PE-75, for morbilli see PE-2. Scarlet fever is a bacterial disease; see PE-1.

**GYE-77.**  
(C) Cheilitis exfoliativa is the drying of the lips as a result of high fever, or deleterious oral habits e.g. biting the lips. Lips are dry, chopped, desquamating and bleeding. Cheilitis acuta is the result of mechanical injury, strong wind, superfluous sunshine or chemicals. It often has allergy as its origin. Lips are swelled, red and painful; vesicles and desquamation might occur.

**GYE-78.**  
(B) see PE-5.

**GYE-79.**  
(D) Epidermolysis bullosa is an (either dominantly or recessively) inherited degeneration of the skin, characterized by bullas on the skin and the mucosa. Ectodermal dysplasia may occur in the dentition as well (enamel hypoplasia).

**GYE-80.**  
(D) For dysostosis cleidocranialis see PE-5, for epidermolysis bullosa see PE-79. Amelogenesis imperfecta is dominantly inherited and affects the whole dentition. (Hypoplastic, hypominerilized and hypomatured types exist).

Papillon LeFèvre syndrome (hyperkeratosis palmoplantaris et periodontoclasis) is an inheritable disease characterised by chronic gingivitis, the loss of primary and permanent dentition as a result of progressive parodontitis, and the excessive keratinisation of the palm and the sole.

**GYE-81.**  
(B) Symptoms of dysplasia ectodermalis are: rare hair (hypotrichosis), partial or total absence of perspiratory glands (hypo-seu anhydrosis), and hypodontia or anodontia of the primary and the permanent dentition.

**GYE-82.**  
(A) For Papillon LeFèvre syndrome see PE-80, for dysplasia ectodermaelis see PE-81. Juvenile parodontitis (aggressive parodontitis) is the most severe form of parodontal diseases with a very bad prognosis, characterized by vertical bone destruction in the sequence of tooth eruption (molars followed by incisors); and foetor ex ore. At first, a pocket can be detected only on one side of the tooth (which is tilting towards the healthy side). Later the tooth becomes mobile. An X-ray can
reveal the degree of bone destruction.

Histiocytosis X (Langerhans-cell, non Langerhans-cell, and malignant) is of unknown aetiology. It is characterised by the accumulation of histiocytes in different parts of the body. This causes bone destruction, which in the dental jaws results in the loss of primary and permanent teeth. Histological examination is necessary for the diagnosis.

GYE-83. (C) Dilaceration and macrodontia are morphological anomalies. Hypodontia and mesiodens are numerical anomalies.

GYE-84. (E) Injury of a primary tooth can cause morphological and structural anomalies of the homologous permanent tooth germ through direct mechanical effect. An indirect effect can be periapical inflammation following the necrosis of the primary tooth, which may disturb the permanent germ development. Also, the disturbance of root resorption may disturb the eruption of the permanent successor.

GYE-85. (E) Depending on the circumstances, any of these treatments are possible. see PE-86.

GYE-86. (E) All these factors influence the treatment choice. see PE-85.

GYE-87. (D) In the permanent dentition, the Carabelli cusp can be found on the palatal surface of the upper first molar. The Talon cusp is on the upper lateral incisor.

GYE-88. (B) Orthodontic anomalies result in extra plaque retention places and pathological forces on some teeth or tooth groups making them susceptible to gingivitis. The enlarged labial frenum pulls the marginal gingiva during the movement of the lip, which can also lead to gingivitis. Tooth eruption can cause the temporal enlargement of the marginal gingiva, also causing gingivitis. Ankyloglossia has no connection to gingivitis.

GYE-89. (D) The Carabelli cusp can be found near the mesio-palatal cusp of the permanent upper first molar and of the primary upper second molar.

GYE-90. (C) The lower primary molars have two roots.

GYE-91. (A) The indications of fissure sealing are: newly erupted (within 6 months after tooth eruption) molars, rarely premolars with deep fissures, plus children with a high caries risk.

GYE-92. (E) All these mentioned here are health education methods.

GYE-93. (A) A supernumerary cusp can occur on the palatal surface of the primary upper second molar, the permanent upper first molar and the permanent upper lateral incisor.

GYE-94. (C) The upper primary molars have three, the lower ones have two roots.

GYE-95. (D) According to the Bolk terminal reduction theory the last members of each tooth group disappear from the human dentition, namely: the lateral incisors, the second premolars and the third molars from the upper dental arch.
GYE-96. (A) Amelogenesis imperfecta is dominantly inherited. The other statements (1, 2, 3) are true.

GYE-97. (C) The enamel and the dentin develop as a result of calcification. The pulp comes from the dental papilla (this is not calcification); the cementum develops later from the folliculus dentis.

GYE-98. (D) The lower second primary molar has five cusps: three buccally and two lingually. It has two roots: one mesially, the other distally.

GYE-99. (C) see PE-2.

GYE-100. (D) see PE-5.

GYE-101. (B) see PE-15.

GYE-102. (A) see PE-17.

GYE-103. (E) see PE-20. and PE-81

GYE-104. (B) see PE-57.

GYE-105. (C) It is a proper examination method of caries risk to determine the secretion rate and the puffer capacity of the saliva. Determining the protein content, and the Na and K ion content are important in the differential diagnostics of salivary gland diseases.

GYE-106. (B) Caries of the lower teeth starts earlier than caries of the upper ones. This, however, has no relevance in the treatment methods. Other rates turn disadvantageous (the rate of carious teeth, profound caries and approximal caries grow), which results that the treatment becomes more difficult and the costs increase.

GYE-107. (B) Too early extraction of a primary tooth can cause the tilting and migration of the neighbouring teeth, which hinders the eruption of the homologous permanent tooth (impaction).

GYE-108. (A) The tissue closing the apex can be: dentin, cementum or bone, depending whether there is rest pulp in the apex, or not; and (if the pulp is not vital) whether the inflammation is inside the dental channel or outside of it, in the periapical space.

GYE-109. (D) The injuries are most frequent at the age of 10. The upper central incisors are the most frequently injured teeth. Injury of the lower canines is very rare. Angle Class II/1. is a predisposing factor.

GYE-110. (C) Axial force can cause the displacement of the tooth into the alveolar bone. Sometimes it can be mistaken for total luxation, because the tooth cannot be seen. It is not combined with root fracture.

GYE-111. (E) All these statements are true and contribute to the fact that local anesthesia is less used in childhood.
GYE-112. (B) If the child takes a medicine inhibiting saliva secretion, this increases the risk of caries. The other statements are signs of a non-risk group.

GYE-113. (A) The first three may be complications of mumps, which is a viral disease. Polyarthritis is usually of bacterial origin.

GYE-114. (D) Fever occurs first, followed by swelling, which is bilateral in 70 per cent of the cases. See also PE-3.

GYE-115. (B) 99 per cent of the young population is latently infected by the herpes virus; oral symptoms occur only in 1 per cent of patients infected by the virus for the first time.

GYE-116. (C) The parodontium is destroyed in the order of tooth eruption. It has a bad prognosis. Bone destruction is vertical, this being an important symptom which can also be seen on the orthopanthomogram.

GYE-117. (E) All these statements are true. See also PE-115.

GYE-118. (B) Dentinogenesis imperfecta is inherited dominantly and occurs both in the primary and the permanent dentition. Malfunction of odontoblasts causes anomalies in the dentin structure. Weakened dentin tissue is less resistant to outer circumstances, and severe abrasion can be seen.

GYE-119. (E) All these are important. The earliest age of permanent prosthetic treatment is 14 years: after the eruption of the second permanent molars (at age of 12) the size of the dental arch reaches its final size. Also, after the age of 14 the size of the hard palate remains constant, and by this time root development is finished.

GYE-120. (A) The first three are types of recurrent ulcers. Epstein-Barr is a virus causing mononucleosis infectiosa.

GYE-121. (D) In this stage of the illness susceptibility to bleeding increases, the number of petechias grows, and mycotic, bacterial or viral infections may occur as complications of the disease and the therapy. Typically, ulcers spreading into the deep tissues can be seen.

GYE-122. (C) The period of primary teeth is from 2 to 6 years of age; mixed dentition is from 6 to 12 years; and the period of permanent teeth is from 12-18 years.

GYE-123. (B) Answers 1, 2, and 4 are true, but the root channels are complicated, branching, often impenetrable, and anastomosis can be seen in them.

GYE-124. (B) The basic pillars of caries prevention are: proper alimentation, good oral hygiene, application of fluorides and the early treatment. Proper alimentation includes breast-feeding and mastication as well.

GYE-125. (E) Prosthetic treatment is necessary in all the cases mentioned here.

GYE-126. (D) In case of periostitis the causative tooth must be treated (trepanation, extraction, incision); administering antibiotics is not always necessary, only in case of fever and a major swelling.
Out of the traumatic injuries to permanent teeth only the treatment of total luxation may need complementally antibiotics administration.

GYE-127. (E) Salicylate administration is contraindicated in all four cases; in case of viral infection it would increase the danger of Reye-syndrome; in asthmatic patients it might induce an asthmatic attack; in case of allergy to other drugs it can increase the reaction. Salicylates inhibit platelet aggregation, therefore they may increase haemophilia.

GYE-128. (B) Capsules are not suitable under the age of 12, because their content cannot be divided. They can be used only in patients of a higher body weight.

GYE-129. (D) Tetracycline products must not be administered in case of pregnancy and for children under the age of 8 years, because they are harmful for bones and teeth.

GYE-130. (E) The dental papilla will produce the future dentin and pulp tissue. The dental papilla is originally derived from mesenchyme, thus dentin and pulp tissues are of mesenchymal origin. See PE-58.

GYE-131. (A) Administration of Cefalosporins should be avoided because of the possible cross-allergy between Penicillins and Cefalosporins. The others can be administered.

GYE-132. (D) see PE-129.

GYE-133. (B) see PE-80.

GYE-134. (A) Treatment possibilities in case of total luxation (avulsion) include replantation, orthodontic treatment (closing the space), prosthetic treatment (bridge), and implantation. The totally luxated tooth is not in the alveolar bone, so it cannot be extracted.

GYE-135. (E) In case of root fracture all the treatment possibilities mentioned here are possible depending on the place and the direction of the fracture line.

GYE-136. (B) If the fracture is restricted to the enamel and only minor tooth substance is lost, no restoration is needed. Sharp edges, however, should be smoothed. If the dentin is also involved, we choose from the other three possibilities.

GYE-137. (E) Any of these treatments is possible depending on the degree of the dislocation, the mobility of the tooth and the cooperativeness of the child.

GYE-138. (B) All primary teeth have a counterpart in the permanent dentition except the first primary molars.

GYE-139. (E) All these can help in the differentiation.

GYE-140. (B) Amelogenesis imperfecta results from the malfunction of ameloblasts, dentinogenesis imperfecta from the malfunction of odontoblasts; both are hereditary structural anomalies. Turner tooth is a structural anomaly caused by the inflammation surrounding the primary root. Dens supplementarius is a numerical anomaly.
GYE-141. (C) Gemination is the result of incomplete division of a tooth germ. The root is common. Fusion a union of two neighbouring teeth. In case of gemination there is no reduction in the number of teeth in the dental arch, whereas fusion leads to a reduced number of teeth. This can be seen during clinical examination and on the orthopantomogram. The crown shape does not help in the differentiation; the age has no importance. Double formations may appear both in the primary and the permanent dentition (but are more frequent in the primary dentition).

GYE-142. (D) There is a mutual connection between caries and orthodontic anomalies: early extraction of a primary tooth because of caries can cause the tilting or migration of neighbouring permanent teeth, and may disturb the eruption of the homologous permanent tooth. On the other hand, crowding increases plaque retention, cleaning the teeth became more difficult, and the danger of caries development increases.

GYE-143. (A) Copper amalgam was withdrawn long ago, the other three are possible to use.

GYE-144. (B) Oestrogen, progesteron and hypophysis-gonadotropin hormones have a role in the development of puberty gingivitis.

GYE-145. (B) Gingivitis hyperplastica medicamentosa might be caused by difenilhidantoin derivatives. The gingiva swells without pain, and the swelling is marked on the labial-buccal side.

GYE-146. (A) Ultracain DS-Forte has a good diffusion capability, therefore in childhood anaesthesia of lower incisors and premolars can be performed with infiltration. Bone near the molars, however, is thicker, therefore in this case block-anaesthesia is necessary.

GYE-147. (E) All these four are necessary conditions.

GYE-148. (D) Crown fracture is the most frequent injury in the permanent dentition, followed by partial luxation. Root fracture and intrusion are much rarer.

GYE-149. (C) see PE-7.

GYE-150. (A) Both statements are true and their connection is correct.

GYE-151. (A) Endocrine glands (especially oestrogen, progesteron, and the hypophysis-gonadotropin) have an influence on the oral mucosa during the physiological changes resulting from changing hormone levels (e. g. puberty, pregnancy, menopause). The epithelium thickens, keratinisation is reduced, the gingiva is swelled and bleeds easily. The anomalies occur during puberty first (puberty gingiva hyperplasy).

GYE-152. (C) Juvenile periodontitis is a rare illness developing seemingly without any inflammation. Plaque, calculus, marginal gingivitis and caries cannot be seen. Vertical bone destruction occurs in the order of tooth eruption (molars followed by incisors), first on one side, later on the other as well. Foetor ex ore is an embarrassing symptom. Thorough clinical and radiographic examination is necessary for the diagnosis, and the determination of the degree of bone destruction.
GYE-153. (C) Only the first part of the statement is true. If the circumstances allow it, the primary treatment is filling (grinding is a compromise).

GYE-154. (D) Extraction of primary molars does not always result in root fracture. The second part of the statement is true.

GYE-155. (C) The first part of the statement is true. In case of one-year old children we do not make an X-ray.

GYE-156. (E) Crown fracture in primary dentition is unusual, and rarely causes the injury of the permanent germ. Extraction is not necessary.

GYE-157. (D) Dilaceration is a morphological anomaly. The second part of the statement is true. see also PE-12.

GYE-158. (E) The rarest traumatic injury of primary teeth is root fracture. Intrusion causes an anomaly on the homologous permanent tooth most often. see also PE-6.

GYE-159. (C) There are crowns of different size and shape for primary molars in the set of preformed steel crowns. The second part of the statement is not true.

GYE-160. (B) Both halves of the statement are true, but there is no connection between them. Teeth are covered with a crown as soon as possible in order to prevent the abrasion of the tooth resulting from hypoplastic or hypomineralized enamel.

GYE-161. (E) See PE-13. The diagnosis is possible with simple counting.

GYE-162. (C) Numerical anomalies can occur in the primary dentition as well, which has no connection with calcification. The first part of the statement is true.

GYE-163. (C) Besides diastema medianum, mesiodens may cause delayed eruption or the displacement of neighbouring teeth. see also PE-27.

GYE-164. (E) The cause of diastema medianum is not always the enlarged labial frenum, therefore frenectomy is not always necessary.

GYE-165. (A) Both statements are true, and their connection is correct.

GYE-166. (C) Cross-allergy might occur between Penicillins and Cefalosporins, so in case of Penicillin allergy we choose from the Macrolid group first. The first part of the statement is true.

GYE-167. (C) Diffusion capability of Ultracain DS-Forte is indeed good, but terminal anaesthesia is enough only for the lower incisors and premolars in childhood. Infiltration is not possible near molars because of the thickness of the alveolar bone. For molars block anaesthesia is necessary.

GYE-168. (A) Tetracyclins together with calcium give a stable compound and might cause the discoloration of primary and permanent teeth. Therefore in pregnancy and childhood (under the age of 8 years), we do not administer it.
GYE-169.  (C) The first part of the statement is true. According to the Bolk terminal reduction theory, however, the last members of each tooth group disappear form the human dentition: out of premolars the second ones.

GYE-170.  (C) Fusion may occur both in the primary and the permanent dentition, but it is more usual in the primary dentition.

GYE-171.  (A) Both statements are true, and their connection is correct.

GYE-172.  (C) Herpes recidiva needs a local treatment with antiviral ointment.

GYE-173.  (E) Neither statement is true. see PE-4. In the treatment of scarlet fever, Penicillins are of utmost importance in order to avoid complications.

GYE-174.  (D) One symptom of cleidocranial dysostosis is hyperdontia. see PE-5.

GYE-175.  (E) see PE-123.

GYE-176.  (C) The first part of the statement is true, but the traumatic injury of a primary tooth might cause the injury of the permanent germ (e. g. discoloration, enamel hypoplasia, dilaceration).

GYE-177.  (D) All types of caries need a treatment. see. PE-35.

GYE-178.  (A) Both statements are true, and their connection is correct.

GYE-179.  (E) The replanted permanent tooth should be splinted for 7-10 days with a rigid splint. Longer fixation has the danger of causing ankylosis.

GYE-180.  (E) The root development of permanent teeth is finished three years after the eruption, therefore apexification of the upper central incisors is not finished at the age of 8.

GYE-181.  (C) The first statement is true, but the number of teeth in the dental arch is normal (if the double formation counts as one).

GYE-182.  (B) Both statements are true, but there is no connection between them.

GYE-183.  (C) Using gels with high fluorid content is not offered in primary dentition, because young children might swallow the gel, which can cause dental fluorosis.

GYE-184.  (C) Excessive consumption of honey tea, similarly to sugared tea, can cause circular caries.

GYE-185.  (E) Dilaceration is a morphological anomaly: the crown and the root meet at an angle. In its most severe form, surgical removal is necessary. In case of minor anomaly, orthodontic treatment can be attempted.

GYE-186.  (E) The incubation time of varicella is 14-15 days. Exanthemata do not occur at the same time, so different phases can be found simultaneously (macula, papula, vesicula).

GYE-187.  (E) Morsicatio buccarum is a whitish lesion on the bucca in nervous, depressive patients, as a result of biting the bucca. see also PE-167.

GYE-188.  (B) Both statements are true, but their correlation is incorrect.
(B) Both statements are true, but the second one is not a consequence of the first one.

(D) Angle Class II/1 (and not II/2) is a predisposing factor for the traumatic injury of permanent incisors, because protruding incisors are more exposed to injuries.

(C) Apexification is performed in the root canal treatment of a necrotic permanent tooth, if the root development has not yet finished.

(A) Both statements are true and their connection is correct.

(A) Both statements are true and their connection is correct. (However, the side effects occur only at the long-term intake. It is used only occasionally as a pain killer.)

(C)

(A)

(B)

(D) Parotitis epidemica see. PE-3. Parotitis recidiva is the sudden, painful repetitive inflammation of one or both parotid glands. It starts at the age of 3-6 years and it may spontaneously heal after puberty. It is a rare disease of unknown origin.

(C)

(B)

(A)

(D) The accessory tooth of irregular shape is called dens supernumerarius, that of regular shape is dens supplementarius. Neither is a structural, both are numerical anomalies.

(C)

(A)

(B)

(D) Morbilli is a viral, scarlatina is a bacterial infection. The complications of morbilli may include meningitis, pneumonia, otitis, and laryngitis. The complications of scarlatina may include carditis, arthritis, nephritis, otitis, and sinusitis. see also PE-2, PE-4, PE-18, PE-75, PE-76.

(D)

(B)

(A)

(C) see PE-75, PE-73.

(D)

(A)

(C)
Both are morphological anomalies. Dilaceration may result from the traumatic injury of a primary tooth. Invagination or dens in dente may develop because one part of a tooth is retarded and the other parts grow around it. These teeth are usually bigger. see PE-16, PE-83.

(B) The traumatic injury of the upper central incisors is the most frequent. The root of the upper lateral incisors may bend palatally, and the aplasia of this tooth is common.

(A) see PE-26, PE-62, PE-89, PE-94.

Depending on the severity of the partial luxation, splinting is not always necessary. In case of total luxation, the replanted tooth should be splinted with a rigid splint for 7-10 days. The timing of root canal filling can vary. see PE-49.
In primary dentition both caries sicca and caries humida may occur. In permanent dentition caries humida is common in childhood, and both caries sicca and humida may occur in elderly patients.

(D) The first three are true for both. Neither of them has a connection with the secretion rate of the saliva.

The totally luxated primary tooth should not be replanted, because the permanent germ might be injured. The partially luxated tooth can be repositioned and splinted, its root canal treatment is not always necessary.

In case of root fracture in the apical third, the tooth should be fixed; the pulp might remain vital. In case of root fracture in the coronal part, root canal filling is always necessary; occasionally the extrusion of the root may lead to suitable conditions for making a post and core.

Approximal caries of primary molars should be filled. If conditions do not allow filling, the treatment is grinding. In case of the caries of primary incisors filling or grinding can be performed. In case of permanent teeth, the only possible treatment is filling. MO, OD cavity preparation is possible in primary and permanent molars.
GYE-265.  (B) The aim of fissure sealing is caries prevention. It is carried out with adhesive technique. The optimal time is shortly after the tooth eruption.

GYE-266.  C

GYE-267.  D

GYE-268.  C

GYE-269.  (B) Both the enlarged upper labial frenum and mesiodens can be inherited. Both can cause midline space. Treatment is necessary in both cases. When the lips are moving, the enlarged labial frenum might pull the gingiva, causing an inflammation.

GYE-270.  C

GYE-271.  A

GYE-272.  B

GYE-273.  (D) In case of early extraction of a primary tooth, using a space maintainer is necessary in order to avoid the tilting of neighbouring teeth and the consequent space reduction of the permanent successor. Secondary infraocclusion of a primary molar may be the result of the aplasia of the homologous permanent germ. Treatment is necessary in both cases.

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**Conservative Dentistry**

**Explanations**

**KON-1.**  (D) Recent approach emphasizes the both demineralization and remineralization can occur in the oral cavity. That is the reason why the initial process can be reversible when there is no macroscopic material defect, because the incorporation of minerals is possible into the hard dental tissues.

**KON-2.**  (A) According to studies, mostly mutans streptococcus can be responsible for the smooth surface caries, what is able to adhere to the tooth surface in the presence of sugar. Lactobacilli are rather considered as acid tolerant bacteria, these have a role in the development of the fissure caries and in the progression of the caries.

**KON-3.**  (B) In the development of the fissure caries the role of the Streptococcus sanguis and the Lactobacillus casei seems to be important. It seems that in the development of the smooth surface, the fissure- and the root caries different microorganisms have roles.
KON-4.  (C) In case of the deep dentine- and root caries has been detected the presence of the Actynomices viscosus, and also Candida albicans can have a role in these processes.

KON-5.  (C) Incipient caries is the disease of the enamel, it can be detected as a chalk white discoloration on the surface. It is not accompanied by a cavitation, it is not irreparable, but it is a reversible process in case of proper conditions.

KON-6.  (D) The outmost layer of the incipient caries is the relative intact superficial zone, which shows about a 10% mineral lost because of the remineralization from the saliva. It is followed by the body of the lesion, then the translucent zone, the mineral loss of which is minimal.

KON-7.  (E) The mineral loss of the body of the lesion is the highest amongst all the layers, it is 24%.

KON-8.  (C) According to the results of the histological examinations the thickness of the intact superficial zone is between 20-100 microns.

KON-9.  (C) According to the results of different studies it was detected that under a certain pH already the demineralization dominates. In case of the dental enamel this pH value falls between 5.2 and 5.7.

KON-10.  (A) The correct answer is the value between 6.4-6.8. It means that there is a considerably higher risk for developing caries at the root surface, if it is not covered by gum.

KON-11.  (A) The particle size of the diamond coat can be various in case of the diamond burs. According to the particle size the application field can be different. If the particle size is big, then a bigger amount of material can be grinded away, but the remaining surface is extremely rough. In the opposite case the obtained surface is smoother, but the amount of material ground away is less. Burs are color coded according to the particle size of the diamond burs. The bur which is suitable for the aim asked in this question is the yellow coded.

KON-12.  (B) The turbine is driven not electrically but by compressed air. The other statements are true.

KON-13.  (E) The correct answer is the scaler handpiece, since it is attached to the hose of the turbine, because it is driven by compressed air. The different type of scaler handpieces are parts of separate instruments.

KON-14.  (C) The stainless steel round bur fitted to the contra-angle handpiece can be used for the removal of the carious dentine. It is not suitable for the preparing in the enamel, because this bur is not hard enough; it would disclose the composite filling; and it would remove too much from the amalgam filling.

KON-15.  (B) The white colour code means the finest particle size in case of the FG burs, which can be used for the polishing of the composites. In case of the rubber polishing rubber cup fitted to the contra-angle hand piece the brown, the dark green and the black ones are made for polishing metals. For polishing composites light green, light blue and yellow cups are supplied. There can be a
difference in the colors even in case of one definite manufacturer, according to the use of the bur for prepolishing, polishing or finishing.

KON-16.  (D) The basic goal of isolation in conservative dentistry is to save the operation area from blood, saliva and gingival crevicular fluid. For the prevention of instrument aspiration only one method of isolation is suitable namely the rubber dam isolation. The use of the rubber dam is not an aim, it is a tool. Isolation helps with providing better access to the operation area too.

KON-17.  (B) Anatomical crown is the part of the tooth which is covered by the dental enamel, which extends until the neck of the tooth (cemento-enamel junction).

KON-18.  (C) First step is to prepare access to the lesion, then the definition of the cavity borders. The preparation of the retention and resistance form is followed by the preparation of the easy access form. Only in the well accessible cavity can be carried out the removal of the carious dentine and the finishing of the enamel borders.

KON-19.  (E) The method of removal of the carious dentine has been modified in the least amount, because cavity preparation applied to the amalgam filling requires somewhat different form compared to the cavity shaping for malleable gold fillings.

KON-20.  (D) Following the access preparation to the lesion should be defined the borders of the cavity, and then can be the retentive form shaped accordingly. The removal of the carious dentin is just carried out in the well accessible cavity. The reverse cone shape bur is not suggested for preparing undercuts, because the sharp edges, angles made by it, weaken the tooth.

KON-21.  (C) Vitality testing can be carried out by thermal (warm, cold) and by electrical stimuli. The evaporation of the Chlorethyl extracts thermal energy from its surrounding, thus it is suitable for provoking a cold stimulus. Vitallium is an element of the periodical system, it is not in connection with the vitality testing.

KON-22.  (B) Dental amalgams do not contain alumina.

KON-23.  (D) In every case the high copper content is true, since this is the reason why does not occur the gamma-2 phase. Otherwise it can also be low silver containing and zinc-free, but the copper should be a constituent of it by all means.

KON-24.  (E) The gamma-2 phase is formed by the compound of tin and mercury.

KON-25.  (E) The phase consisting of tin and copper is the eta’ phase.

KON-26.  (A) The gamma phase is the compound of silver with tin.

KON-27.  (B) The constituents of the gamma-1 phase are silver and mercury.

KON-28.  (C) The gamma-2 phase is formed by the compound of tin and mercury.

KON-29.  (B) The zinc which may be found in the amalgam is responsible for the so called late expansion, and which is able to release hydrogen by dissociating the water.
KON-30. (A) In the conventional amalgams the proportion of the silver is the highest.

KON-31. (C) In the high copper containing amalgams occurs gamma-2 phase too, but the amount of it is not more than 0.2%.

KON-32. (E) See the explanation of question KON-29.

KON-33. (D) Mercuroscopic expansion is caused by the metallic mercury due to corrosion releasing from the gamma-2 phase.

KON-34. (C) From the listed ones only the 1:1 ration is acceptable.

KON-35. (B) In case of the zinc containing amalgams. See the explanation of question KON-29.

KON-36. (B) A small volumetric contraction occurs at the beginning of the setting of the amalgam (initial contraction), but it is followed by a more significant temporary expansion because of the growing of the crystals, which is followed by an end contraction. The result of these processes will be a 0.1-0.2% expansion.

KON-37. (A) By establishing a smooth surface the possibility of plaque-adhesion and in this way the risk for a secondary caries is decreased. Corrosion can be slowed down in this way too.

KON-38. (B) The use of wedge is always necessary if it is possible, because in this way the formation of an overhanging filling can be prevented, but also the chance for obtaining a proper contact point is better.

KON-39. (C) Toxicity of the amalgam is negligible, but it has a relative good thermal conductivity, therefore it is suggested making a lining in case of deep cavities.

KON-40. (B) Marginal seal of the fillings can be damaged on one hand by the shrinkage occurring during the setting and on the other hand by a thermal expansion which is very much different from that of the tooth (see composites and compomers). Increased solubility is certainly accompanied by an inferior marginal fit, but it can be improved by the water uptake of the filling. This process can be detected in case of the compomers where it can compensate the setting shrinkage. Hardness of the filling does not have any role in these processes.

KON-41. (A) Only a neglectible amount of mercury entering the gastrointestinal system absorbs from it, it is about 1%.

KON-42. (E) Unfortunately, absorption of mercury from the lung is significantly better than from the gastrointestinal tract, this later one is about 1%, but the previous one can be about 70-80%.

KON-43. (A) The axiopulpal, thus the walls neighbouring to the pulp should be covered with lining. Gingival wall should be underlined only in those cases when it is necessary to save the pulp from the pulp damaging effects of the filling material. The reason is the direction of the dentin tubules.
KON-44. (C) Condensation of the amalgam is more difficult in the edges and in the angulations of the cavity, therefore the filling will be more concentrated in mercury, which causes an higher initial contraction. Besides the previous ones also a weakening and an increased fracture risk of the prepared tooth can be caused by this type of cavity preparation.

KON-45. (B) 90 degrees is the correct answer. Bevelling is not allowed in case of the amalgam fillings, because the margin of the filling would be fractured.

KON-46. (D) According to the results of the measurements about two days are necessary for the replacement of the original hardness.

KON-47. (C) The development of ulcerative gingivitis is certainly not in connection with oral galvanism, unlike with the other listed ones.

KON-48. (C) In case of the nowadays issued composites it should be calculated on a 1-2% polymerization shrinkage.

KON-49. (D) Professor Lutz prepared that classification. The name of Smith became known connected to the carboxylate cement, while the name of Wilson connected to the glass-ionomer cement. Bowen founded the bis-GMA named modified monomer which brought a big break through in the field of the composites. G.V. Black’s name is notoriously not in connection with the composites, which were not known at that time.

KON-50. (A) The nowadays-suggested time of enamel acid etching in case of permanent teeth is at least 20 seconds.

KON-51. (B) See the explanation of question KON-49.

KON-52. (A) The filler of the conventional, otherwise macrofiller composites is the macro filler material according to the Classification of Lutz.

KON-53. (E) According to the Classification of Lutz the composite is called an inhomogeneous microfiller composite, which nearby the micro particles - contains a powder of the industrially polymerized material as a filler- which is called as microfiller complex.

KON-54. (C) Composites containing both micro- and macrofillers are called as hybrid composites.

KON-55. (A) By the help of this method, very small particles are fabricated, with a general diameter of 0.04 µm.

KON-56. (B) In the recent (micro)hybrid composites also the macro particles have a diameter of less than 1 micron, because of obtaining the proper mechanical properties and the good polish ability.

KON-57. (D) Hybrid composite is suitable for filling the molar teeth only in those cases when the ratio of the filler is at least 75%.

KON-58. (D) The wavelength of the used curing light is about 480 nm.

KON-59. (A) Oxygen contacting the surface of the filling can disturb the polymerization. The two main consequences of this are that on one hand there is a way of forming a bond between the two
composite layers applied one after the other, and on the other hand is that the cavity should be over filled, because the improperly polymerized upper layer should be removed during the finishing.

**KON-60.**  (C) In case of homogeneous microfiller composites the obtainable maximal inorganic filler content should not be over 50% weigh percent because the viscosity of the matrix would be significantly increased.

**KON-61.**  (D) The most suitable material for acid etching of the enamel is the 35-37% ortho-phosphoric acid.

**KON-62.**  (A) The polishability of the conventional macro filler composites is the worst among the listed ones. The size of the macro particles of the hybrid composites is considerably smaller than it was in case of the traditional macro filler types; therefore their polishabilty is better too.

**KON-63.**  (B) The acid-base reaction, so the neutralization is characteristic of the glass-ionomer cements. Addition is obviously a wrong answer, but it is neither about a dissociation to the effect of water (hydrolysis), because on the contrary, the addition of small molecules occurs forming larger molecules, thus it is a polymerization.

**KON-64.**  (E) The acid-base reaction can occur only in the presence of water. If the tube contained water than the reaction would occur in the tube and the material would be destroyed before use.

**KON-65.**  (D) The slice preparation can be applied in case of a cast noble metal inlay. Using this method, with a small amount of dental hard tissue material removal can be fulfilled the principal of preventive extension in case of a small approximal caries. This preparation can not be used at all in case of a plastic filling fabrication.

**KON-66.**  (B) Adhesive technique is used most often in cases of composite fillings and for the luting of composite and ceramic inlays. These later ones are listed among the possible answers.

**KON-67.**  (B) Composite filling can not be made after a zinc oxide eugenol cement underlining, because every kind of oil, thus eugenol too, inhibits the polymerization of the composite.

**KON-68.**  (B) The powder of the glass-ionomer cements is most similar to the powder of the silicate cements. Practically the inventors mixed the powder of the silicate cements with the fluid of the carboxylate cements.

**KON-69.**  (C) The mechanical properties of some calcium-hydroxide cements are not satisfactory to use them alone, because they can be damaged during the condensation of the amalgam or during the utilization.

**KON-70.**  (E) The fissure seal done by glass-ionomer cements was not proven to be long lasting, for these aims the composites can be significantly better used. Therefore, the use of glass-ionomers for fissure sealing is not suggested. There are glass-ionomer cement preparations for every other aim.

**KON-71.**  (C) The prevention of secondary caries can be disclaimed in case of the use of the temporary filling materials, because they are inserted into the teeth only for a short period.

**KON-72.**  (B) The Bonwill-filling is a gutta-percha temporary filling, which is suitable for the slow separation of two teeth containing two neighbouring class II. cavities. In case of the sandwich
technique not gutta-percha is used, rather a glass-ionomer lining is to be done under the composite (or compomer) filling, in a way that lining cement reaches the surface at the gingival margin of the cavity. The material suitable for endodontic aims is the gutta-percha too.

**KON-73.** (C) Principally, the difference is in the particle size of the powder, in order to provide a thinner layer size and an improved marginal fit in the luting cements.

**KON-74.** (B) Phosphoric acid, which is a component of the liquid of the zinc oxide phosphate cements, is strongly hygroscopic, therefore it can be dropped out onto the glass slab just right before the mixing, and the liquid container should be closed immediately.

**KON-75.** (A) The pulp damaging effect of the glass-ionomer cements is almost like the pulp irritating effect of the poly-carboxylate cements, since their liquid is very similar. According to different authors, the alterations caused by the released alumina ions should be calculated too.

**KON-76.** (A) It is not true that they do not bond chemically to the hard tissues of the tooth. They have a caries protective effect and they are sensitive both to wetness and to dryness. And it is also true that their pulp irritating effect is just minimal.

**KON-77.** (D) For this aim the 30% concentration is used. It is evident that lower concentration is not suggested, but more concentrated solution than 33% can not be prepared.

**KON-78.** (C) Caries progrediates lamellarily on the dentino-enamel junction because of the structure of the dentin. The process occurs along the dentinal tubules. The course of dentinal tubules is convergent towards the pulp, thus dentin caries shows a cone shape with its apex towards the pulp in every case. The progrediation is slower in the elderly because the dentinal tubules become narrower.

**KON-79.** (E) All of the listed components can be found in the dental plaque.

**KON-80.** (E) According to the results of the histological examinations, dental enamel is formed of hexagonal crystals which is surrounded by a phase consisting of water proteins and lipids. The reason of the caries is the acidic solubility of the enamel, which according to different analyses can be significantly reduced by the incorporation of fluoride ions. This latter fact is the base of the fluoride prevention.

**KON-81.** (B) The peritubular dentin is the name of the dentine surrounding the dentinal tubules, it does not belong to the layers of the carious dentin.

**KON-82.** (C) The Lactobacillus acidophilus is an important constituent of the dentin plaque, its characteristic is the acid tolerance, it prefers rather pH 4 than pH 6. It is able to produce lactic acid, but it does not produce any extracellular polysaccharides. It has a prominent role in the development of the dentin caries.

**KON-83.** (B) In every case when an electric vitality testing is carried out, the making of the circuit to the direction of the gingiva should be prevented. Therefore the tooth should always be dried, and if there is a large conductive piece (for example an amalgam filling), finishing close to the gum, that should not be touched by the instrument.

**KON-84.** (A) The dentin coming out to the attrition of the dental crown is not a predilection area of the caries, because it is a self-cleaning surface while the antagonistic tooth is present. Otherwise,
topically the mineral content of the dentin is higher than usual; therefore, it is less susceptible for caries.

**KON-85.** (E) All the first three names mean the incipient caries. There is already a cavity in case of the superficial caries, but the dentin is not involved yet.

**KON-86.** (C) In case of the incipient caries, otherwise „white spot” or macula cretosa, the contour of the tooth is saved and only microscopically detectable material defect can be detected. The progrediation of the caries in the forms of superficial, - media, - profound caries result cavitation, thus the macroscopic cavity.

**KON-87.** (E) More or less mineral defect can be detected in every layer of the incipient caries.

**KON-88.** (C) In case of the incipient caries there is not cavity formation yet only the enamel is involved.

**KON-89.** (A) The incipient caries is not an irreversible alteration, it can be remineralized in certain conditions.

**KON-90.** (D) According to the modified principles of G.V. Black, angles should not be prepared at the encountering of the walls of the cavities, these transitions between the walls should be curved. This type of cavity preparation is rendered to reduce the risk of fracture. Therefore, the round shape burs are suitable for these aims.

**KON-91.** (B) Diamond burs are covered with diamond chips of different particle sizes. Generally, the normal particle size is not coded, if yes, then it is coded with a blue color. More rough particle size is coded by green or black. Red, yellow, and white color codes a continually decreasing particle size. For contouring, the red and the yellow coded burs are suitable; for polishing the white one is used. If a more rough diamond bur is used for these aims, then on an irreversible damage of the composite filling surface can be counted.

**KON-92.** (C) The carious dentin should always be removed by a low speed handpiece, thus in no way by the turbine. Otherwise, there is no fabricated suitable stainless steel bur fitted to the turbine.

**KON-93.** (A) A large amount of thermal energy releases in case of using a diamond bur or different types of rubber polishing cups which necessitates the use of water cooling. The removal of the carious dentin is carried out by round shape stainless steel burs on low speed therefore in this case no need for water cooling.

**KON-94.** (C) The use of the exhaustor during the removal of the amalgam filling reduces the amount of mercury releasing into the air, thus its use is important both to the patient and to the dental personnel. If the composite filling is not fabricated in rubber dam isolation, the mucosa may be damaged at the washing down of the acid in case of an acid contamination. This damage can be prevented by the use of the exhaustor, therefore use of it is very suggested in this case. It is also suggested in case of a cavity preparation with turbine, because it reduces the progress of the infective aerosol.

**KON-95.** (E) A recent operating light should fulfil all the requirements. Adjustable light intensity can provide an increased light, if it is necessary due to ageing of the eyes. Cool light serves the comfort of both the patient and the operator. It is important not only for the proper illumination of the
operation field but also for the saving of the eyes. The handle is always touched during the treatment, therefore the possibility for cleaning and disinfecting of these surfaces is essential.

**KON-96.** (E) For the saving of the dental hard tissues, the approximal box is extended only until the manually cleanable surfaces. The gingival wall is shaped according to the size of the caries. If it is small, then it is not suggested extending the cavity till the gingival sulcus, either for the prevention of the secondary caries or for the prevention of the gingivitis. To avoid the weakening of the tooth neither sharp edges nor angles should be prepared. If the fissure system is intact, and is divided by a healthy enamel ridge, then the healthy fissure system should not be accessed.

**KON-97.** (D) The filling is retained by a micro retention in the cavity, therefore only the carious tissues should be removed, and only the carious part of the fissure system should be removed. Edges, angles should not even be prepared during the fabrication of an amalgam filling. Enamel borders should be bevelled except the occlusal surface of the molars.

**KON-98.** (A) The lesion is considered to be a Black I. lesion if the caries occurs in the fissures and the pits. Caries developing on the cusps of the molars is classified into class VI.

**KON-99.** (E) Besides the listed ones, it also has a mesial wall.

**KON-100.** (B) The class III. cavity cannot have an occlusal wall, because that is prepared in the front teeth only. The front teeth have incisal edge and not occlusal surface.

**KON-101.** (E) The first statement contains the definition of the amalgam: the alloy established between mercury and one or more other metals. It should not be forgotten that also in the powder of the amalgam can be found mercury.

**KON-102.** (D) The creep and the flow values show the susceptibility of the amalgam for deformation. The superficial roughness is caused by corrosion and the late expansion occurring because of the zinc content.

**KON-103.** (A) The gamma-2 phase is formed by tin and mercury. It is the weakest component from both the mechanical and the corrosion points of view. It forms relatively large hexagonal crystals. It dissociates into tin and mercury during its corrosion and the mercury releasing during this process causes the local expansion (mercuroscopic expansion).

**KON-104.** (D) Silver and tin cannot, but copper and mercury can cause health damage. Otherwise, the amount of the released copper is small. The nowadays-used gamma-2 phase free amalgams have a reduced mercury release compared to the traditional amalgams which according to studies does not mean a risk to the health of the patients. The dental personnel is predisposed to a significantly higher mercury load compared to the patient who has amalgam filling(s).

**KON-105.** (E) The amount of the released mercury depends on the type of the amalgam. It is reduced in the gamma-2 phase free types compared to the conventional amalgam types. The increase of the filling surfaces increases the mercury release too. The freshly made amalgam filling also releases more mercury into the environment. To abrasion can also be mercury released from the filling, thus in case of tooth brushing and in case of polishing of a filling.

**KON-106.** (C) The presence of an allergy can be proven by an epicutan test. As a precaution, no new amalgam filling should be made until the result is not completed, in turn, the old one, if necessary, can
be removed only in rubber dam isolation. The change of the amalgam fillings is necessary only in case of a proven allergy, an unnecessary change can be accompanied by an unnecessary mercury exposition. Also polishing is accompanied by mercury release, therefore this application should also be avoided.

**KON-107. (E)** The main constituents of the gamma-1 phase (silver and tin) and the eta’ (tin and copper), but the filling contains the components of the powder too, which did not react with the mercury, thus it contains the gamma phase (silver-tin) and the epsilon phase (copper-tin) too.

**KON-108. (B)** The amalgam filling is really cheaper than other permanent fillings (for example a composite filling or an inlay), since on one hand the price of the material is cheaper, on the other hand the technology is relatively simpler, thus its fabrication is a less labour-intensive task. Its average longevity is also relatively long, it is about seven years. Its mercury content however can provoke an allergic reaction.

**KON-109. (A)** If there is one approximal box, then it is possible to use the Ivory’s matrix-holder with its matrix. In case of MOD cavities circular matrix-holders should be used, for example the Tofflemire’s type. Wooden wedge is always necessary to prevent the creation of overhanging filling margins. In case of amalgam fillings not plastic matrix, rather metal matrix is used.

**KON-110. (A)** A rapid separation can be obtained by the use of a (wooden) wedge, thus a stronger contact point can be shaped. Since it bends the matrix to the tooth, making of an overhanging filling margin can be prevented. The overhanging margin is a predilection area of secondary caries and gingivitis, since it acts like a plaque retention area. It does not have a protective effect to the gingival papilla.

**KON-111. (C)** The matrix forms a conical form because of its special design, which is more advantageous respecting the shaping of the contact point. The matrix is wider at the approximal box accordingly, this part can come down deeper, and therefore the epithelial junction will not be damaged orally and vestibularly. There is no difference in the thickness and in the accessibility.

**KON-112. (A)** The use of the rubber polishing cups is accompanied by releasing a large amount of heat release, especially if used on high speed and pressed onto the surface. The heated up filling loses from its strength, and therefore it becomes more vulnerable. The original state recovers just after hours or maybe only after more days.

**KON-113. (A)** Amalgam can not be industrially pre-mixed, because it becomes set and looses its plasticity. According to results of different studies in the current literature, capsules are not safely sealed in some products, therefore mercury can be dispersed during mixing. Otherwise this would be the safest solution against mercury pollution. It is sure that mercury vapour comes into the air, or accidentally the dispersion of mercury drops can also happen. The capsule of the amalgam mixing machine should regularly been changed, since otherwise the worn seal can also cause a mercury pollution.

**KON-114. (E)** During acid etching with phosphoric acid indentations will be formed on the enamel surface, which serve micro retention. The smear layer dissolves and the some microns of the upper part of the dentin layer too. Acid etching also involves the entrance of the dentinal tubules.

**KON-115. (C)** During the „total-etch” technique both the enamel and the dentin is etched by phosphoric acid, opposite the previous methods, when the dentin etching was not considered to be
permissible. To etch the lining material can be carried out in every case by following the instructions of the manufacturer, for example in cases of certain traditional self curing glass-ionomer cements. Some authors already examined the use of composites for direct pulp capping, but the current textbooks do not consider this method to be acceptable.

KON-116. (A) The „smear-layer” is removed during the acid etching. The hybrid layer consists of the collagen fibers existing on the dentin surface and of the bond material impregnating the dentinal collagen fibers. It is covered by a layer consisting of bond material, which provides the connection with the filling material. The tags are formed by the bond spurs flown into the dentinal tubules.

KON-117. (A) See the explanation of the question KON-116. The difference between the IV. and V. generation bonding agents is only that in case of the IV. generation materials the primer and the bond are in separate containers, while in the V. generation there is only one container for this aim, one solution is used for both priming and for bonding.

KON-118. (C) In case of the III. generation bonding agents it was not possible to acid etch the dentin too, therefore neither the smear layer could be removed, nor the dentin tubules became free, and neither tags (bond spurs) extending into the dentinal tubules occurred. Additionally, since there were neither free collagen fibers, nor hybrid layer could occur. The bond layer certainly can be found.

KON-119. (D) The use of the phosphate cement should be avoided, because it dissolves into the phosphoric acid. Also the use of the zinc oxide eugenol cement should be avoided, since it hinder the setting of the composite filling.

KON-120. (E) During acid etching, indentations will be formed on the enamel surface, which provide micro retention. The ends of the collagen fibers embedded into the hybrid layer anchored in the dentin also provide stability for that. The tags formed by the bond spurs flown into the dentinal tubules also correspond to the retention of the filling, because the tubules are not parallel with each other. Acid etching also involves the dentin surface especially the entrance area of the dentinal tubules.

KON-121. (D) The homogenous microfiller composite is too soft, however macro filler composite can not be properly polished. There are inhomogeneous micro filler composite products available, which can be used mainly for the filling of the anterior teeth, but currently the hybrid composites are the most suitable ones.

KON-122. (D) See also the explanation of the question KON-121. The hybrid types and the recent types, the micro hybrid composites are the most suitable types for restoring posterior teeth.

KON-123. (C) Polishability depends on the particle size of the filler material, while wear resistance depends mainly on the ratio and the hardness of the filler. The characteristics of the matrix influence the shrinkage and the grade of polymerization.

KON-124. (A) The hybrid composites contain both micro- and macro filler particles. The pyrogenic silica is a micro filler.

KON-125. (D) The composite is suitable for filling posterior teeth if the ratio of the filler in weight percentage is at least 75
KON-126. (B) Conventional macro filler composite does not contain it, because of the small size of the particles made by pyrolysis.

KON-127. (C) The polycarboxonic acid is the liquid of the glass-ionomer, while the polyacrylic acid is the liquid of the carboxylate cement, the other two may provide the organic matrix of the composite filling materials.

KON-128. (A) The light curing composite is less porous, because it does not need mixing, the polymerized ratio is higher, and polymerization of the material just immediately occurs to light curing, therefore it can be instantly finished. However the presence of oxygen may hinder the polymerization in this case too.

KON-129. (A) See the explanation of the question KON-130.

KON-130. (C) Currently homogenous micro filler composites are not in use any more, because they do not have an acceptable wear resistance, and they are not strong enough for the restoration of an incisal edge. But because of the small particle size they can be well polished. The polymerization shrinkage is relatively high because of the small filler ratio. They provide a good esthetic effect because of the small size of the micro filler particles. This composite type has a higher thermal expansion too than the tooth.

KON-131. (A) Careful isolation is an essential requirement for acid etching, because if the acid etched surface becomes contaminated with blood or saliva, then the retention will not be proper. To keep the precise timing of the acid etching is especially important in case of the dentin. Acid should be removed by careful washing from the surface of the tooth. The protection of the dentin is not necessary in general, it is necessary only in case of deep cavities.

KON-132. (E) The result of acid etching for too long time will be that too wide layer of the dentin becomes demineralized, and it can not be impregnated by the primer/bond during the prescribed time. Over drying results in the aggregation of the collagen fibers, hindering the development of the hybrid layer. Contamination with saliva disturbs the whole process. There is no reason for acid etching without the using of bond/primer.

KON-133. (C) Compomers unite the properties of the composites and the glass-ionomers, because polymerization occurs to light curing, and because to water uptake an acid-base reaction occurs.

KON-134. (E) Compomers can be used in every listed case, their indication field is practically the same as that of the composites.

KON-135. (B) Shrinkage during setting is a disadvantage in this case too. It is advantageous however, that it is partially compensated by water uptake, which improves the marginal fit. The fluoride ion release is advantageous, because it has a caries protective effect. Dropping acid etching can be time-consuming.

KON-136. (A) In case of the compomers the paste contains special monomers, which are capable to polymerization the same way as the monomers of the composites. But neither the paste might contain water at all, because the acid base reaction characteristic to glass ionomers would occur in the tube, before use.
KON-137. (E) See also the explanation of the question KON-136. The carboxylate groups of the special monomer are those which are capable to react with the boro-silicate glass filler material, so the monomer molecule is similar to the liquid of the glass-ionomer cement. Monomers have a relatively small molecular weight, and they are small molecules.

KON-138. (C) For indirect pulp capping only the use of the Ca(OH)$_2$- cement and the zinc oxide-eugenol cement is acceptable.

KON-139. (D) For direct pulp capping in general, the Ca(OH)$_2$-preparation is accepted, or rather the use of the MTA-composition provided good results according to some studies.

KON-140. (E) All statements are true for the phosphate cement.

KON-141. (C) The acid-base reaction means a reaction between the polycarbonic acid and the calcium-aluminum-fluoro-silicate glass particles. In case of the light curing glass-ionomers the at the end of the molecule undergo a decomposition of double-bindings which reacting with the HEMA forming a spacial structure via polymerization.

KON-142. (A) Although metal powder was mixed in the cermet cements in order to strengthen them, despite of this it was not accompanied by the improvement of the mechanical properties, according to the measurements it resulted the opposite effect. Fluoride release remained, therefore the cariostatic effect exists. It is suitable for lining under amalgam fillings, but practically cermet cements have been crowded out from the practice.

KON-143. (E) Every characteristic is true. Cariesprotective effect is provided by the fluoride release. Their pulp damaging effect is minimal, because the liquid is a large polymer, and not able to go through the dentin tubules. They are sensitive both to wetness and to dryness during the setting.

KON-144. (C) Cariesprotective effect provided by the fluoride release in case of these materials is detectable too. Their pulp damaging effect is minimal, because the liquid is a large polymer in this case too, and it is not able to go through the dentin tubules. But it contains small monomers as well, which can be harmful to the pulp in case of an improper polymerization reaction. But after setting, they are neither sensitive to wetness nor to dryness, contrary to the self curing glass-ionomer cements.

KON-145. (E) See also the explanation of the question KON-143. The mechanical properties of light curing glass ionomer cements are better because of the light polymerisation. The prompt setting after lighting permits to finish (water cooling is also usable) the filling at the same appointment.

KON-146. (A) The powder of the polycarboxilate cement consists mainly of zinc oxide, and the liquid of it consists mainly from poly acrylic acid. Its pulp damaging effect is low, zinc polycarboxylate occurs during its setting. It belongs to those few dental materials, which chemically bond to the hard tissues of the tooth. Unfortunately, it does not have a caries protective effect, since it is not able to release fluoride ions.

KON-147. (A) Tartaric acid is separately added to the liquid, in order to influence the setting reaction, it is not the component of the copolymer, contrary to the other listed ones.

KON-148. (A) Among the listed ones the polycarboxylate cement is not suitable for making permanent fillings.
KON-149. (B) Glass-ionomer cement is not suitable for fissure sealing from the listed possibilities, because according to investigations, only in 20% of the cases remain the seal intact after a period of one year.

KON-150. (D) Polyacrylic acid is the liquid of the polycarboxylate cement, and the derivate of it, namely the polycarbonic acid can be found in the liquid of the glass-ionomer cement.

KON-151. (B) The Fletcher’s cement (zinc oxide sulphate cement) is relatively soft, it can not withstand the occlusal load, and therefore it is suitable only for short term temporary filling. The other listed cement types are suitable for long term temporary aims as well.

KON-152. (E) The necessity of the first three objects is not questionable, although the rubber dam can be retained not only by the rubber dam clamps, but also by wooden wedges or by a ligature. The importance of the dental floss is that it can aid to insert the dam into the approximal areas. Thus it is possible to obtain a proper, hermetic seal around the neck of the tooth.

KON-153. (E) The properly fitted rubber dam isolation keeps the operating surface dry, providing a continuous working ability, since the operator will not need to continuously change the soaked cotton rolls. The operating area is well accessible, it keeps away the soft tissues, and the soft tissues will also be saved against the harmful effects of the used dental materials. It can neither be negotiated, that it prevents aspiration of any items by the patient. Further more there is no risk for occurrence of contaminating aerosol during the use of the turbine, thus it prevents the dental personnel from cross infection.

KON-154. (A) Among the listed ones the properties of the acrylic resin only make the inlay fabrication impossible.

KON-155. (A) The refraction of the hard tissues demineralized due to caries changes. If the tooth is transilluminated, then this change is clearly detectable still in case of smaller lesions too. Therefore transillumination is a useful tool of caries diagnostics.

KON-156. (E) Nowadays it is not suggested preparing auxiliary cavity, because a satisfactory enlargement of the retentive surface can be achieved by the use of the acid etching technique and by bevelling the enamel borders.

KON-157. (D) Amalgam fillings are retained really by macroretention in the cavity, even though the use of the reversed cone shape bur should be avoided, since the edges and angulations formed during the use of the reversed cone bur, significantly weaken the tooth. Thus the risk of the tooth fracture is unnecessarily increased by this preparation. Walls of the cavity should meet in an arched way.

KON-158. (E) The incipient caries is certainly a reversible process, in this case not a filling rather a remineralization fluid application is the correct treatment method.

KON-159. (E) Into the sites of the dissolved ions – in case of a sufficient supply, for example to an external intervention fluoride ions can be built into the sites of the original ions. This process changes both the crystal structure and the properties of the crystals.

KON-160. (B) See also the explanation of question KON-161. Mercuroscopic expansion is not in connection with the zinc content of the amalgam, because its inductive agent is the mercury released from the gamma-2-phase.
KON-161. (D) The water is dissociated by the zinc existing in the filling, which is accompanied by a hydrogen release, and this is the reason of the so called late expansion.

KON-162. (A) According to microscopic studies, the crystals of the gamma-2 phase are large and they are linked. This phenomenon really facilitates the advancing of the corrosion into the deeper parts of the material.

KON-163. (D) Saliva is a non desirable component of the amalgam fillings, because it worsens the properties of the material. Zinc existing in the filling is able to dissociate water. See also the explanation of question KON-160.

KON-164. (B) The gamma-2 phase free amalgam filling’s mechanical properties are better than of those of the fillings made of traditional alloys, unfortunately new alloys set more rapidly than the traditional ones. There is not any connection between the two.

KON-165. (A) The proper condensation contributes to the appropriate mechanical strength of the amalgam fillings with decreasing the porosity.

KON-166. (E) The mechanical characteristics of the amalgam do not make possible to make thin margins for the fillings, because these would break and therefore fillings would improperly fit. Therefore it is not recommended bevelling the cavity margins in case of amalgam filling.

KON-167. (A) The maintenance of the amalgam fillings with polishing reduces the susceptibility both to corrosion and to plaque retention, thus the longevity of the amalgam filling can be improved this way.

KON-168. (B) Recent amalgams are high copper containing alloys, and also the dissolution of the copper is low. Even though the aim of the increase of the copper content was to prevent the formation of the gamma-2 phase during the setting of the amalgam

KON-169. (A) Amalgam do not chemically bond to the dental tissues, therefore the filling is retained only by a macroretention in the cavity, which can be obtained by a proper cavity preparation.

KON-170. (E) Mercury vapour is one of the most dangerous existing forms of the mercury, because it is absorbed in a great percentage in the respiratory system (70%), which is then transported to different organs by the circulation, where it is deposited.

KON-171. (E) Unfortunately, gamma-2 phase free amalgams release a small amount of mercury too. If the patient is sensitive to mercury, every intervention can be dangerous, during which mercury deliberates. This activity can be not only the making of a new amalgam filling but also the polishing of the old ones, or the removal of the old ones. The patient can be saved effectively from mercury vapour by using rubber dam isolation.

KON-172. (A) See the explanation of question KON-171.

KON-173. (A) See also the explanation of question KON-171. Not only the mercury sensitive patients should be saved from the mercury vapour releasing during the dental treatment, but in every case the dentist should tend to reduce the mercury load of both the patient and the dental personnel. Water cooling and the use of suction are preconditions of an amalgam filling removal.
KON-174. (A) Polishability and the esthetic effect are in connection with the particle size. Therefore manufacturers aspired to reduce the particle size of the macro fillers of the hybrid composites too. Nowadays, the average particle size of Macrofiller is under one micron about some tenth microns.

KON-175. (E) The difference between the fourth and the fifth generation bonding agents is that in case of the fifth generation only one container contains the solution of both the primer and the bond, thus its application is simpler. It is characteristic of both that they are used for the total etch technology, as to both the dentin and the enamel is acid etched. The aim of the acid etching of the dentin is not only the demineralization, but it is also an aim to clean the dentin surface by the dissolving the smear-layer.

KON-176. (D) Although the micro filler composites can be better polished, but these are less resistant to the mechanical load arising in the class IV. fillings, compared to the hybrid composites.

KON-177. (E) During the development of the compomers it could be achieved that their mechanical properties are almost the same as those of the composites. They can be used without acid etching too, which is time consuming. Their use usually does not mean a disadvantage compared to the composites. Also compomers can be expected a cariesprotective effect because of the fluoride release.

KON-178. (E) Composites too can be harmful to the pulp, especially in the first period after their use. Polymerization does not either attain 100% in the light curing resins, therefore toxic effect of the remnant monomer could be detected.

KON-179. (E) According to studies, some components of the bonding agent is able to penetrate through the latex glove, and in this way causing a sensibilization of the wearer. A warning regarding this fact can be found in directions for use of certain products that the glove contaminated by the bond must be immediately removed and after a careful hand wash can be put on a new glove.

KON-180. (A) However, there is a 1-1.5% shrinkage in case of the recent composites, the harmful effect of which can be reduced by different filling methods and by applying not too wide layers.

KON-181. (A) The filling made of a more homogenous, less porous light curing composite is more durable, less predisposed to discoloration. In case of the self curing composites also air can be incorporated into the material during the mixing of the base and the catalyst, which can worsen the quality of that. It would be a big mistake in case of the light curing composites to try to obtain the proper color by mixing.

KON-182. (E) The excessive overdrying the dentin is disadvantageous from the viewpoint of bonding strength. See the explanation of question KON-183. Yet the increased surface increases the shear bond strength.

KON-183. (A) The inorganic matrix of the dentin is removed in a certain extent during the etching of the dentin, but the collagen fibers remain. If this surface is over dried, then this fibers precipitate, and a collagen smear layer will be formed. This layer cannot be impregnated properly by the primer, which is accompanied by the formation of an improper hybrid layer and with unsatisfactory shear bond strength.

KON-184. (D) The light curing materials are supplied in a light protective tube. The problem in case of the compomers is that the acid-base reaction characteristic to the glass-ionomers proceeds after the
water uptake. If the process occurs already in the tube to the effect of the water taken up from the environment, the material will then be broken. It is therefore practical, if the capsules are separately packed into foil packages too, and the started tubes are used as soon as possible.

KON-185. (E) The liquid of the phosphate cement contains phosphoric acid, which is able to cause a pulp damage penetrating into the dentin tubules. After the complete setting (about 24 hours) the cement does not release acid any more.

KON-186. (D) Glass-ionomer cements release not only fluoride ions but alumina ions as well, which, according to some authors can be harmful. Although this cement has a very small pulp damaging effect, it is not suggested using in deep cavities where the pulp is near.

KON-187. (A) The glass-ionomer cement’s ability to fluoride ion release is an important property of the material, which is able to protect against caries. According to studies however it is also able to uptake the fluoride from its environment, thus it works as an accumulator, providing its long term effect.

KON-188. (E) See also the explanation of question KON-186.

KON-189. (A) Glass-ionomer cements are made for many aims, among others to the aim of the listed ones in the second part of the question. It is essential however, that the luting cement is not suitable for lining and the opposite. From the filling material however, base can also be made.

KON-190. (C) Polyacrylic acid is the liquid of the polycarboxylate cement, which has an acidic pH coming also from its name, less toxic than the phosphoric acid, which is the liquid of the phosphate cement. This difference influences the harmful effect of the whole material the same way.

KON-191. (E) Direct moulding is suggested mainly in class I. and V., but not in the complicated cavities, because it is not yet simple and there are a lot of mistake possibilities in it.

KON-192. (A) Cavity margins prepared to porcelain inlays should not be bevelled, as the thin margins would break because of the properties of the material.

KON-193. (A) Ceramic and composite inlays absorb the main part of the curing light because of their width and not complete translucency, therefore the polymerization could not be properly occur in some areas of the luting material. If the luting material was not dual curing the remaining monomer would be harmful the pulp.

KON-194. (A) Polymerization outside the mouth can occur more efficiently, which provides better mechanical properties. A further advantage is that the gap occurring because of the polymerization shrinkage will be filled with luting material.

KON-195. (D) Perfect isolation can be provided only by a properly adapted rubber dam. It does not make the treatment more difficult, it enhances and simplifies the treatment, if the operator exercised in the application. Its use is advantageous from other viewpoints too, like the view point of infection control. The set is not cheap.

KON-196. (A) Rubber dam can be retained not exclusively by the properly chosen clamps, but also with the listed methods in the appropriate cases.
Unfortunately, there are rubber dams made not only from latex but also samples made from silica rubber. This can be used case of a patient who is allergic against latex rubber. Properly shaped paper tissue placed under the dam can also prevent its contact with the skin, and the sensitization. It can also make the treatment more comfortable to the patient.

Direct pulp capping is not in 100 percent successful yet in case of fulfilling of the prescribed conditions, therefore the systematic control of the treated tooth is essential. Healing is indicated by the formation of the protective dentine layer proved by the radiographic image, and proved by the positive reaction to the vitality test, and not the lack of the symptoms.

Both amalgam types release mercury, although the gamma-2 phase free in a less amount, therefore none of these can be used in case of patients with allergy to mercury. The gamma-2 phase consists of tin and mercury, which can only be found implicitly in the conventional amalgams in a significant amount. Both of them are suitable for the treatment of Black class I.,II.,V. and VI. cavities, but it is not suitable for the treatment of the class IV. cavity, their use is also contraindicated in the class III. cavities because of esthetic reasons.

Enlightenment in both materials provoke the beginning of a polymerization reaction, but in case of the comomers additionally an acid base reaction (characteristic to the glass-ionomers), occur because of a longer period of water uptake. Both of them are esthetic tooth colored filling materials. Manufacturers of the comomers allow the use of these materials without phosphoric acid etching too.

Both of the materials have a pulp damaging effect, but the glass-ionomer has it in a less extent. The molecule of the acid in this material is large therefore it is not able to penetrate into dentinal tubules, contrary to the phosphoric acid molecule existing in the phosphate cement. Both of them can be used for lining, but only the glass-ionomer is able to release fluoride ions. For permanent aims, only the appropriate types of glass-ionomers are suitable.

Gold inlays can be fabricated without impression taking as well, because the wax up can be moulded in the dental office (direct moulding) in some cases. Ceramic inlays can also be made without impression by a CAD method, by an optical registration (for example CEREC inlays). Luting of the ceramic inlays is done by an adhesive technique, thus it is carried out by a dual cement, which
is light and self curing at the same time, while the luting of the gold inlay is done by a glass-ionomer cement for example. Hydrofluoric acid is used for the acid etching of the ceramic inlay, while the cavity is etched by the usually used phosphoric acid, during the luting of the porcelain inlays.

KON-219. (C) KON-220. (C) During the use of the adhesive technique both the enamel and the dentin is etched by the phosphoric acid. Polyacrylic acid can be used on both the dentin and the enamel to improve the retention of the filling during the fabrication of the glass-ionomer cement fillings. A significant difference is however, that smear layer is not completely removed in this case, so the dentinal tubules remain stuffed.

Oral and maxillofacial surgery

Explanations

MFS-1. (B) Most common is the fracture of the condylar process (36%), followed by: angle (20%), line of the canines+premolars (21%), symphysis (14%), ramus (3%), muscular process (2%).
MFS-2. (A) Order of frequency: Le Fort II (23%), zygomatic bone (22%), Le Fort I, Le Fort III.
MFS-3. (B) Occlusal difference is a certain sign, the others are uncertain ones.
MFS-4. (C) Haematoma is not a certain sign of fracture. The other three are certain signs.
MFS-5. (E) The items on the list are the classification of fractures according to type.
MFS-6. (D) A Gunning-splint is used in the case of an edentulous jaw. The upper acrylic plate (or denture) is fixed to the maxilla with a transosseal wire through the alveolar process of the maxilla, the lower one with a circumferential wire to the mandible.
MFS-7. (D) Neuner’s fixation is done with a wire suture; the others are types of plate osteosynthesis.
MFS-8. (A) A Blow-out fracture is the fracture of the base of the orbit, it is a lateral fracture of the midface, and the others are central fractures.

MFS-9. (C) Pyramidal, or Le Fort II. fracture is a central; the other three are lateral midface fractures.

MFS-10. (D) Matas’s method serves to elevate the zygomatic arch; the others are used to reposition the zygomatic bone.

MFS-11. (B) Fibroma, lipoma and haemangioma are of mesenchymal origin, ameloblastoma is odontogenic, and papilloma is of epithelial origin.

MFS-12. (E) All those listed are benign odontogenic tumours.

MFS-13. (C) There is fibrous connective tissue among fat cells. Statements in the other four points are characteristic of a lipoma.

MFS-14. (B) Proliferating angioendotheliomatosis is malignant lesion, the others are benign.

MFS-15. (C) Its typical occurrence is in the mandible (molars, angle, ramus). It can be solid or cystous, uni- or multilocular, it can become malignant (0.5%). It origin: dental lamina, Malassez’s epithelial tissue.

MFS-16. (A) It most often occurs in the middle third of the edge of the tongue, rarely on the back of the tongue. The other statements are characteristic of lingual carcinoma.

MFS-17. (D) Any of the malignant tumours listed may give a metastasis to the jaws – mainly to the mandible – but a metastasis of the breast or the prostate is most common.

MFS-18. (E) The list gives the base and border of neck dissection correctly except for the posterior border. The posterior border is the anterior edge of the trapezius muscle.

MFS-19. (A) A functional neck dissection differs from a radical in as much as it spares important anatomic structures (sternocleidomastoid muscle, internal jugular vein).

MFS-20. (E) A temporary grafting of the mandible is possible with all the listed materials.

MFS-21. (D) Philtrum will deviate to the healthy side. The other characteristics are true.

MFS-22. (C) Palatoschisis may be associated with unilateral or bilateral cheiloschisis, but it can occur on its own as well. In the latter case it always involves the secondary palate and is in the midline. An isolated one may be a complete cleft of the palate or the soft palate. A bifid uvula also belongs to this group.

MFS-23. (C) Various institutes and cleft centres suggest various dates, but out of the times listed the 4th month is the most appropriate one. Immediately after birth it is too early, after the age of one year it is too late.

MFS-24. (D) Rosenthal’s flap is a pedicled palatinal one, the other methods are bridge flaps.
MFS-25. (C) All the methods listed—except for Köle’s—close the palatoschisis with a bridge flap plasty. Köle’s name has become known for his nasal plasty.

MFS-26. (A) Osteotomy is performed according to Schuchardt. Köle’s operation is an anterior segment osteotomy.

MFS-27. (B) Out of the methods listed Obwegeser’s method as modified by Dal Pont is a sagittal osteotomy, the others are angled osteotomies, Trauner’s is an inverse ’L’ shaped osteotomy.

MFS-28. (B) There is no transverse reduction. Out of the ones listed vertical augmentation belongs to this group of operations.

MFS-29. (B) Trismus—though it causes a difficulty of opening—does not lead to ankylosis as it is an extracapsular process.

MFS-30. (D) Osteosarcoma is malignant, the others are benign.

MFS-31. (A) Arthroscopy provides information concerning the condition of the synovial membranes and the cartilage surface thus it is mainly used for the detection of ’internal derangement’. A tumour is visible on the X-ray as well, the other symptoms of a rheumatoid arthritis are quite clear; in the case of luxation diagnostic tests are superfluous.

MFS-32. (D) Its main advantage is that there is no need for a mandible resection and grafting. The other statements are true.

MFS-33. (E) None is characteristic of acute sialoadenitis, except for the ultrasound result, which reports a homogeneous swelling.

MFS-34. (D) Diffusion property: it expresses the property of local anaesthetic drugs how far they can penetrate into tissues far from the point of injection, that is how much they can cross tissue barriers.

MFS-35. (D) The time of effect of Marcaine is very long (3 to 30 hours), that of Procaine is quite short, that of Lidocaine and Ultraceaine is 2-3 hours.

MFS-36. (B) The maximal daily dosage of 2% Lidocaine without epinephrine is 10 mls, that of the most often used 2% solution with epinephrine is 20 mls.

MFS-37. (A) The region of the superior labial frenulum is very sensitive, therefore upon anaesthetising the upper incisors the point of insertion is always at the distal tooth.
MFS-38. (E) Lower teeth can be anaesthetised through the inferior alveolar nerve, the upper molars with the tuberal anaesthesia method, the upper front teeth with the infraorbital block anaesthesia method. The upper premolars are usually not anaesthetised with a block anaesthesia method.

MFS-39. (D) No injection is administered into the abscess as the infection might be spread with the injection.

MFS-40. (B) A passing complication of erroneous block anaesthesia may be the paresis of the facial nerve which is associated with the palsy of the mimic muscles.

MFS-41. (E) The purpose of premedication is to calm the patient with drugs. With its help unpleasant psychological effects and unwanted vegetative reactions may be reduced or prevented.

MFS-42. (C) Ketamine is an intravenous anaesthetic drug.

MFS-43. (D) Primary closure has to be performed within the first 48 hours. After this primary closure is usually not successful because of the infection.

MFS-44. (C) 4 to 6 weeks after extraction osteoid tissue fills the alveolus. Final, osseous regeneration happens in 3 to 6 months.

MFS-45. (C) In the classic case the cyst is located in the maxilla between the roots of the lateral incisor and the canine. The cyst often pushes the roots of these teeth apart.

MFS-46. (E) In chronic periapical periodontitis there is periapical bone resorption (granuloma); in chronic purulent osteomyelitis there is an osteolysis with a blurred edge, sequestration and around it a radiolucent zone; in focal sclerotising osteomyelitis there is a condensation of the bone in a small area, that is related to the root and often has the shape of a pear; while in diffuse sclerotising osteomyelitis there are multiple ostolytic lesions. In acute periapical periodontitis there is no visible lesion in the bone due to the shortness of time.
MFS-47. (B) The percentage of head injuries in road accidents is about 70%, in other accidents it is 30%.

MFS-48. (E) In the corpus it is 21%, in the angle it is 20%, in the ramus 3%, in the condylar process 36% and in the muscular process it is 2%, thus a fracture is least likely to occur in the muscular process.

MFS-49. (A) Trismus is classified as a functional disorder, which may be due to fracture, contusion of masticatory muscles and soft tissues. That is why trismus is just an uncertain sign of fracture.

MFS-50. (D) The fracture of the orbit base is a lateral midface fracture, the others are central or centrolateral ones.

MFS-51. (C) Adams’s internal wire fixation may be used in central or centrolateral midface fractures, thus, out of the ones listed, only in the case of a Le-Fort II. fracture.

MFS-52. (C) Multinuclear giant cells are characteristic of gigantocellular epulis. Fibrous epulis is of a light pink colour and does not bleed easily. Small size is characteristic of a granulomatous epulis.

MFS-53. (E) All these statements are characteristic of an ameloblastoma, but it does not give metastases.

MFS-54. (B) About 20-25% of all oral cancer is lip cancer. It is five times more frequent in men than in women.

MFS-55. (E) A basalioma develops in parts of the skin, mainly of the face that are mostly touched by external effects (wind, sunshine, rain).

MFS-56. (A) A sagittal ramus osteotomy of the mandible is the most often applied surgical method in the surgery of dysgnathia. This method was developed by Obwegeser, and slightly modified by Dal Pont.
MFS-57. (D) Le Mesurier’s and Tennison’s methods are used to close a cleft lip, whereas Schuchardt’s and Rosenthal’s are used to close a cleft palate.

MFS-58. (C) Symptoms are similar to those of a chronic sinusitis. It has quite a bad prognosis because of a late diagnosis. It is relatively rare. Histologically it is mostly squamous cell carcinoma.

MFS-59. (D) Transplantation of full and half thickness skin is free grafting. Cylindrical flaps are ‘wandering’ flaps from various parts of the body surface.

MFS-60. (C) Grafting with metal and plastic (foreign materials) is alloplasty. Grafting with the patient’s own bone is autoplasty.

MFS-61. (E) Those listed are characteristic.

MFS-62. (A) The first three of the answers are characteristic. Grape-like retention is characteristic of the benign Sjögren’s syndrome.

MFS-63. (E) All those listed are incision types used to this day.

MFS-64. (A) The first three symptoms are characteristic. Haematoma is an additional symptom – it might not necessarily mean jaw bone fracture.

MFS-65. (E) As a tumour of the mandibular condyle is quite rare, utmost care must be taken to acquire a certain diagnosis if the suspicion arises. All the methods listed help in proving or excluding the diagnosis.

MFS-66. (A) An ameloblastoma has a sharp edge on the X-ray. It can have extreme size and be unilocular, but most commonly it is multilocular. It also involves cortical bone.

MFS-67. (B) Step formation, major bleeding of the maxillary sinus and injury (paraesthesia) to the infraorbital nerve are characteristic. It usually does not influence occlusion.

MFS-68. (E) All the listed factors significantly influence the mode of treatment of the fracture and the outcome of it.

MFS-69. (E) All the answers given here (separately and together) contribute to the frequent fractures of the mandible.

MFS-70. (E) All these symptoms may occur due to the fracture of the alveolar process, the horizontal fracture of the maxilla (Le Fort I.) and a pyramidal (Le Fort II.) fracture.

MFS-71. (A) The first three are appropriate methods of fixation. There no such thing as a Neuner-splint. His method is used to fix fractured bone fragments.

MFS-72. (D) The sternocleidomastoid muscle has no origin or insertion on the mandible, thus it cannot influence the position of fractured segments. The condition of the periodontium has no influence either.

MFS-73. (A) The most often performed osteotomy is the sagittal one. Rarer is an oblique and a reverse ‘L’ shape osteotomy (Trauner’s operation). Dingmann’s operation is performed on the corpus.
MFS-74. (A) The advantages listed in the first three points have almost completely ousted the extraoral intervention from clinical practice, which however, provides better visibility.

MFS-75. (B) It is rarely used as intraoral miniplate osteosynthesis has made the method spurious. Its disadvantage is that it does not provide functionally stable fixation.

MFS-76. (C) When an extraoral approach is chosen there is a visible scar. The facial nerve might be injured. An injury to the lingual nerve and the periodontium is not likely.

MFS-77. (A) The reasons listed in the first three points might have a role in difficulty of swallowing or breathing. The fracture of the articular process is a mandibular fracture.

MFS-78. (A) Apart from those listed in the first three points a paediatric dentist, an ENT specialist and a genetician are important. A neurosurgeon is usually not needed.

MFS-79. (D) The formation of a pseudoarthrosis and ankylosis are complications of mandibular fractures. The other two complications may occur after maxillary fractures as well.

MFS-80. (D) The zygomatic arch may be elevated with a surgical hook or the Gillies-method. The zygomatic bone may be repositioned with the balloon method and osteosynthesis.

MFS-81. (B) Papilloma is of an epithelial origin, the others originate from connective tissue.

MFS-82. (D) Central fibroma and chondroma are jaw tumours independent of teeth. The other two are benign odontogenic tumours. The name of the Pindborg-tumour is ‘calcifying odontogenic epithelial tumour’.

MFS-83. (C) Sarcoma – thus fibrosarcoma and endothelial myeloma (Ewing-sarcoma) – are of mesenchymal origin.

MFS-84. (B) Epulis and parodontoma are synonyms; the name peripheral giant cell granuloma is also used. Central giant cell reparative granuloma is not an epulis.

MFS-85. (E) All those listed may be used. Apart from these a surgical treatment or laser therapy are also common.

MFS-86. (D) Leiomyoma develops from smooth-, rhabdomyoma from striated muscle. Schwannoma (neurinoma) derives from neural tissue. Myxoma is a jaw tumour.

MFS-87. (A) The first three characteristics are true. It makes the fabrication and use of a removable denture difficult; therefore it has to be removed.

MFS-88. (B) Cc. keratoides is an old classification. The other three belong to the classification accepted nowadays.

MFS-89. (E) All these methods are used depending on the localisation and size of the tumour.

MFS-90. (A) The first three are monoblock principles; the fourth one is already part of the ‘composite’ operation.
MFS-91. (D) The functional neck dissection introduced by Bocca in 1967 preserves the sternocleidomastoid muscle, the internal jugular vein and the accessory nerve.

MFS-92. (E) Effectiveness means the minimal concentration, which suspends conduction in the nerve, toxicity means the tolerable dose of the drug, diffusion means the drug’s ability to penetrate tissues, the term of effect the time of anaesthesia, thus these all play a role in the therapeutic value of a local anaesthetic drug.

MFS-93. (B) Terminal anaesthesia is also called infiltration anaesthesia, thus it cannot be a specific form of it. The other answers are correct.

MFS-94. (E) A haematoma might occur following tuberal or lower block anaesthesia, trismus might occur following lower block anaesthesia (injury to the medial pterygoid muscle or infection), while injury to the lip and tongue mainly occur in children due to biting because of the long anaesthesia. All those listed are complications of local anaesthesia.

MFS-95. (B) Barbiturates may have significant complications, such as laryngospasm, fall of blood pressure and depressed breathing. Hallucination may be due to Ketalar that is not a barbituric acid derivate.

MFS-96. (E) Transdental fixation has the four indications listed here.

MFS-97. (D) In the case of a retained upper canine on the intraoral X-ray the crown of the canine in a palatinal position gives a more intensive image than the neighbouring teeth. On the bite-on X-ray the crown of the palatinally positioned canine appears to be in the apex of the roots of the neighbouring teeth, while that of the buccally positioned in the area of the crowns of the neighbouring teeth. The two other types of X-rays give no significant information.

MFS-98. (E) The cysts listed are all odontogenic in origin, they are all located in the bone, their internal epithelial lining is multilayer squamous epithelium.

MFS-99. (D) The first answer is characteristic of a perinatal cyst, the third one of the eruptional cyst, while the second and fourth of the follicular cyst.
MFS-100. (B) The branchyogenic cyst develops in the line of the sternocleidomastoid muscle. The others are characteristic locations of the dermoid cyst.

MFS-101. (A) A pus is flowing from a fistula of the facial skin is characteristic of a chronic purulent osteomyelitis. The others are characteristic of an acute osteomyelitis.

MFS-102. (A) Angina Ludowici is a very dangerous bilateral cellulitis of the sublingual, submandibular and parapharyngeal spaces. The submandibular area is swollen, the patient’s mouth is open, he cannot swallow, the tongue is significantly swollen and risen, there is increased danger of suffocation.

MFS-103. (A) Repositioning the fractured bone ends does not belong to first aid, as it is part of the definitive treatment. As a first aid the fractured bone may be brought into tranquility (e.g. a mandibular fracture with a sling bandage).

MFS-104. (D) The distal (bigger) fragment is pulled downwards and outwards by the muscles that open the mouth and the contralateral lateral pterygoid muscle. The proximal (smaller) fragment is pulled upwards and medially by the muscles that close the mouth.

MFS-105. (B) Healthy teeth in the fracture line should be left in their places, antibiotics have to be administered and immediate surgery performed. In the other cases listed the teeth in the fracture line should be removed.

MFS-106. (D) The fracture line of a Le-Fort II. fracture goes through the back of the nose or the lateral portion of the apertura pyriformis to the medial-lower wall of the orbit and to the inferior orbital fissure, then to the zygomatico-maxillary suture and caudally and dorsally on the infratemporal surface of the maxilla. The fracture lines described in points 1. and 3. are characteristic of a Le-Fort III. fracture.

MFS-107. (C) A dislocated zygomatic bone may be repositioned with a percutaneous method (Strohmeyer) and from a temporal incision with an elevator (Gillies). A depressed zygomatic arch may be repositioned by elevating the temporalis muscle (Berényi) or by pulling a thread introduced under the zygomatic arch (Matas).
MFS-108. (E) As contrasted to Sjögren’s syndrome, no inflammatory signs are seen in sialosis. The aetiology of the disease includes drugs, hormonal disorders, nutritional problems, hepatic cirrhosis and chronic alcoholism. All the characteristics listed are those of sialosis.

MFS-109. (B) Pleomorphic adenoma contains cartilaginous elements as well as epithelial, mucoid and myxomatous elements, but no enamel-dentine elements.

MFS-110. (A) In the case of an acute sialoadenitis, sialometry shows decreased amount of saliva, scintigraphy presents early normal enrichment and a longer period of discharge. The ultrasound reports a homogeneous swelling. All these are recommended diagnostic tests. Sialography is quite painful and may increase inflammation therefore it is not recommended.

MFS-111. (D) Frey’s syndrome has typical vegetative symptoms: the preauricular region of the face becomes red and perspiration starts when the patient is eating. Thus the essence of the disease is not pain, even though the other name of the disease is auriculotemporal neuralgia.

MFS-112. (A) Papilloma is an exophytic tumour, which is the papillary hyperplasia of epithelial cells. Points 1., 2. and 3. are true of it.

MFS-113. (C) Ameloblastoma mostly occurs in the region of the lower molars, it can have considerable size and no calcification can be seen. In contrast adenoameloblastoma mostly occurs in the region of the upper canines and lower incisors; it does not grow to be big and might contain small calcifying centres.

MFS-114. (A) The first three statements are true of tongue carcinoma, while a histologically less differentiated form is more common, therefore it gives a metastasis more frequently.

MFS-115. (E) All statements are true of an osteosarcoma.

MFS-116. (A) Both statements are true and there is a correlation between them.

MFS-117. (D) Fractures of the muscular process are very rare, just as dislocation as the temporalis muscle protects the process.

MFS-118. (E) Intra-arterial chemotherapy is a useful method in the maxillofacial region, but it is also risky because of its disadvantages (it destroys the cells mentioned, too).

MFS-119. (E) A sialolith is most commonly found in the submandibular gland. Stenon’s duct is that of the parotid gland.
MFS-120. (B) In the case of an acute sialoadenitis sialography is very painful and may make the certain diagnosis uncertain. Secretion is decreased.

MFS-121. (A) Both statements are true and there is correlation. Central and peripheral facial paresis can be differentiated on the basis of the movements of the forehead.

MFS-122. (D) An increased muscle tone is characteristic and it needs to be relaxed. No smooth muscle relaxant is useful for this, as this muscle tone is caused by striated muscles.

MFS-123. (A) Both statements are true and there is correlation. At the same time it has to be noted that intra-arterial chemotherapy is not risk-free.

MFS-124. (B) Both statements are true but there is no correlation. The reason for bilateral metastases is the location close to the midline or in the midline. Frequency is 10-15%.

MFS-125. (D) Rhinogenic sinusitis is more common. Its treatment is mainly medical (conservative).

MFS-126. (A) Both statements are true and there is correlation. That is why the necessary surgical intervention has to be performed before radiation therapy.

MFS-127. (E) Surgery is rarely performed (repositioning, fixation) and only in the case of major dislocation, which is relatively rare.

MFS-128. (C) Mouth opening may be restricted because the dislocated bone stops the movement of the muscular process.

MFS-129. (A) In most cases this is the method to follow. If the zygomatic bone does not stay in its original position then fixation is necessary.

MFS-130. (E) Treatment is exclusively medical (conservative); similarly to the treatment of other joints.

MFS-131. (A) Both statements are true and there is correlation.

MFS-132. (A) Both statements are true and there is correlation.

MFS-133. (D) If during the operation the oral cavity is opened the graft may become infected and may be lost. That is why the frequency of free bone transplants is decreasing. Instead a microvascular bone transplant is performed.

MFS-134. (A) Both statements are true and there is correlation.

MFS-135. (B) Both statements are true but there is no correlation.

MFS-136. (C) In the case of maxillary retrognathia the dental characteristics of the upper jaw include él- vagy fordított túlarapása, while protruded upper incisors are characteristic of maxillary prognathia as the upper jaw is bigger and/or in anteroposition relative to the mandible or the skull base.
MFS-137. (D) In Pierre-Robin syndrome it is not the maxilla but the mandible that is hypoplastic, therefore the chin is flattened and in neonates in a lying position the tongue may fall backwards and cause suffocation.

MFS-138. (E) Osteoarthrosis of the temporomandibular joint is a degenerative disease and occurs when the joint surface can no more adept to the external effects on it.

MFS-139. (A) Even though fibrous dysplasia of unknown origin is not a tumour, its X-ray image with a blurred edge and structure of bone is similar to that of a tumour.

MFS-140. (C) In the case of an onlay plasty in the maxilla an autogenous bone graft is placed on the extremely atrophied very thin upper jaw from the buccal (labial) side. Le-Fort I. osteotomy is performed in the case of a maxillary interpositional plasty.

MFS-141. (B) The good diffusional property of Lidocaine makes it possible to use it a spray for anaesthesia of the mucosa, or to use it as an injection for block anaesthesia. It is true that diluted it is a possible treatment of certain arrhythmias, but this has no correlation with the good diffusional property of the local anaesthetic drug.

MFS-142. (A) Collapses occurring in the dental chair are reversible peripheral circulatory insufficiencies, which are introduced by paleness, perspiration, increased frequency of breathing and nausea. Its characteristics are hypotension and bradycardia, which very well characterise peripheral circulatory insufficiency.

MFS-143. (B) Following high dose radiation therapy to the jaws the risk of osteoradionecrosis following tooth extraction due to infection is high, therefore this is among contraindications. Coagulopathy is also a contraindication, but this is the only connection between these two.

MFS-144. (C) Because the tendon of the temporalis muscle is tensed at maximal mouth opening, it often has to be avoided and in these cases the active help of the assistant is needed. Anaesthesia or a mouth gag will not help.
MFS-145. (A) During cystectomy it might happen that it cannot be removed with all certainty because the epithelium is full of scars and tears easily or there is a danger of injury to important neighbouring tissues. In these cases the surgical plan has to be modified and a cystostomy has to be performed.

MFS-146. (E) In most cases a mixed (aerobe and anaerobe) infection develops from the root canal. These inflammations may be localised to the periapical space, but they may spread as well. The form of the inflammation is determined by several factors, such as the present status of the immune system, the number of bacteria, their virulence, the blood supply of the region, certain general conditions, etc.

MFS-147. (A) Phlegmon (acute cellulitis) develops in spaces of fibrous tissue and spreads quickly, in which the almost completely avascular nature of the area also plays a role, as well as the presence of virulent bacteria, among which the most important ones are beta haemolytic Streptococci, which produces hialuronidase, as it provides a lysis of connective tissue.

MFS-148. (A) Fractures of the condylar process are mostly due to indirect trauma, because this area is protected. Such indirect trauma is a punch to the mental region received with an open mouth.

MFS-149. (A)
MFS-150. (D)
MFS-151. (C)
MFS-152. (B) Dal Pont’s operation is performed on the ramus, Dingmann’s on the corpus of the mandible. Dal Pont’s operation is a sagittal osteotomy, during Dingmann’s the inferior alveolar nerve is transposed into a cavity prepared on the bony surface to protect it. After both types of surgery intermaxillary fixation is necessary.

MFS-153. (A)
MFS-154. (D)
MFS-155. (C)
MFS-156. (B) Radical neck dissection was first described by Crile (1906), functional neck dissection by Bocca (1967). The hypoglossal nerve is to be spared in both types of surgery, while the internal jugular vein is spared by functional neck dissection, but it is not by radical. The indication of radical neck dissection is decreasing: the first point gives the correct range of indication.

MFS-157. (C)
MFS-158. (A)
MFS-159. (B)

MFS-160. (C) The musculo-cutaneous flap mostly used for reconstruction is a pedicled one, during the preparation of which utmost care has to be taken to preserve the integrity of the supplying artery and vein and that these be included in the flap. The pectoral flap is supplied by the thoracoacromial artery, the latissimus dorsi flap by the thoracodorsal artery.

MFS-161. (C)

MFS-162. (B)

MFS-163. (D)

MFS-164. (A) The drug combination mentioned is used in both treatments as a protocol, in systemic therapy as a palliative solution, in intra-arterial chemotherapy as pre-postoperative or palliative treatment. In the latter case the cannula is introduced into the external carotid artery. Thus more drug can be administered with less side effect.

MFS-165. (A)

MFS-166. (B)

MFS-167. (D)

MFS-168. (D) The frequency of unilateral complete cleft is about 40 %, that of a bilateral one is about 15%. In the case of a bilateral cleft the most characteristic feature is a prominent premaxilla, in the case of a unilateral cleft the most characteristic feature is that the nasal septum deviates towards the healthy side. Endogenous and/or exogenous factors exerting their effect on the 5th embryonic week cause cleft lip, while those on the 7th and 8th weeks cause cleft palate.

MFS-169. (C)

MFS-170. (A)

MFS-171. (B)

MFS-172. (D) The modern surgery of both cleft lip and palate derives from Veau. One method of closing the lip is Tennison’s operation (with a triangular flap), and that of closing the palate is Rosenthal’s operation (with a pedicled palatinal flap). The method mentioned in point 4. is used for a pharyngeal plasty.

MFS-173. (A)

MFS-174. (B)

MFS-175. (B)

MFS-176. (D) A Guérin fracture (also called Le Fort I.) is a central, while a blow-out fracture is a lateral midface fracture. Gillies’s method is used for the surgical treatment of a zygomatic fracture. A Halo device is used for the external fixation of midface fractures following repositioning.

MFS-177. (A)
Extracapsular fractures may be high or deep so called subcondylar fractures. Intracapsular fractures are not treated surgically; while the management of dislocated subcondylar fractures depends on whether it is high or deep (no surgical fixation is applied for high subcondylar fractures). Condylar fractures always result in malocclusion.

Both are salivary gland tumours of an epithelial origin. They mostly occur in the lower pole of the parotid gland (superficial lobe). Both have a capsule.

Glossopharyngeal neuralgia is associated with typical pain and a trigger zone in the lingual radix and tonsillar region. Constant, dull pain with vegetative symptoms is characteristic of the atypical auriculotemporal neuralgia that is also called Frey’s syndrome after the scholar who first described it.

These two benign lesions (fibroma, fibrous epulis) are usually similar on palpation (touch of a horse hair - pillow); their colour is the same as that of healthy mucosa or a shade lighter. Their size differs, as fibroma is usually of a few millimetres in size and fibrous epulis can grow to the size of a nut or even plum. Fibroma is not prone to recur, whereas fibrous epulis recurs often.

It is characteristic of both cementoma and central fibroma that they both occur at a young age; they are both painless and are benign tumours. An encapsulated circumscribed form resembling a cyst suggests a central fibroma, while cementoma is connected to the roots of teeth and is a strongly radiolucent entity. The loosening of teeth and a resulting occlusal difference is only
characteristic of a central fibroma. Cementoma rather causes the fixation of a tooth, thus makes it difficult to remove the tooth.

MFS-197. (A)
MFS-198. (A)
MFS-199. (B)
MFS-200. (B) Lip carcinoma has three types, carcinoma of the tongue has two (exophytic and ulcerative). Lip carcinoma gives a late metastasis, carcinoma of the tongue often and quickly, therefore an elective neck dissection is not recommended in the case of a lip carcinoma, whereas it is in the case of a lingual carcinoma. The treatment of a lip carcinoma is radical surgery, while in the case of a carcinoma of the tongue the combined therapy of chemotherapy-surgery-radiation therapy is recommended because of the bad prognosis.

MFS-201. (B)
MFS-202. (B)
MFS-203. (D)
MFS-204. (B) Osteosarcoma is characteristic of young patients whereas fibrosarcoma is of middle-aged people. The X-ray image of osteosarcoma may show contradicting signs of sclerotising and osteolytic forms, out of which the osteolytic form is more aggressive. Radiation therapy is not effective in either disease. The treatment is surgery for both tumours, combined with chemotherapy in the case of osteosarcoma.

MFS-205. (C)
MFS-206. (A)
MFS-207. (C)
MFS-208. (A) Neck dissections are used to remove the lymphatic system of the neck. In the radical type all anatomical structures above the deep neck fascia are removed except for the common and internal carotid artery, the vagal nerve, the phrenic nerve and the hypoglossal nerve; in the functional type the sternocleidomastoid muscle, the internal jugular vein and the accessory nerve are also salvaged. A radical dissection is performed in the case of an advanced metastasis connected to surrounding tissues; in other cases the less radical, functional dissection is recommended.

MFS-209. (C)
MFS-210. (D)
Both operations are performed in the surgery of dysgnathia on the mandible. In Dal Pont’s operation a sagittal osteotomy is performed on the mandibular ramus, thus the whole corpus of the mandible is mobilised together with the teeth in it. In Dingmann’s operation an osteotomy is performed on the mandibular corpus on its entire width, then an ostectomy is done. The section of the alveolar process between the mental foramina has to be mobilised during a frontal segment osteotomy.

Paget’s disease is characteristic of the middle age and its characteristic symptom is the slow enlargement of the skull. In contrast, osteopetrosis may occur in early infancy, though it may start later on as well. Bones may be painful in both diseases. In Paget’s disease there is a mosaic-like pattern in the X-ray (osteolytic-osteosclerotic alternation), while in osteopetrosis a diffuse, homogeneous sclerotic lesion of the bones is seen.

Detaching the insertion of the mylohyoid and genioglossal muscles is the operation of lowering the floor of the mouth. Submucous vestibule plasty is usually performed on the maxilla and rarely on the mandible together with raising the alveolar process. An open vestibule plasty may be performed on the mandible. During a submucous vestibule plasty a double tunnel (superficial and deep) is prepared and the muscle insertion between the two is detached and moved cranially. During an open vestibule plasty labial mucosa is used as a flap, the periosteum is cut through and laid over the labial mucosal defect.
ORM-1 (D) Crust is a secondary skin lesion, which occurs after the presence of a primary skin lesion.

ORM-2. (B) The main local etiological reason of the coated tongue /lingua fuliginosa/ is the decrease in the self-cleaning ability of the tongue. Self-cleaning is provided by the lingual movements and the abrading effect of the foods. To the reduction of these actions can lead dental- and periodontal disorders, which are accompanied by pain. An increased coated tongue formation can be detected in xerostomia, cigarette-smoking and diseases accompanied by fever.

ORM-3. (B) In the development of angular cheilitis streptococci and staphylococci are the causative agents in children and young adults, while candida albicans causes angular cheilitis in the older ages.

ORM-4. (C) The characteristic symptom of the glossitis migrans (geographical tongue) is that the spots with the white margins change their shape and their size, which is not characteristic of the acute glossitis. In case of the median rhomboid glossitis a rhomboid or oval shape red lesion can be detected at the posterior one third on the dorsum of the tongue. Black hairy tongue is accompanied by a brownish blackish discoloration of the tongue.

ORM-5. (C) Boil or furuncle is a skin disease caused by the inflammation of hair follicles, thus resulting in the localized accumulation of pus following a staphylococcus infection. It predilection area is the upper lip, and the occipital area. The furuncle manifesting on the upper lip area is very dangerous, as the pressing of the boil can lead to the thrombosis of the cavernous sinus, meningitis or brainabsscess because of the convenience of the angular vein. The adequate therapy is the surgical draining of the boil and administration of a broad spectrum antibiotic.

ORM-6. (A) This alteration is called the “strawberry tongue” because of the distinctive white coating of the tongue and because of the swelling of the filiform papillae, which is detectable in patients with scarlet fever. After the disappearance of the white spots only the red papilla alteration is visible this is the status which is called “raspberry tongue”. Other oral symptoms are less characteristic in scarlet fever, but this lingual alteration is typical in scarlet fever.

ORM-7. (B) The characteristic symptom of the recurrent childhood parotitis is the reduced saliva production because of the destruction of the glandular tissue, which increases the risk for infections because of the consequent xerostomia. The glandular tissue is continuously reducing, because of the recurrences. The other statements are true for the recurrent childhood parotitis.

ORM-8. (D) Vesicle is the primary skin lesion of the herpetic gingivostomatitis and the labial herpes, which is macerated rapidly to the effect of saliva in the oral cavity, thus an erosion will soon be detectable in its place, vesicle is visible only for a short period of time.

ORM-9. (B) The causative agent of the herpes zoster is the herpes varicellae virus, which causes chicken-pox in the childhood, and causes herpes zoster in the adults. The latently present virus becomes reactivated to the effect of reinfection with the virus. The reactivation can also be caused by a tumor (paraneoplastic zoster), trauma, immune-suppression and certain drugs, when the virus gets to the skin or to the mucosa from the Gasserian ganglion or from the spinal ganglions along the nerve fibers.

ORM-10. (A) Rubella infection can occur both in children and in adults, which is usually not accompanied by consequences, but on some adults arthralgia could be detected. The highest is the
risk in case of pregnant women, because it can most oftenly cause heart-, eye- ear- and brain damage in the first 16 days (so in the first trimester) of the maternity. Therefore pregnant women must be saved against the risk for rubella infection.

ORM-11. (D) In the treatment of the oral candidiasis the antimycotics are used, like Nystatin, Pimafucin, Nizoral and Borax-glycerin. Application of the Augmentin antibiotic is contraindicated.

ORM-12. (A) The main predilection area of the papillary hyperplasia induced by a chronic fungal infection is the hard palate, which makes the palatal mucosa uneven and nodular.

ORM-13. (D) Chronic hyperplastic candidiasis is similar to leukoplakia because of its appearance, therefore it is also called candida-leukoplakia. It can be detected usually on removable denture wearers and cigarette smokers, its predilection area is the angle of the mouth the retrocommissural area, the tongue and the palate.

ORM-14. (E) Candida granuloma can be noticed in chronic mucocutan candidiasis on the skin or on the mucosa, in the form of nodi extended from the surface.

ORM-15. (E) It is necessary to always carry out a search for foci in case of recurrent oral ulcers (aphthas), bacuse the allergy provoking agent can also be spread from a focus. It is important to perform and maintaining a good oral hygiene, which can be assisted by Neomagnol or chlorhexidine mouth rinses. Suspensio anaesthetica can also be prescribed in order to reduce pain, vitamin-B, iron and folic acid have advantageous effect too.

ORM-16. (A) The troublesome subjective complaint of the patients with Sjögren’s syndrome is the xerostomia, which can be improved by increasing salivation. For this aim are suitable the parasympathomimetic drugs (Stigmosan and Mestinon tablets, Pylocarpin injection). If the glandular tissue is damaged to an extent that the salivation can not be increased, then artificial saliva can be given to the patient to reduce xerostomia.

ORM-17. (E) Taking of certain drugs can result in allergic reactions in some persons. Symptoms are not specific, there can be different reaction to the same drug, the immune reaction is not specific, thus the causative drug can not be determined straight forwardly from the symptoms. the stomatitis medicamentosa as an allergic reaction is rather dependent on the individual reaction of the body, than on the type of the drug.

ORM-18. (D) The production of autoantibodies in pemphigus- patients is often provoked by the presence of a malignant tumor with a heterogeneous cross reaction, or it develops after the drug therapy. Therefore in patients with pemphigus always necessary to search for the presence of malignant tumors, pemphigus are considered as paraneoplastic syndromes.

ORM-19. (C) Erythema exsudativum multiforme is a type III. immune reaction, the Arthus’ type immune reaction, which is accompanied by an immune complex production. The disease develops with oral symptoms, or sets up in combination with skin lesions, it is accompanied by an exsudative inflammation, and it is prone to recurrences.
ORM-20. (A) Mitotic activity increases in the epithel to the effect of vitamin-A and keratinization becomes reduced, thus the keratolytic activity of vitamin-A is used in the treatment of different mucosa alterations (leukoplakia, lichen oris, cheilitis actinica chronica).

ORM-21. (A) Among the listed vitamin-B derivates vitamin-B1 has the smallest effectivity onto the oral mucosa. The defect of vitamin B2 (riboflavin) causes angular cheilitis and glossitis, the defect of vitamin A3 leads to pellagra. Vitamin B5 (pantotheic acid) is used in oral diseases accompanied by hyperkeratosis and erosion, in the defect of vitamin B12 pernicious anemia and its characteristic oral manifestations occur.

ORM-22. (B) The typical alteration of the tongue in pernicious anemia is called Hunter- Möller glossitis, which can be characterized by the deeply striated surface, and the uncooked flesh appearance.

ORM-23. (D) If unilateral oropyrosis (burning sensation of the oral mucosa) is detected in the patient, it most probably reveals onto neurological background (for example the damage of the lingual nerve during an operation in the region of the floor of the mouth). Symptoms are more severe in this case, their intensity can change depending on the daytime.

ORM-24. (B) In case of the erythroleukoplakia (erythrolasia or mottled leukoplakia) belonging to the non homogeneous group of lekoplakias, occur most often and easiest carcinoma. In case of the simplex or homogeneous type should not be expected a malignant transformation. Reticular type does not exist.

ORM-25. (D) The earmark of the lichen oris is the Wickham's stria. Koplik’s spots appear in measles, “raspberry tongue” is typical in scarlet fever. Crater-like keratin-peg can be detected in some praecancerous alterations, like keratoacanthoma, while ulcus rodens is one clinical form of the basalioma.

ORM-26. (D) The bruxism or the sucking of the buccal mucosa during night can have a role in the occurrence of the white oral lesion of linea alba. Malignant transformation however should not be expected, so the alteration is not considered as a precancerous lesion. The alteration does not require treatment.

ORM-27. (A) Nystatin is the used drug in case of a candida infection, since it is the only antimycotic drug among the listed ones, and in the given situation in this infection the administration of an antifungal drug is the necessary.

ORM-28. (B) Central hemangioma is a rare neoplasm growing inside the bone, which can destruct the surrounding bone matrix, can cause the loosness of the teeth, and by developing a bony window, it can grow into the oral cavity. At this time tooth extraction or other surgical intervention can be accompanied by a sever bleeding.

ORM-29. (D) Fibroma is a benign alteration of conjunctive tissue origin.

ORM-30. (E) Every nevus changing its characters from its rest state is predisposed to malignant transformation: if it is changed in color or size, it is ulcerated, itching or bleeding or becomes inflamed. These symptoms are called “movement symptoms”. Noticing this a surgical excision is suggested in order to prevent malignant transformation.
ORM-31. (A) At presence of a hemangioma, care must be taken not to hurt the vascular tumor, because a severe bleeding can be the consequence. Namely tumor cells originated from the wall of the blood vessel highly damage the wall of the blood vessel, and therefore the vasoconstriction which is normally accompanied by a damage of the wall, can not occur.

ORM-32. (C) The parodontoma gigantocellularis is the last developmental stage of the parodontoma, in which the appearance of the osteoclast like giant cells is characteristic. These cells differentiate them from the other two types: the granulomatous, and the fibrous types of the epulis. Also the name of the gigantocellular form is originated from this.

ORM-33. (C) Most of the oral cancers are located in floor of the mouth.

ORM-34. (B) Cancers appearing on the palate most frequently manifest on the soft palate. Less alteration has been described on the hard palate, while the uvular localization is extremely rare.

ORM-35. (A) Clinical symptoms of the maxillary sinus have a wide variety, which become straightforward just after the destruction of the surrounding bone tissue. Nearby the symptoms listed in the points of B to E, important may be the followings in the diagnosis a loosen tooth, the slow extraction wound healing, the paresthesia or anesthesia because of the infiltration of the supplying nerve, and additionally exophtalmus and diplopia because of the infiltration of the orbit. Trismus is a typical sign of the buccal cancer.

ORM-36. (D) Metastasis can be diagnosed rarely in the orofacial region, namely secondary malignance, which, in case of its appearance, infiltrates the jaws. The metastatic tumors occurring in this regions, are originated from their primary neoplasm of the breast, or of the kidneys the or of the thyroid gland or of the prostate

ORM-37. (C) In a normal state there are not follicles and sebaceous glands in the oral mucosa, but sometimes sebaceous glands of heterotropic (ectopic) localization can be found in the oral cavity on the bucca or on the internal surface of the lips, in general bilaterally. These features are called Fox-Fordyce granules.

ORM-38. (E) The congenital epulis is a benign tumor detectable in newborns, which is ought to be removed if the larger tissue increment prevents the breast-feeding of the infant.

ORM-39. (A) During an alkali poisoning a deeply diffusing colliquation necrosis occurs. The mucosa is edematous, ulcerated and painful. Coagulation necrosis occurs at the effect of an acidic poisoning.

ORM-40. (D) Denture irritation induced alteration is called denture induced hyperplasia, or granuloma fissuratum. In the development of this alteration the ill fitting denture has the main role, and additionally the fact that the surrounding tissues are under the pressure of the prosthesis. The epulis fibrom and granulomatosum are tumor like alterations, while the granuloma pyogenicum and gravidarum are also tumor like trauma induced lesions.
ORM-41. (D) The bulla and nodus are primary skin lesions, characterized by belonging to the direct consequences of a given disease, while the erosion and the ulcer are secondary lesions developing from primary skin lesions.

ORM-42. (E) Agents predisposing to angular cheilitis are: streptococci and staphylococci in children, while presence of Candida albicans in the older ages, and it can be accompanied by other states present, like iron deficiency anemia, diabetes mellitus or pellagra.

ORM-43. (A) In a case like this cheilitis allergica is the diagnosis, according to the symptoms it is considered to be a contact cheilitis. The adequate therapy is: the elimination of the irritating agents (cosmetics), for diminishing inflammation corticosteroids and fomentation with Camilla tea can be administered. It is redundant to give antibiotics the cases of this alteration.

ORM-44. (B) Scarlet fever, impetigo and erysipelas are caused by a Streptococcus-infection, while the causative agent of diphtheria is the Corinebacterium diphtheriae.

ORM-45. (E) Actinomycosis develops at the effect of an Actinomyces israeli bacterial infection, its clinical picture is: unilateral, the skin becomes infiltrated above it, a painless swelling develops. The inflamed skin is red or livid. In the differential diagnosis THE followings should be considered: periostitis, phlegmone, osteomyelitis, tuberculosis, syphilis AND the presence of a malignant tumor.

ORM-46. (E) Parotid swelling is characteristic of all listed diseases.

ORM-47. (D) Two lesions are considered to be indicative in case of an HIV-positive person: Kaposi- sarcoma, which appears as livid or brownish-reddish spot with an obliterated margin on the hard palate or on the tongue, or on the bucca; and firther more the hairy leukoplakia, appearing on the tongue in a form of a whitish verrucous form on the margin of the tongue.

ORM-48. (E) All of the listed methods and drugs are employed in the treatment of the herpes zoster. In order to avoid the ophthalmologic consequences, a consultation with an ophthalmologist is essential in this case.

ORM-49. (E) The causative agent of the labial herpes is the Herpes simplex virus, which persist in the trigeminal ganglia after the primary infection. To its reactivation can lead sunbathing, fevered state, disease of the upper respiratory tract, pneumonia, malaria, physical or psychological stress, menstruation, gravity, etc.

ORM-50. (E) All the listed agents can make susceptible to oral candidiasis.

ORM-51. (B) Among the listed causative agents the wearing of a maxillary removable denture has a greater role in the development of chronic atrophic candidiasis, and not in the thrush.

ORM-52. (D) The characteristic of the thrush is: the most frequent form of candidiasis, which forms a whitish yellowish coat on the oral mucosa, it can be rubbed off, and after rubbing off a bleeding eroded surface remains.
ORM-53. (B) The parotid gland of the patients with Sjögren’s syndrome is swollen, the alteration is a benign lymphoepithelial lesion, and the lymphocytic infiltration destroys the glandular tissue. As regards, a continuous decrease in the salivation and its break off can be detected.

ORM-54. (E) In the treatment of the angioneurotic edema, in an acute case Calciumusc injection, antihistamines (Sandosten tabl., Fenistil retard tabl.), corticosteroids, in more severe cases Tonogen injection are administered.

ORM-55. (E) Diagnosis of the Sjögren’s syndrome can be set up by sialometric, sialochemical, sialographic, scintigraphic methods or by the help of a minor salivary gland biopsy. This last method is indicative, since lymphocytic infiltration occurs in the minor salivary glands too.

ORM-56. (A) Recurrent oral ulcers are the Mikulitz’s, the Sutton’s, and the Cooke’s aphta. Möller- aphta does not exist.

ORM-57. (D) The benign mucosa- pemphigoid occurs mainly on the conjunctiva and on the oral mucosa. Other predilection areas are the anus, the throat, the nose, the esophagus, and the vulvar mucosa.

ORM-58. (E) The erythema exsudativum multiforme, as a blistering disease of allergic origin, can be manifested to the effect of different allergens, like: drugs, bacteria, viral antigens, heteroantigens deliberated in other diseases, but in a number of cases the origin is unknown.

ORM-59. (E) All of the listed methods are employed in the treatment of the patient with pemphigus. The restriction of the immune reaction is carried out by a large dose of corticosteroids and immune suppressive drugs. Oral hygiene is improved by a Neomagnol mouth rinse, while the Doxycyclin capsule is used for the prevention of the overinfection of the oral lesions and oral erosions.

ORM-60. (B) The defect of vitamin B3 vitamin (nicotinic acid) results in the pellagra, its characteristic symptoms are: the dementia, the dermatitis and the diarrhea.

ORM-61. (A) The symptoms of the Plummer- Vinson syndrome are: iron deficiency anemia, glossitis (smooth, shiny tongue, because of the papillary atrophy sometimes erosions) and dysphagia.

ORM-62. (E) All of the listed alterations can be detected in the oral cavity of the patients with Plummer-Vinson’s syndrome.

ORM-63. (C) In the development of the pellagra (vitamin B3 deficiency) and in the pernicious anemia (vitamin B12 deficiency) have a role of the deficiency of any vitamin B. Scorbut occurs because of the vitamin C deficiency, while hemeralopia (xerophthalmia) develops in case of the deficiency of vitamin A.

ORM-64. (E) diseases, states and alterations, predisposing to xerostomia are: diabetes mellitus, diarrhea, loss of blood, endogenous depression, vitamin deficiency states, autoimmune diseases, climax, gravidity, thyroid diseases, irradiation therapy, taking of certain drugs, like diuretics, antihistamines, antiparkinson drugs.
ORM-65. (C) Sunlight as a risk factor is important in the development of the cheilitis actinica chronica and the keratoma senile. In the development of the oral lichen psychological agents, autoimmune origin and hypertension are assumed, but many authors consider it as an idiopathic disease. In the formation of the submucosal fibrosis the betel nut chewing has a chief role, which is a chronic disease detected in the people of India.

ORM-66. (B) The therapeutic use of the vitamin A is not indicated among the listed ones only in case of the cornu cutaneum. Namely its adequate treatment is the surgical removal, krio- or laser therapy the of the cornu cutaneum, or removal by electrocoagulation.

ORM-67. (A) Predisposing factors in the development of leukoplakia are: smoking (mainly because of its thermal effect), mechanical irritation (broken, or ill fitting prosthesis with sharp margins), consumption of concentrated alcoholic beverages, spicy foods, galvanism. Oral manifestations of the leukemia are: pale mucosa because of the anemia, gingival hyperplasia, gingival bleeding because of the thrombocytopenia, purpura, and ulcers because of the lack of functioning white blood cells.

ORM-68. (E) Lichen oris is praecancerous state, (its origin see in: ORM-65.), its clinical forms are: anular, papular, reticular, plaque, atrophic, erosive and bullous. Steroids may have a role in the therapy if a severe case is to be treated.

ORM-69. (D) The most important in the treatment of the cheilitis actinica chronica is the elimination of the causing agents (forbidding smoking, wearing a wide boater). In order to decrease inflammation administration of vitamin B and a local application of vitamin A oil is suggested, incidentally a surgical, cry- or laser therapy can be used.

ORM-70. (D) The papilloma is of epithelial origin, pleomorphic adenoma is originated mainly from the glandular epithel. Fibroma is a benign tumor developing from the connective tissue, while myoma is a benign alteration appearing in the muscular tissue.

ORM-71. (B) Among the listed alterations, the Warthin- tumor (cystadenoma lymphomatous papillare) is a real benign tumor, which occurs nearly always in the parotid gland. The other alterations are considered as tumor like alterations.

ORM-72. (D) Hemangiomas are sorted into two groups according to their structure: capillary type consisting of groups of capillaries, and the cavernous type, consisting of deep vascular sinuses.

ORM-73. (C) Criteria of the malignancy are: local infiltrative growing, giving of metastasis to regional organs and/or to distant organs, contrary to the expansive growing, or rather to the lack of metastasis formation of the benign tumors.

ORM-74. (C) The Kaposi’s sarcoma is a vascular originated malignant tumor, which occurs mainly on the extremities, on the skin of the trunk, on the mucosa and in the inner organs, most often on males. As the symptoms of the diseases livid or brownish-reddish nodules appear on the hard palate or on the tongue, or on the buccal. It has a higher frequency in people with immune suppressive therapy or on those who suffer from AIDS.
ORM-75. (E) Treatment of the acute leukemia is the task of the physician, but also the dentist has to take part in the therapy of the oral alterations, by considering and employing all the treatment modalities listed in the question.

ORM-76. (B) In the development of the lingual cancer, the followings can have a role: alcoholism accompanied by hepatic cirrhosis, smoking, local irritations, intake of hot and spicy foods. Geographical tongue (lingua geographica, glossitis migrans, exfoliatio areata linguae) is a benign alteration, malignant transformation should not be expected.

ORM-77. (E) Because of the hypertrophia frenuli labii superioris often a disthema appears between the maxillary first incisors, and a gingival recession may occur because of the increased pulling. The enlarged frenum also predispose to periodontitis, inflammation and pocket may be formed because of the constant tension.

ORM-78. (D) Frenulectomia means the surgical removal of the enlarged frena, which may be carried out in case of the pathological change of the frena of the lips or the lingual frenum. In case of the first it is called hypertrophia frenuli labii, while the second is called ankyloglossia.

ORM-79. (C) As its name shows: morsicatio buccarum et labiorum, it occurs in these two places: a whitish lesion, erosion or ulcer because of morsication on the bucca or on the lip.

ORM-80. (A) The body reacts with general symptoms (fever, nausea, vomiting) and local symptoms too to irradiation. Thus radiation induced xerostomia results in an increased caries of the teeth, periodontitis, loosening of the teeth, and circular caries (“irradiation caries”). Late consequence of the irradiation can be osteoradionecrosis, if a trauma (for example tooth extraction) occurs in the oral cavity following the irradiation, which becoming overinfected, will spread into the bone.

ORM-81. (D) Hematological examination is not requested routinely in every patient, if there is a suspicion to one of the listed diseases, because in these cases hematological examination (blood test) is suitable for detecting the given diseases.

ORM-82. (A) In the development of the median rhomboid glossitis more causative agents are presumed (developmental disorder, inflammatory or degenerative origin), but the presence of the Candida albicans is almost always detectable, therefore fungicide drugs have a primary role in the treatment. Laser- and kryosurgery treatment or surgical excision can be indicated in case of a long term existence of the disease.

ORM-83. (A) See: ORM-5.

ORM-84. (D) The Hutchinson’s triad can be detected in case of the connatal syphilis with the listed symptoms, but this form is transmitted from the mother to the fetus, and not the opposite.

ORM-85. (C) Measles is caused by the morbilli virus; infectious mononucleosis is caused by the Epstein- Barr virus. In the diagnosis of the patients suffering from the Pfeiffer’s disease (mononucleosis infectiosa) the petechiae of the palate have a definitive role among the clinical symptoms. Maculo papulous exanthema arise on the skin, the uvula and the palate are infiltrated.

ORM-86. (E) Most effective protection against measles, developing because of the morbilli virus, is vaccination. The number of the patients with measles have been dramatically decreased
since its introduction. Skin and mucosa alterations appearing in measles require only symptomatic treatment.

ORM-87. (C) Among the forms of the oral candidiasis the acute pseudomembranous form is the most frequent type. The chronic atrophic candidiasis occurs mainly in the removable denture-wearing subjects, most often on the palate. In this case the palate is erythematous, and the tongue is red and depapillated. Differentiation can be difficult from the contact palatal allergy, caused by the removable denture too.

ORM-88. (D) The existing chronic candidiasis infection carries the risk of malignization in itself, therefore it is very important to continuously monitor these patients. Malignant alteration developed on the base of chronic candidiasis infection can be detected according to the histopathological findings, in the picture of epithelial dysplasia and cancer. A slight pain and a burning sensation may be caused rather only by the atrophic candidiasis.

ORM-89. (E) Since the lymphocytic infiltration appears in the minor salivary glands too, the minor salivary gland biopsy is an important method of the diagnosis of Sjögren’s syndrome.

ORM-90. (C) Contact allergy against acrylic resin is really a rare disease; in this case, dentures made of acrylic resins provoke an allergic immune reaction in the body. It is likely that the allergen is the monomer fluid.

ORM-91. (B) Pemphigus’ characteristic symptom is the Nikolsky’s sign, when an intact skin surface rubbed off becomes exfoliated, and leaves back erosion. In its histological picture the Tzank cells can be detected (acantholytic, round shape epithelial cells with a puffy nucleus). In the differential diagnosis from pemphigoid it is important that the Nikolsky’s test is positive in both cases, but the Tzank’s cells can not be found in pemphigoid, the Tzank test is negative in this case.

ORM-92. (D) In patients with Diabetes mellitus, who are not treated or not adequately treated, characteristic oral alterations can be detected. From a periodontal point of view the swollen gingiva and the increased bleeding ability of the interdental papillae are important and additionally those periodontal diseases which lead to the loosening of the teeth and to the periodontal abscesses. The subjective complaints of the patients are xerostomia, feeling a sweet taste, itching of the gum.

ORM-93. (A) The effect of progesterone onto the mucosa is the increased vascularization, which makes the tissue more vulnerable and predisposes to recurrent bleedings. Progesteron level is increased in prenant women, therefore gravidity gingivitis and frequent gingival bleeding is usual.

ORM-94. (B) The denomination of leukoplakia is used in a clinical understanding to the white lesions or to the plaques of the mucosa, which is an alteration, accompanied by a chronic inflammation and keratinization, and clinically can not be sorted to any other well defined disease groups. In the development of the alteration mechanical, electrical, bacterial stimuli, chronic inflammations, cigarette smoking, alcohol consumption, immunological origin can have a role.

ORM-95. (C) Lichen oris occurs in the oral cavity on the bucca (most often), on the tongue, on the lips, on the gingiva, but the appearance of this does not result in 100% cancer, thus it can not be considered an obligate precancerous alteration.
ORM-96. (A) The mandibular torus is a tumor like alteration, bony extension, on the lingual surface of the mandibular jaw, which can bother the proper fit of the dental prosthesis, thus the surgical removal of it may be indicated before the denture fabrication.

ORM-97. (C) The content of the dermoid cysts contain the auxiliary elements of the skin, sebaceous glands, sweat glands and follicles. The epidermoid cyst is different from the dermoid cyst, because it does not contain these skin elements.

ORM-98. (B) Gingival cancer is more frequent on the mandibular gingiva compared to the maxillary gingiva. Also the statement about the histological finding is right, but there is not a logical connection between the two statements. s.

ORM-99. (A) See: ORM-75.

ORM-100. (A). the first symptoms in acute leukemia can occur in the oral cavity see: ORM-75.), thus the dentist can be the first who is able to detect symptoms related to leukemia. Therefore it is very important to consult with the physician in all the cases when there are non healing ulcers, gingival hyperplasia, recurrent gingival bleeding in the oral cavity of the patients.

ORM-101. (C) Masseteric hypertrophy can be originated from a congenital or a functional reason (state after surgical intervention or bad habit). Only the last one can be improved by the elimination of the bad habit, by administration of sedatives, and by wearing a Gottlieb’s splint. In case of hypertrophia masseterica the number of the muscle fibers do not change, only their size is increased.

ORM-102. (D) At the recognition of the oral lesions of the patients and at the diagnosis of the Peutz-Jeghers’ syndrome the most important is the consultation with the physician, because in the gastrointestinal tract of these patients numerous polypous alterations can be found, which is considered by some experts to be an obligate precancerous lesion.

ORM-103. (C) See: ORM-40. Regarding the frequency of the granuloma fissuratum it is more frequent on the edentulous maxillary jaw, compared to the mandibular jaw, and its predilection area is the frontal region.

ORM-104. (B) Hydantoin induced fibrous gingival hyperplasia can only be detected on those places where there are teeth, thus it cannot be detected on edentulous jaws. Besides these, examinations revealed the causative role of the bad oral hygiene in the disease.

ORM-105. (B) ORM-106. (C) ORM-107. (A) ORM-108. (D) Both Sjögren’s syndrome and SLE are autoimmune diseases, and an increased blood sedimentation rate can be detected in both cases with blood tests. Butterfly shape erythema is typical on the face of the patient with SLE, the symptoms of the Sjögren’s syndrome see in ORM-16. The Schirmer’s test is important in the diagnosis of the Sjögren’s syndrome, its value is below 5 mm in the Sjögren patients.

ORM-109. (C) ORM-110. (B) ORM-111. (A)
ORM-112. (C) Both the pemphigus and the pemphigoid are autoimmune diseases, sorted to the vesiculo-bullous diseases. Administration of Erythromycin is often successful, which supports the bacterial provocation in the disease. Nikolsky’s and Tzank’s tests: see: ORM-91. Autoantibodies produced in patients with pemphigus are dedicated against the glycoprotein constituent of the epithelial cellular membrane. Autoantibodies produced against the basal membrane, are characteristic of the pemphigoid.

ORM-113. (C)
ORM-114. (A)
ORM-115. (A)
ORM-116. (C) Elderly people working in the agriculture are more exposed to the risks of the sunbeams, thus every alteration where the sunshine can have a role is more often in these people, as well as the basalioma and the cancer of the lip. Basalioma gives metastasis only in cases when it is transformed to a planocellular cancer, and in this case it is called a basosquamocellular carcinoma. Also the cancer of the lower lip gives rarely a metastasis, more rarely than the cancer of the upper lip, because the upper lip has a better circulation and a better blood and lymph supply. The ulcerated forms of the basalioma are called ulcus rodens.

ORM-117. C)
ORM-118. (A)
ORM-119. (B)
ORM-120. (C) Leukoplakia is praecancerous alterations; their color is similarly whitish-grayish. Leukoplakia can be found mainly in the comissure of the mouth - buccal mucosa, while lichen exists mainly on the middle and the posterior one third of the buccal mucosa. The reason of the lichen is not clear, in the development of the leukoplakia chronic irritation, cigarette smoking and alcohol consumption can have a role. It is suggested in leukoplakia cases the elimination of the irritative agents and the administration of vitamin A derivates.
Periodontology
Explanations

PAR-1. (D) The gingiva propria (gingiva proper) does not participate in periodontal attachment and does not develop from the dental sack.

PAR-2. (D) The junctional epithelium are made up of a specially modified stratified non-keratinized squamocellular cell layer invested from both sides by basal membranes. The cells attach to the basal membranes on the tooth side and the gingival connective tissue side with hemidesmosomes.

PAR-3 (B) The primary epithelial attachment develops from the reduced ameloblasts after the completion of the development and mineralization of enamel.

PAR-4. (B) The attachment of the junctional epithelial cells is made by hemidesmosomes on the enamel surface that anchors the cells to the basal membrane and dental cuticle.

PAR-5. (D) Between the junctional epithelial cells great amount of PMN leukocytes emigrate providing biological protection to the marginal periodontium. Even in clinically healthy status significant PMN leukocyte activity can be histologically observed. The number of cells is increased with the inflammation. Though in severe inflammation other cellular elements are also present in the crevicular exudates, but those comprise only the minority of the cellular infiltrate.

PAR-6. (C) The turnover rate of the junctional epithelium is approx. one week. This is one of the most dynamic tissues of the body.

PAR-7. (C) The Col area is a concave area between the buccal and oral interdental papillae. It is covered by a very thin non-keratinized epithelial layer made up of flat cuboid cells. Interdentally gingivitis mostly starts in this area and this area is irritated by the non-perfectly adapted restorations the most.

PAR-8. (E) The initial dental plaque is formed by aerobic cocci populating the acquired pellicle within a couple of minutes after tooth polishing.

PAR-9. (E) The loose alveolar mucosa is not part of the periodontium. The other listed tissues are parts either of the gingiva or the attachment apparatus.

PAR-10. (D) Mostly gingival bleeding is the first indicating symptom of gingivitis. Chronic gingivitis is mostly not associated with pain. The other symptoms are associated only with periodontitis.

PAR-11. (C) Tough several hundreds of different bacterial strains can be cultivated or detected from dental plaque, only just approx. a dozen bacteria can be associated with periodontal inflammation and tissue destruction as a direct causative factor. Those are called putative periodontopathogenic microorganisms. One of the most aggressive members of this group is the
Porphyromonas gingivalis. The other listed bacteria are not considered as periodontopathogenic bacteria.

PAR-12. (A) The connective tissue stroma of the free gingiva is made up of dento-gingival fibers originating from the supracrestal cementum and radiated into the free gingival margin and interdental papillae.

PAR-13. (B) Pressure causes bone resorption in the alveolar bone. Due to pressure a series of biophysical reactions occur in the bone that finally stimulate osteoblastic cells to secrete excessive amount of PGE$_2$ that in turn will enhance bone resorption.

PAR-14. (D) Diabetes definitely is not a behavioral factor, though many behavioral factors can play a role in the development of diabetes (diet, weight, stress etc.)

PAR-15. (E) Occlusal caries does not directly effect hygiene and plaque formation in the marginal periodontium, though indirectly may influence this, because toothache can hamper effective individual oral hygiene.

PAR-16. (C) The first and most important step in the causative therapy of any kind of plaque related periodontal diseases is the professional tooth cleaning and elimination of the plaque retentive factors.

PAR-17. (A) The chronic gingivitis is mostly a painless condition. Only the edematous gingival margin, color change, gingival bleeding and increased crevicular fluid flow are the main symptoms of the disease

PAR-18. (E) Ca channel blockers are not causative factors of gingival recession – on the contrary: those drugs can create gingival enlargement.

PAR-19. (E) Theoretically none of any systemic conditions will directly cause periodontal disease without dental plaque bacteria – but in practice where dental plaque is always present those conditions are contributing risk factors changing the biological reactions against plaque related inflammation.

PAR-20. (B) Gingivectomy is absolutely contraindicated in leukemia. In this case no invasive therapy can be applied. In the case of other severe gingival hyperplasia gingivectomy can be performed based on individual indication. Nevertheless gingivectomy today is getting to be obsolete.

PAR-21. (E) Periodontal abscess develops due to the obstruction of the orifice of the periodontal pockets. Its symptoms are: pain localized to one or two teeth, purulent exudates from the pocket by pressure. Consequently all the four answers are true.

PAR-22. (E) There are both localized and generalized forms of the aggressive periodontitis formerly called juvenile periodontitis. This can develop around the age of 12, can have several genetic risk factors and progresses very rapidly. Consequently all the four answers are true.

PAR-23. (C) The cellular infiltration in early gingivitis is mostly made up of PMN leukocytes. The other cellular elements gather later in the gingiva.

PAR-24. (B) In established gingivitis a dominantly plasma cell infiltration is present in the gingival connective tissue, nevertheless other cellular elements are also present in the infiltration.

PAR-25. (D) In the treatment of gingival recession the first and most important step is to teach the patients the proper tooth-brushing technique, which maintains excellent oral hygiene but does not harm the soft tissues. Any gingival correcting surgery can be indicated just in case of inflammation-free periodontal state. In case of non-inflammatory gingival recession splinting is not necessary as the teeth are firm.

PAR-26. (E) Traumatic occlusion, pregnancy, and periodontal inflammation can cause increased tooth mobility by different pathomechanisms. Consequently all the four are correct.

PAR-27. (C) The most important sign of periodontitis is attachment loss with pocket formation. Pocket formation per se can occur in gingival hyperplasia (pseudo pockets). In this case no attachment loss occurs. Increased tooth mobility can be present without attachment loss i.e. Traumatic occlusion.
PAR-28. (E) The probing pocket depth is dependent on the severity of the inflammation, the used force, the direction of the insertion and the diameter of the tip of the probe Consequently all the four.

PAR-29. (E) The patient needs periodontal treatment if one of the sextants shows CPITN 4- score, pocket depth and tooth mobility are suddenly increased, if immediate sulcular bleeding occurs by probing or if the width of the keratinized gingiva is 0 mm and chronic gingivitis is present. Consequently all the four.

PAR-30. (D) According to the prophylactic protocols given by heart associations, antibiotic prophylaxis is indicated before scaling if the patient’s heart condition affects the endocardium or the heart valves. In this way coronary bypass surgery and coronary diseases do not require antibiotic prophylaxis. In our cases only the artificial valves require antibiotics.

PAR-31. (E) According to the prophylactic protocols given by heart associations antibiotic prophylaxis is indicated before scaling if the patient’s heart condition affects the endocardium or heart valves. Hip joint prostheses require the same precautions. Accordingly, all the four are correct.

PAR-32. (C) In the maxilla the keratinized gingiva is the narrowest around the first premolars.

PAR-33. (C) In juvenile aggressive periodontitis the most characteristic member of the subgingival microflora is Actinobacillus actinomycetemcomitans (AA).

PAR-34. (C) Silness-Löe plaque index (PLI) measures the thickness of the plaque without disclosing agents.

PAR-35. (E) The majority of the initial dental plaque comprises of aerobic cocci.

PAR-36. (E) A minimal amount of calculus formation was also detected in germ free animals. Chlorhexidine prevents plaque formation, but also facilitates calculus formation. The speed of plaque mineralization is independent of the vitality of the plaque microorganisms. The calculus formation really increased in germ free animals after being inoculated with streptococci. The physico-chemical properties of the saliva also determine the calculus formation. Consequently the 5th statement was not true.

PAR-37. (C) In clinical practice the most objective clinical parameter is bleeding on probing test for the detection of gingivitis.

PAR-38. (A) In clinical practice the most objective clinical parameter for the registration of periodontal tissue destruction is attachment loss. The other parameters do not indicate irreversible periodontal tissue destruction.

PAR-39. (A) The sequence of the comprehensive periodontal therapy is determined by the logic of cause related therapy. It is because the main causative factor is dental plaque that the first step is the removal of dental plaque and the elimination of plaque retentive factors. In this way the proper order is: professional oral hygiene ie. anti-inflammatory therapy - first observation period (reassessment) - periodontal surgery - second observation period (reassessment) - prosthodontic rehabilitation - periodontal maintenance care. If this sequence is not followed, the success of our therapy cannot be ensured.

PAR-40. (D) Clinical studies showed that the plaque removing efficacy of the medium hard multi-tufted nylon tooth brush is better than that of the ultra hard tooth brush. Also, the end rounded bristles can cause a much smaller damage on the tooth and the gingiva than the sharply cut non end treated units. The efficacy of the regular toothbrush in cleaning the interproximal and the subgingival regions of the tooth is low and the tufts put in a 15O angulation in the head of the toothbrush provides better interproximal penetration. The toothbrushes with sparsely tufted natural bristles are obsolete, and much less effective consequently this statement was false.

PAR-41. (D) The crevicular fluid is an exudate because even in clinically healthy gingiva it contains PMN leukocytes, bacteria and other humoral inflammatory factors. The other statements are true.
PAR-42. (E) The Quigley-Hein index is a plaque index, consequently not a gingival index. The others are all gingival indices used today or in the past.

PAR-43. (B) The Löe-Silness index is not an oral hygiene index. It is one of the most cited and used gingival index both in the clinical practice and also in dental research and epidemiology.

PAR-44. (D) The advantage of the Silness-Löe plaque index is that it measures the thickness of dental plaque in the marginal region, in the very location where the gingivitis starts. The other indices measure the extent of dental plaque and the assessment of severity is based on the area covered by dental plaque even if it is very far from the marginal periodontium.

PAR-45. (B) Pregnancy in the presence of dental plaque enhances the intensity of gingivitis because the increased oestrogen-progesteron level increases capillary permeability and consequently the gingival inflammatory responses.

PAR-46. (B) The loose alveolar mucosa differs from attached gingiva in several features. Its stroma primarily made up of elastic fibers, non-keratinized epithelium covers while attached gingiva is covered by keratinized squamous epithelium.

PAR-47. (A) The connective tissue stroma of the free gingiva is made up of dento-gingival collagen fibers originating from the cervical root cementum and radiating into the gingival margin.

PAR-48. (C) In the pathomechanism of acute ulcerative gingivitis immune complex reaction plays a decisive role and being responsible for the marginal gingival necrosis- The blood vessels in the marginal gingiva and interdental papillae are end arteriole and the immune complex reaction leads to microthrombolization and consequently tissue necrosis.

PAR-49. (B) The majority of the periodontal ligament is made up of collagen fibers suspending and anchoring the teeth in the alveolar socket. Nevertheless there are several other types of fibers in the PDL, such as the argyrophy or elastic fiber in the blood vessel’s wall and oxytalan fibers – but the function of these is not clear.

PAR-50. (A) In the alveolar bone bundle bone is forming due to tensional forces anchoring Sharpey’s fibers.

PAR-51. (C) Its substantivity is responsible for its long-term antibacterial effect. The molecules adhere to the negatively charged hydroxyapatite and acquired pellicle, and it is gradually liberated from this bindings. Consequently after a single rinse its antibacterial effect lasts at least for 12 hours and ensures the minimal antibacterial concentration on tooth surface. In this way chlorhexidine, clinically, is more effective than other antibacterial agents (i.e. cetylpyrimidinum chloride CPC)

PAR-52. (C) The major obstacle of the complete periodontal regeneration is that the apical migration of the sulcus epithelium is much faster than the regeneration of the periodontal connective tissue and consequently the epithelialm layer separates the cementum and the alveolar bone and interferes with the slowly regenerating connective tissue reformation.

PAR-53. (C) The basic principle of classic guided tissue regeneration is to place a barrier membrane onto the periodontal defect to anticipate the apical down growth of the gingival epithelium. Under the protection of the membrane the slow process of connective tissue regeneration can be promoted. Today several types of barrier membranes are used in GTR techniques. In addition more morphogenic proteins are tested and used in clinical practice that can promote cell differentiation (e.g. enamel matrix proteins).

PAR-54. (C) The main difference between the sickle scaler and the periodontal curette is that the cross section of the curette's blade is a semicircle, while the scaler's blade is a triangle, the scaler's tip is sharp, the curette's toe is rounded.

PAR-55. (D) The internal reverse beveled gingival incision is an incision drawn in a 45° angle to the tooth surface, slightly apical to the marginal gingiva, removing the pocket wall and pocket epithelium. This incision is used for the modified Widman flap and apically repositioned flap surgery.
PAR-56. (B) Today the primary indication for gingivectomy is to remove the pseudo pockets developed due to fibrotic hyperplasia. This technique is not used today to correct real pocket walls or edematous pseudo pockets.

PAR-57. (D) The main goal of the modified Widman's surgery is to make access to the so called "open periodontal curettage" and the subgingival scaling and root planing. This surgical technique is used in GTR surgery.

PAR-58. (D) According to the classic Nymans’s study a loose fibrotic investing capsule with collagen bundles running parallel with the root surface formed if the mesenchymal cells of gingival origin got into full contact with the reimplanted root surface. Real Sharpey’s fiber formation never occurred.

PAR-59. (E) According to the classic Nymans’s study root resorption or/and ankylosis occurred if the mesenchymal cells of alveolar bone got into full contact with the re-implanted root surface

PAR-60. (A) According to the classic Nymans’s study legere artis regeneration with Sharpey’s fiber formation occurred if the mesenchymal cells of periodontal ligament got into full contact with the re-implanted root surface.

PAR-61. (A) The modified Widman flap surgery is not a mucogingival surgery. Only those techniques are called mucogingival surgery that perform certain type of plastic correction on the gum line. The basic principle of the modified Widman's surgery is to make access to subgingival attachment apparatus. The flap is positioned onto its original level and restore the gingival contour at the cemento-enamel junction.

PAR-62. (B) The deep and wide gingival recession (Miller IV) cannot be completely covered with a free gingival graft, because postoperatively the free gingival graft's nutrition is provided by diffusion and on a wide denuded root surface it is not be sufficient. The central part of the graft will necrotize within a couple of days after surgery.

PAR-63. (D) The most damaging forces for the periodontium are alternating jiggling forces because these will cause funnel type of bone resorption.

PAR-64. (C) Chronic myeloid leukemia is associated with severe gingival enlargement. Other types of leukemia might also cause gingival enlargement, but thrombocytopenia and anemia will not associate with gingival enlargement while agranulocytosis associates with severe gingival necrosis.

PAR-65. (B) The inflammatory bone resorption is mainly caused by the significantly increased amount of PGE2 and TNF-α produced locally by monocytes and PMN leukocytes.

PAR-66. (B) IL-1α enhances bone resorption.

PAR-67. (B) Increased pathologic mobility of the teeth can be caused by: damaging occlusal force, periodontal attachment loss and any inflammatory process in the attachment apparatus. Even extreme gingival non-inflammatory recession is not associated with increased tooth mobility providing inflammation is not present in the attachment apparatus.

PAR-68. (D) The most important clinical signs of the occlusal parafunction wear facets on the occlusal surface and increased tooth mobility in the morning. Occlusal parafunction per se does not cause root resorption and gingivitis.

PAR-69. (B) Gingivectomy is contraindicated in case of acute ulcerative gingivitis, vertical bony defects and gingivectomy cannot be performed if the base of the pocket is very close to the mucogingival junction. In the latter case no attached gingiva would remain after surgery. Gingivectomy is only indicated for the correction of fibrotic gingival hyperplasia.

PAR-70. (C) Without proper treatment of pregnancy gingivitis, the inflammation in the first trimester is mild and later worsens. It is the most severe in the 7th –8th month. Though after birth certain spontaneous improvement can be observed but only adequate therapy can restore periodontal health.

PAR-71. (B) In an active periodontal pocket the number of anaerobic Gram negative bacteria is increased. The motile to no-motile ration significantly shifts towards the motile strains.
Acute ulcerative gingivitis is primarily caused by excessive plaque accumulation. In this plaque the number of fusospirochaetes is significantly increased. Nevertheless many other risk factors can play a role in its development e.g. poor general physical state, smoking and stress.

The periodontal probes are usually and originally used for measuring periodontal attachment loss and pocket depth. In addition, periodontal probe is used to assess the plaque scores for the Silness - Löe plaque index. Assessment of Quigley-Hein plaque index is carried out by using plaque disclosing agents.

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The mineral content of subgingival calculus originates from the serum. It tenaciously attaches to root surface and there are no predilection's areas. It develops after gingival inflammation. It does not occur in gingival health.

Tooth mobility rapidly progress in the active phase of aggressive periodontitis and due to jiggling type of occlusal forces – in uncontrolled occlusal traumatism, especially if this is accompanied by periodontal plaque related inflammation. Gingivitis and chronic adult periodontitis are not associated with rapidly increasing tooth mobility.


The characteristic signs of the ulcerative gingivitis (ANUG) are: pain, spontaneous gingival bleeding and oral malodor (fetor ex ore). Though elevated temperature might occur, very high fever over 39°C is not characteristic of this disease.

In case of acute ulcerative gingivitis Metronidazole (Klion) is systematically administered, and topically chlorhexidine rinse is used. Nevertheless, penicillin derivatives and tetracyclins are also effective medications.

Gingival hyperplasia can be caused by several local and systemic factors. The most common systemic factors are: Diphenylhydantoin, Cyclosporine and Nifedipin. Cyclophosphamid does not cause gingival enlargement.

Acute herpetic gingivostomatitis mostly occurs in children under the age of 6. It is infective and contagious in childhood, accompanied with high fever and general malaise. Swollen submandibular lymph nodes can be palpated and many times this can be misdiagnosed as tonsillitis.

It is characteristic of the diphenylhydantoin related gingival hyperplasia: the interdental gingiva is affected more than the marginal, it regresses after the removal of the tooth and the edentulous area is less frequently affected, but the improvement of oral hygiene has minor effect on the clinical signs.

The major risk factors for chronic adult type periodontitis are smoking and diabetes. It is accompanied by horizontal type of bone loss. Its natural course shows a relatively slow progression, nevertheless certain tooth or group of teeth are more severely affected than the others. Even several teeth might have absolutely intact periodontal attachment.

According to the prophylactic protocols given by heart associations, antibiotic prophylaxis is indicated before scaling if the patient’s heart condition affects the endocardium or heart valves: so in case of mitral valve prolaps with atrial regurgitation and past sepsis lenta. In this way coronary bypass surgery and coronary diseases do not require antibiotic prophylaxis.

The supragingival calculus is a risk factor in the pathomechanism of periodontitis because it is an important plaque retention factor for vital bacterial colonization. It interferes with the effective tooth cleaning processes as they surface is rough and not cleansable. The calculus itself does not contain vital bacteria and only the extreme large calculus can directly mechanically irritate the gum.

Dental floss is especially recommended for young adults for the interdental cleaning of their teeth with close contact point and intact interdental gingiva. The inadequate technique can damage the interdental papilla. It is mandatory that dental floss should be used just after proper
professional cleaning, otherwise the interdental overhangs and bulky calculi can tear the floss and the impacted peace of floss causes more plaque retention.

PAR-86. (E) During dental education patients should be taught how to recognize dental plaque, how to use proper tooth brushing techniques, what kind of interdental cleaning technique is the most effective and how to approach the interdental and lingual tooth surfaces.

PAR-87. (E) It is radiologically characteristic to primary occlusal traumatism: the widening of the periodontal ligament space and lamina dura. Several times cementum resorption or/and hypercementosis can be seen.

PAR-88. (B) In the treatment of the cervical root sensitivity several techniques and materials are used. Among the listed one the following can be effectively used: dentine adhesives, toothpaste containing hydroxylapatite powder and varnish with high fluoride concentration.

PAR-89. (E) A special toothpaste used for controlling root sensitivity should meet several requirements concerning safety and efficacy. It should not damage the pulp and should not irritate oral mucosa. Its effect should develop rapidly but should be durable.

PAR-90. (C) The chemical plaque control cannot substitute mechanical plaque control for a long period of time. It can only be transitorily applied if mechanical plaque control cannot be performed – e.g. after periodontal surgery. It can be used for a longer period of time in high risk patients’ adjunctive periodontal therapy.

PAR-91. (E) The adult type chronic periodontitis is very widespread all over the world. Mild attachment loss occurs in approx. 80% of the adult population, but very severe attachment loss can only be detected in the minority of adult population (approx. 15-20%) even in developing countries. Smokers’ periodontal status is significantly worse than that of the age matched non-smokers. The premenopausal women smokers periodontal status is significantly better than their smoker male counterparts. This can be contributed to the so-called bone protective effects of estrogen hormones.

PAR-92. (B) In the crevicular fluid a great amount of PMN leukocytes, desquamated epithelium cells and bacteria can be found. The plasma cells are located in the connective tissue of the pocket wall and locally produce antibodies (immunoglobulins)

PAR-93. (B) Alveolar bone resorption can be caused by continuous compressing type of forces, locally produced pro inflammatory cytokines, and PGE$_2$ and the jiggling type of occlusal forces when the suddenly changing direction of tension and compressing forces will cause a net bone resorption. Continuous tension will cause, on the contrary, a net bone formation.

PAR-94. (C) Characteristics of the common chronic gingivitis are: gingival bleeding at tooth brushing and slight swelling of the gum margin. This is not accompanied by increased severe tooth mobility or gingival ulceration.

PAR-95. (B) PMN-leukocyte functional disorder occurs in Down syndrome, Type I diabetes mellitus (IDDM) and in Papillion-Le Fèvre Syndrome. In those diseases the PMN-leukocyte functional disorder can lead to the development of severe aggressive periodontitis.

PAR-96. (A) In young ages very severe periodontal destruction can occur in patients with the systemic disorders of: a Papillion-Le Fèvre syndrome, a Chediak-Higashi syndrome, and the different forms of histiocytosis-X (e.g. Hand Schüller Chstian disease, eosinophil granuloma etc.).

PAR-97. (C) . Desquamative gingivitis is a non plaque related special condition of the attached or free gingiva accompanied with redness, erosions and epitheliuml atrophy. This can occur in pemphigus vulgaris or oral lichen planus.

PAR-98. (B) Humoral factors responsible for rapid periodontal destruction are the following: II-1 Alfa, PGE$_2$ and matrix metalloproteaz enzyme system produced by PMN leukocytes and monocytes. The platelet derived growth factor has the opposite effect as this facilitates tissue healing and regeneration.
PAR-99. (C) Gingival hyperplasia can be caused by several etiologic factors e.g. Diphenylhydantoin and Cyclosporine-A. Streptomycin and Hibernal do not cause gingival enlargement.

PAR-100. (C) Semiquantitative indices used for the assessment of calculus formation from the listed ones are: the Calculus Index of Greene-Vermillion OHI-S index and also the Volpe-Manhold index. The Loe-Sillnes index is a gingival index and Silness-Loe plaque index is also not a calculus index because it only assesses soft debris and plaque in the gingival third of the teeth.

PAR-101. (B) *Actinobacillus actinomycetemcomitans* very commonly occurs in the pockets of young individuals with localized aggressive periodontitis, produces a very potent exotoxin – leukotoxin that can inhibit the phagocytosis of the PMN cells and can facilitate the survival of the bacterium in a hostile environment. It can hardly be eliminated by conventional mechanical subgingival scaling and curettage, because in penetrates pocket wall and reside in the pocket epithelium and even in gingival connective tissue. Consequently administration of antibiotics is also indicated. The bacterium is not an obligatory anaerob rather a microaerophilic one.

PAR-102. (E) *Porphyromonas gingivalis* is a Gram-negative, obligatory anaerobic microorganism and very frequently can be detected in high numbers from pockets of individuals with chronic periodontitis. It very infrequently occurs in healthy gingival sulcus. Individuals with chronic periodontitis produce systemic antibody produced against this bacteria, and circulating anti *Porphyromonas gingivalis* antibodies can be detected from patients’ blood.

PAR-103. (A) Oral spirochetes cannot be cultivated by conventional culturing techniques. They can only be detected by special microscopic techniques. They occur in very high numbers in acute ulcerative gingivitis. They can penetrate pocket epithelium and invade connective tissue causing true bacterial invasion. The deeper the pocket the higher the percentage of spirochetes is in the subgingival biofilm.

PAR-104. (A) The bulky crowns with overhangs interfere with both professional and individual oral hygienic techniques and subgingivally the overhangs provide a chronic plaque retentive area. Consequently chronic gingivitis and periodontal attachment loss can always be detected around faulty restorations. The subgingival crown margin does not protect against secondary caries.

PAR-105. (B) A molar tooth with Class II furcation involvement can only be used as an abutment just after adequate periodontal conservative and surgical therapy if the periodontal condition is sound and predictable, the gingiva is inflammation-free, the patient is motivated with good individual oral hygiene and participates on regular periodontal recall program. In these cases only supragingival crown preparation is allowed to meet the hygienic requirements. From the preparatory technical points of view also just supragingival preparation is indicated, because in case of subgingival preparation perfect crown marginal adaptation cannot be achieved over the concave gulf of the orifice of furcation area, and inevitably an overhang would be created. Root canal therapy is not necessarily indicated just in case of tooth hemisection or dissection. Nevertheless in cases of Furcation II lesions this is infrequently the matter of choice.

PAR-106. (B) The terminology „Peridontopatogenic bacteria” is used for those groups of bacteria normally occurring in the oral cavity that are associated with the initiation of inflammation and the progression of periodontal destruction according to our present understanding. From the listed ones those types of bacteria are: *Actinobacillus actinomycetemcomitans*, *Porphyromonas gingivalis* and *Eikenella corrodens*.

PAR-107. (B) The histological picture of initial gingivitis shows marked vascular changes. The volume of the capillaries is significantly increased, they will be curled and show several signs of vasculitis. The junctional epithelium is filled with PMN leukocytes. The density of plasma cell infiltration in the subepitheliuml connective tissue is insignificant at this stage of inflammation. This will dominate the cellular infiltration at a later more advanced stage of inflammation.

PAR-108. (E) The early clinically manifest gingivitis histologically shows marked subepitheliuml T and B lymphocyte infiltration. Marked collagen loss and sparse plasmacyte cells infiltration is
also present. The junctional epithelium and the sulcus are filled with numerous PMN leukocytes.

**PAR-109. (A)** The advanced clinically manifest chronic gingivitis histologically shows marked subepithelium T and B lymphocyte and plasma cell infiltration. Marked collagen loss is also present. In gingivitis bone resorption around the alveolar crest does not occur. If this occurs than the case is initial periodontitis.

**PAR-110. (E)** The initial periodontitis histologically shows several signs of bone lacunal resorption around the alveolar bony crest and attachment loss. Consequently the junntional epithelium cells can apically migrate and the gingiva coronally detaches from the cementum. The pocket wall is filled with a grea mass of plasma cells.

**PAR-111. (A)** Several factors have a role in periodontal bone resorption, the most important of these are: PGE$_2$, and Tumor Necrosis Factor (TNF alfa) locally produced in the inflamed tissues and the bacterial endotoxin. Bradikinin is also considered as a pro-inflammatory locally produced factor, but does not play a role in bone resorption.

**PAR-112. (E)** Leukocytes in the inflamed gingiva can be either protective or destructive. They protect the tissues against bacterial invasion by their phagocytotic activity. The paramount importance of this function is clearly shown in those cases when the PMN leukocyte phagocytosis is hampered and severe aggressive periodontal destructions develops. On the other hand, the so-called lysosomal enzymes liberated during phagocytosis (like Matrix metalloproteazes) will also destroy periodontal tissue. The produced PGE$_2$ together with other factors will lead to bone resorption.

**PAR-113. (C)** Tumor-like granulation tissue can develop on the gingival margin due to excessive estrogen-progesterone production (e.g. pregnancy) and Cyclosporine-A therapy. Thrombocytopenia and lead-poisoning will not cause gingival enlargement.

**PAR-114. (E)** The oral signs of acute leukemia are: gingival enlargement, that can be associated with sever ulceration. The spontaneous gingival bleeding and pseudomembranous candidiasis (trash) on the oral mucosa is also characteristic of this disease.

**PAR-115. – (A)** A brownish-black discoloration of the gum can be caused by gingival melanosis, foreign body reaction (like amalgam tattoo) and chronic bismuth intoxication. Tetracycline will not cause discoloration on the gum. Tetracycline taken in young ages will cause sever enamel hypoplasia and discoloration of the teeth because tetracyclines as chelating agents will be incorporated into the developing dentin and enamel.

**PAR-116. (C)** Every therapy aiming at the elimination of dental plaque and plaque retentive factors are regarded as cause related periodontal treatments. Therefore, the scaling, or administration of metronidazole are cause related treatments. The guided tissue regenerative surgery or mucogingival surgery are corrective therapies aiming at the restoration of the integrity of the periodontal tissues.

**PAR-117. (E)** The timing and time sequence of the recall visits for patients who undergone comprehensive periodontal therapy are determined by several factors. The most important one is the efficacy of patient’s individual oral hygiene and the speed of calculus formation. The previously developed attachment loss is also very decisive. The chronically administered medication taken by patients should also be taken into consideration, because several drugs have periodontal side effects (e.g. Ca channel blockers).

**PAR-118. (C)** It is a bad prognostic sign if, at the end of the comprehensive periodontal therapy, the bleeding on probing scores are still high and the mobility of tooth/teeth is rather increasing than decreasing despite of the administered therapy. Only the fact that the treated teeth show increased mobility or advanced gingival recession is not a bad prognostic sign.

**PAR-119. (B)** The clinical signs of severe gingivitis are: color change, swelling of the interdental gingiva and immediate gingival bleeding on gentle probing. Gingival recession is rather a sign of the healing of gingival inflammation.
PAR-120. (D) In gingivitis the crevicular fluid contains PMN leukocytes in very high number providing protection to the deeper periodontal tissues. The amount of crevicular fluid is increasing with the severity of inflammation. Though the crevicular fluid is a true exudate it does not contain secretory Ig-A, because this is secreted by the major salivary glands (Parotid gland).

PAR-121. (E) The special tooth pastes used for controlling root sensitivity contain several active ingredients. These can be: potassium nitrate, strontium chloride or hydroxilapatite powder.

PAR-122. (B) The apically repositioned flap technique - unlike gingivectomy - will preserve keratinized gingiva and suitable to explore alveolar bony defects. One of the great advantages is its primary healing tendency. Pocket reduction can also be achieved by conventional gingivectomy.

PAR-123. (A) After vital autogenous bone grafting into vertical alveolar bony defects can occur sequestration, anchylosis and root resorption.

PAR-124. – A A singular gingival recession can be successfully corrected with free gingival grafting, biodegradable GTR membranes and subepitheliuml connective tissue grafts. The apically repositioned flap would result in an opposite effect, creating more recession.

PAR-125. (C) The therapy of a tooth with Class I furcation lesion always includes subgingival scaling and root planning, but furcationplasty can also be used. The furcation area cannot be covered with crowns. It is considered as malpractice. Bone grafting is not indicated for Class I furcations.

PAR-126. (A) One of the most important requirements that a long term periodontal splint should meet is: not to interfere with the professional and individual oral hygiene, otherwise it will negatively affect the long term prognosis of teeth. It is because mainly teeth after periodontal surgery with severe periodontal attachment loss are splinted. Therefore mostly supragingival preparation and finishing lines are indicated. The crown margin should not touch the gingival margin. The splint on the other hand should provide adequate mechanical retention and fixation to the teeth.

PAR-127. (E) The regular periodontal maintenance care means regular professional scaling supra- and subgingivally. During the recall visits the quality of previously made restoration should be monitored, and if necessary the overhangs and irregular margins should also be corrected and polished. Time should be devoted to motivate the patient and to provide oral hygienic counseling to them. In case of acute exacerbation or any sign of disease activity immediate cause related therapy should be indicated. That is the only way to prevent the further progression of periodontal disease and arrest the attachment loss.

PAR-128. (C) The high fever (38-39 °C) and gingival swelling are characteristic of acute herpetic gingivostomatitis. Though patients are not able to brush their teeth because of pain, foetor ex ore is not present and the significantly elevated white blood cell count is also not characteristic to this disease.

PAR-129. (B) The classic first generation barrier membrane used in guided tissue regeneration surgery is the expanded polietetrafluoretilen (ePTFE) membrane. This was followed by several other types of biologically degradable membranes like synthetic polyglicolic acid or polylactic acid membranes and the natural collagen.

PAR-130. (B) The periodontal surgery successfully used beta tricalcium phosphate Bio-Oss or Bio-Oss collagen bone substitute materials to fill up vertical three wall bony defects. Those are either osteo-conductive or partially osteo-inductive substances. After a shorter or longer period of time these grafts are resorbed during the bone normal remodeling process and new bone forms. The non-resorbable hydroxilapatite cannot participate in this remodeling process and always acts as a foreign body encapsulated by fibrous non-mineralized tissue.

PAR-131. (D) Cyclosporine-A and Nifedipin can cause gingival hyperplasia as a side effect.

PAR-132. (B) The most important risk factors for chronic adult periodontitis are: diabetes, IL-1 genotype and smoking among the behavioral factors. Infective endocarditis is not an etiologic
factor, rather the bacteria persisting in deep periodontal pockets can be an important risk factor in the development of infective endocarditis.

PAR-133. (C) According to the prophylactic protocols provided by heart associations 2 g amoxillin or in case of penicillin allergy 600 mg Clindamycin are to be given per os one hour prior to invasive oral therapies.

PAR-134. (E) According to a study done in 2000 by Haraszthy and co-workers all the four listed periodontopathogenic bacteria or their antigens were detected in atheroma’s plaque.

PAR-135. (E) In an active periodontal inflammation the serum PGE₂, CRP (C reactive protein), serum lipoprotein and also serum IL-8 concentrations are significantly elevated. Those systemic factors might play an important role in those associations discovered during the last decade indicating that the periodontal focus can be responsible for significantly higher incidence of cardiovascular and cerebrovascular diseases among populations with severe periodontitis.

PAR-136. (B) As dental plaque is the main cause of any inflammatory periodontal diseases the regular and effective professional plaque control is the most important element of any periodontal cause related therapy. With plaque removal the calculus formation can also be anticipated but main goal of the regular professional oral hygienic measures is not calculus prevention but rather the reduction of the vital plaque bacteria.

PAR-137. (B) The main goal of periodontal pocket surgery is to make access to the deepest subgingival regions and to eliminate plaque retentive factors. The surgery is indicated just in case of good individual supragingival oral hygiene. The reason that only individuals with good oral hygiene can be subjects for surgery is not the fact that surgery is aimed at making access to the periodontium. The case is that after surgery the postoperative pain more or less interferes with effective oral hygiene and the non-motivated patients’ worsening postoperative oral hygiene would hamper periodontal healing and would lead to further exacerbation of active disease. The motivated patients’ postoperative oral hygiene is not declining and it would guarantee an eventless healing process.

PAR-138. (B) The calculus formation can almost be anticipated with excellent oral hygiene, because if no soft dental plaque is present, this will not later calcify and will not create supragingival calculus. The surface texture, the superficial roughness of the calculus is a predilection locus for fresh dental plaque formation, but it is not the reason why calculus formation can be prevented by good oral hygiene. In this way both statements are true, but there is no relationship between them.

PAR-139. (C) The regular and effective individual oral mechanical cleaning is certainly one of the key factors of the periodontal supportive therapy, but recent data indicate that the systemic factors play a decisive roll in the development of severe destructive periodontitis, and determines its prognosis, too.

PAR-140. (C) A non-inflammatory gingival recession can develop due to traumatic effects by a coronally attached frenulum labii inferiors, which can be later aggravated by plaque accumulation and inflammation. The gingival recession was not initiated by plaque accumulation. Corrective surgery is not necessarily indicated in any case, just if other conservative methods were not effective.

PAR-141. (E). Locally used chlorhexidine mouth rinses can be used even in bad oral hygiene and this can provide a transitory relief. However, most of the chemical agents have side effects and none of them is effective against subgingival dental biofilm. Bacteriemia never develops due to the administration of oral rinses, but mechanical tooth cleaning procedures can cause transitory bacteriemia. Depending on the condition of gingiva and the depth of periodontal pockets more or less bacteria can enter the blood stream.

PAR-142.(C) Not only the treatment of patients with diabetes mellitus but every invasive periodontal treatment modality can create transitory bacteriemia, but this in most of the cases has no further severe systemic consequences. Only high risk individuals with certain cardiovascular diseases,
or immunologically compromised individuals are at a high risk to get infective endocarditis. In those cases the prophylactic protocols provided by heart associations should be administered. Diabetes from this aspect is not a high risk factor and no antibiotic prophylaxis is indicated before invasive periodontal therapy.

PAR-143. (E) Pregnancy gingivitis can be anticipated with excellent plaque control and the manifest pregnancy gingivitis can also be controlled. Pregnancy gingivitis, like other plaque related gingivitis, develops due to excessive plaque accumulation. Hormonal changes can only motivate the course of disease and the severity of inflammatory response.

PAR-144. (D) Not all the lower molars with Class III furcation lesions should be extracted. It really can occur that through the accessory or lateral canals retrograde pulpitis might develop. Sometimes the pulpo-periodontal connections can be very wide and the bacteria from the periodontal pocket can directly invade the pulp, or inflammatory cytokines can penetrate into the pulp chamber or root canal.

PAR-145. (D) If the patient’s medical history reveals past bacterial endocarditis, subgingival scaling can only be performed under antibiotic prophylaxis. Scaling can cause severe bacteriemia and in this high risk disease category the possibility is very high that another infective endocarditis develops from the spreading bacteria.

PAR-146. (C) Chronic gingivitis needs professional treatment, because several times many plaque retentive factors (e.g. calculus) are present and those cannot be removed even by the most effective tooth brushing technique. Recent epidemiological and clinical studies showed that chronic gingivitis does not necessarily progress into periodontitis and does not develop attachment loss in every cases.

PAR-147. (B) Cleaning the interdental embrasure area with dental floss is very important, because conventional tooth brushes cannot penetrate interdentally deeply enough, and chronically accumulated dental plaque will cause gingivitis originating from the interdental papilla. Acute necrotizing ulcerative gingivitis starts many times at the interdental gingiva, but this can mostly be explained by homodynamic mechanisms. The precapillary arteriole of the free gingiva and the interdental papillae are endarteriolar. The Type III immune reaction being responsible for the development of ANUG will also create microthrombolization in the blood vessels finally resulting in necrosis.

PAR-148. (A) The depth of the histological gingival sulcus is certainly not identical with the depth of the clinical pocket probing depth, because the tip of the probe always penetrates the junctional epithelium and stops somewhere within the dentogingival fiber zone. The penetration depths is dependent on the pressure applied, the inflammation and the diameter of the probe.

PAR-149. (B) The cells of the junctional epithelium are certainly oriented with their long axis parallel to the tooth surface, and they are non-keratinized cells, but the orientation of the cells is not determined by the level of keratinization. The junctional epithelium is a cuff of widened mass of flattened cuboid epithelium cells. The base of the sulcus is lined by the tips of these flattened cells.

PAR-150. (A) The total absence of the functioning PMN-cells promotes the development of an opportunistic oral infection because the innate immune protection in the gingiva is diminished. This can occur in agranulocytosis or acute paramyeloblastic leukemia. Nevertheless this process is also a local plaque related gingival lesion, and local prophylaxis and antibiotics can improve the oral signs.

PAR-151. (A) As dental plaque is tooth colored and hardly visible to the naked eye, it is difficult to present and demonstrate the presence of dental plaque to the patient. The dental plaque should be disclosed by using disclosing tablets or a solution to demonstrate it to our patients.

PAR-152. (E) Recent epidemiological studies proved that the periodontal state and average level of periodontal attachment of smokers with the same oral hygiene is significantly worse than that of the non-smokers. In smokers not only the dental plaque and calculus determine the
periodontal condition. Smoking is a major risk factor for attachment loss (blood circulation, relative immunodeficiency).

PAR-153. (A) In young ages the interdental papilla totally fills the interdental embrasure space and the most effective means of interdental cleaning is done by dental floss. The use of interdental toothbrush is not indicated if the interdental space is totally filled up by the interdental papilla. It is only recommended for those who have already encountered some attachment loss and the interdental embrasure space is open. With totally healthy periodontal attachment and tight contact points it is even technically impossible to insert the interdental toothbrush without damaging the gum.

PAR-154. (C) The periodontal probe is certainly one of the most important diagnostic instruments in the examination of the periodontal diseases, but periodontal bone loss and the morphology and severity of bony lesion can be detected and diagnosed by radiological techniques. Nevertheless the clinical pocket probing provides some information concerning subgingival bone level.

PAR-155. (E) In healthy periodontal condition the most coronal level of the alveolar crest on a radiograph is in 1.5 mm distance from the cemento-enamel junction. This gap is filled with the dento-gingival fibers radiating from root cementum to the gingiva anchoring the free gingival margin to the tooth.

PAR-156. – E. Although oral hygienic motivation and instruction should be started before professional dental treatment, but really effective technique can only be taught and carried out after complete professional scaling and polishing when no plaque retentive factors (calculus, defective restorations) are present interfering with tooth cleaning. The efficacy of professional oral hygiene is dependent on the technical skills of dentists or oral hygienists. The results of professional oral hygiene can be maintained by perfect individual home care.

PAR-157. (A) The majority of immediate postoperative complications of GTR techniques are due to premature membrane exposition. Therefore it is very important to approximate the buccal and lingual part of the gingival flaps tightly after GTR surgery. The postoperative membrane exposure leads to membrane contamination and infection hampering the healing and regenerative process.

PAR-158. (A) Localized aggressive periodontitis might associate with certain kind of PMN leukocyte defects of genetic origin. In these cases family-tree studies are indicated to detect any genetic background.

PAR-159. (B) Recent epidemiological data indicate that severe periodontal state with deep pockets in pregnant women is a major risk factor for preterm low weight birth. In periodontal infection certain proinflammatory cytokines level (e.g. IL-1) or PGE2 and also the chronic bacteriemia originating from deep periodontal pockets can directly damage the fetus and cause premature contractions leading to premature birth. Pregnancy changes the permeability of the gingival capillaries, but this has no effect on the time of birth and the birth weight.

PAR-160. (A) Recent epidemiological data indicates that the incidence of heart attack is significantly higher in middle aged males with sever periodontitis. Today the exact nature of this association is not clear, but supposedly the chronic undetected bacteriemia and bacterial toxins and products originating from the periodontal pockets will damage the endothelium eventually leading to manifest atherosclerosis. Recently the chronic infection is considered as one of the leading factors in the pathomechanism of atherosclerosis.

PAR-161. (C) If protective inflammatory reactions elicited by PMN leukocytes are taking place in the gingival connective tissue the extracellular lysosomal enzymes will directly damage periodontal tissues, but the direct inhibition of PMN reactions and functions (like granulopenia) is not protective to the tissues. In case of diminished defensive mechanisms the direct bacterial effects will dominate the course of disease and the bacterial invasion will cause gingival necrosis or very sever periodontal attachment loss. This can be observed in agranulocytosis or cyclic neutropenia or Chediak-Higashi syndrome.
PAR-162. (A) Certain genetic factors (e.g. hyperreactive monocyte phenotype) can be responsible for excessive proinflammatory cytokine and PGE$_2$ production. These individuals respond with exaggerated inflammatory reaction to bacterial stimuli comparing to negative controls. In these cases inflammatory reactions are accompanied by more severe and extensive tissue damage and attachment loss. The chronic blocking of the PGE$_2$ production by non-steroid anti-inflammatory drugs can decrease the magnitude of periodontal attachment loss. This can be observed among patients with rheumatoid arthritis taking non-steroids for several years.

PAR-163. (C) One of the side effects of Cyclosporine-A therapy is severe gingival enlargement, but not because of promoting plaque accumulation. Rather the plaque related inflammatory response is modified by the drug leading to excessive collagen production. Cyclosporine-A alters the normal turn over of gingival connective tissue, stimulates gingival fibroblasts to produce excessive collagen. Definitely, Cyclosporine-A does not promote plaque accumulation.

PAR-164. (C) Enamel Matrix Derivatives (Emdogain) certainly enhance cemento-neogenesis on the previously denuded root surface if pluripotent mesenchymal cells of periodontal ligament origin are present. Non-inflammatory gingival recession cannot be corrected by simply applying Emdogain on the root without surgery, because the applied Emdogain on the naked root surface will not stimulate regeneration without the presence of pluripotent cells.

PAR-165. (C) After surgeries with conventional epitheliumlized free gingival grafts, the original palatal epithelium on the graft will necrotize and desquamate. Only the transplanted connective tissue survives. Certainly this fact has lead to the introduction of the techniques with free subepitheliuml connective tissue graft, realizing that the transplantation of connective tissue with high collagen content will promote gingival repair. It is because on the recipient side this connective tissue is placed under the original mucosa that the hue of the new attached gingiva will match the neighboring gingiva better than with the conventional grafting that creates a scare with very pale color.

PAR-166. (A) During the prosthodontic rehabilitation of patients with severe periodontal attachment loss the ideal preparation line and crown margin placement is supragingival. The main reason is to avoid plaque retentive areas around the gingival margin. Also from a technical point of view supragingival preparation is indicated, because a lege artis crown preparation at a too thin with about 50% attachment loss at the gingival margin creates so much tooth structure loss which would lead to pulp damage.

PAR-167. (C) The Actinobacillus actinomycetemcomitans is a very virulent microaerofilic bacterium producing several toxins (e.g. leukotoxin). In aggressive periodontitis subgingival scaling and curettage are also one of the most important steps of the cause related therapy. It is proven that AA can attach to sulcus epithelium or even penetrate through the epitheliuml barrier. It can only be radically eliminated with the total curettage of the sulcus epithelium.

PAR-168. (A) It has been shown that the steroid hormones are very important growth factors of Prevotella intermedia. It is because in pregnancy gingivitis the proportion of estrogen-progesterone is significantly increased contributing to the relative overgrowth of those bacteria in the sulcus.

PAR-169. (A) One of the major disadvantages of CPITN index that it only measures pocket depth and the treatment needs are established on the basis of this parameter. Consequently in many cases periodontitis with severe gingival recessions is misdiagnosed and not assessed properly. This system is not sensitive enough and sometimes the severity of the disease is either underestimated, or overestimated.

PAR-170. (C) Gingivitis is certainly caused by excessive plaque accumulation, but besides dental plaque many other factors should be present and can be responsible for disease progression to develop destructive periodontitis with attachment loss.

PAR-171. (C) Diabetes, smoking and genetic factors are – among others – the leading risk factors for periodontitis. This means that individuals in the high risk groups with several risk factors are
more susceptible to periodontitis. Also, the dental plaque accumulation will cause more severe tissue destruction for them than in the non-risk group. Consequently the professional oral hygienic measures are even more important than in case of gingivitis.

**PAR-172. (A)** The apically repositioned flap surgery combined with ostectomy can sacrifice too much bone to eradicate periodontal bony craters and pockets. Today a 2-3 wall bony defect can be restored by guided tissue regenerative surgery and real periodontal regeneration can be achieved. Today apically repositioned flap surgery combined with ostectomy to correct deep bony defects is certainly obsolete. However, many times this technique have to be chosen as a compromise especially for financial reasons.

**PAR-173. (C)** The non biodegradable expanded polytetrafluorethilen (PTFE) barrier membranes are bio-inert materials and after their implantation no tissue irritation occurs. However, these membranes cannot be used for correcting gingival recessions because those membranes should be removed after 6-8 weeks with a second surgery and this procedure would seriously damage the gingival tissue attachment to the root and consequently the root coverage.

**PAR-174. (A)** One of the oral side effects of Ca channel blockers is the gingival hyperplasia. The extent and severity of gingival enlargement also depend on the plaque related gingival inflammation. Consequently patients on chronic Ca channel blocker medication need regular periodontal supportive therapy and professional oral hygienic therapy. With adequate supportive therapy the side effect of those drugs (e. g. Gingival enlargement) can be minimized.

**PAR-175. (C)** Periodontitis is a plaque related infectious disease with chronic inflammation. Although most of the major causative bacteria are also members of the normal oral flora (Commensal bacteria). Exogenous infective bacteria can only be detected in certain cases and only in low percentage. Periodontitis is an opportunistic infection and does not meet all the paragraphs of the classic Koch’s postulates.

**PAR-176. (B)
PAR-177. (C)
PAR-178. (C)
PAR-179. (A)
PAR-180. (B)
PAR-181. (A)
PAR-182. (C)
PAR-183. (A)
PAR-184. (A)
PAR-185. (D)** Subgingival calculus does not develop in normal sulcus without gingivitis. Its formation is preceded by gingivitis. Supragingival calculus develops in health without preceding gingivitis. Both have a hard consistency due to their mineral content. Their surface is rough and covered by plaque. Both are good plaque retentive factors. Supragingival calculus has predilection areas. Its original color is white or yellow, and it relatively loosely adheres to the tooth. Subgingival calculus has a dark color. Both can be completely removed by scaling. Formation can be inhibited by some mouth-rinse. There are special dentifrices capable of decreasing its development and mineralization, but chlorhexidine enhances calculus formation.
Both periapical and periodontal abscesses are accompanied by strong continuous pulsating pain. Both have a chronic form and may associate with systemic symptoms. Both associate with periodontal bone loss and increased tooth mobility. The periodontal abscess mainly develops from chronic periodontal pockets and the tooth can be totally vital; while periapical abscesses develop from non-vital root canals. Both can be treated with drainage, but the periodontal abscess drainage is made through the sulcus, and no gingival incision is made. Many times the periapical abscesses can be successfully treated by root canal therapy only without surgery, but several times periapical incision is indicated to solve the case.

The organic matrix of both acellular and cellular cementum is collagen fibers organized in course bundles and entering in a 45° angulation into the cementum matrix (so-called Sharpey’s fibers). The majority of the acellular cementum is formed during the root development by the pluripotent cells of the dental follicle; while cellular cementum is formed by the differentiated cementoblasts of the periodontal ligament. The cellular cementum is slowly appositionally widening during the entire life. In the cellular cementum the cementocytes are trapped into cementum lacunae. In both types of cementum certain intrinsic collagen fibers can be detected running parallel with the root surface or irregularly. However, these are only the minority of the organic mass of cementum compared to the anchoring Sharpey’s fibers.
Systemic factors play a crucial role in the development of both diseases. Desquamative gingivitis develops due to allergy or autoimmune diseases. The main causative factor of pregnancy gingivitis is dental plaque, but the clinical manifestation is determined by the hormonal changes. Consequently pregnancy gingivitis can be treated with professional oral hygiene and perfect individual plaque control and those therapies can lead to complete healing. Nevertheless oral hygienic therapy can also be effective in several desquamative gingivitis cases leading to improvement, but not total healing.

The deep vertical bony defects are characteristic to both localized or generalized aggressive periodontitis. In chronic periodontitis mostly horizontal bone loss occurs due to the slow progression and relative protective tissue reactions and structural resistance. In chronic gingivitis or hyperplastic gingivitis bone loss by definition does not occur.

Spontaneous gingival bleeding and ulceration are characteristic of acute leukemia, acute ulcerative gingivitis and ulcerative periodontitis. Spontaneous gingival bleeding can be detected without ulceration in thrombocytopenia and less frequently in haemophilia. Spontaneous gingival bleeding might occur in the active stage of localized and generalized aggressive periodontitis.

In aggressive periodontitis a great amount of Actinobacillus actinomycetemcomitans can be cultivated from periodontal pockets. Nevertheless even in aggressive periodontitis the inflammation is caused by polybacterial biofilm, and no monobacterial specific infection occurs. As in several clinical forms of aggressive periodontitis the relative proportion of gram positive cocci is very low or might be absent. Very minimal attached supragingival plaque and minimal calculus formation can be observed. Many times no clinically manifest gingivitis is present. In both clinical forms a great amount of Porphyromonas gingivalis can be found, but especially the presence of this bacteria is characteristic to chronic periodontitis. In both clinical forms certain genetic or systemic factors can be contributing risk factors. Patient's PMN leukocytes’ functions can be impaired, especially in the juvenile type of aggressive periodontitis due to chromosomal defects.
Both dental plaque and materia alba develops on the surface of acquired dental pellicle and both contains bacteria, food debris, and desquamated epithelium cells. Materia alba does not organically attach to the tooth surface and can be removed by rinsing or water spray. On the other hand, dental plaque tenaciously attaches to tooth surface. More than 99 percent of its mass is made up of bacteria and interbacterial matrix. This cannot be removed by water spray just with scrubbing.

The main source of the mineral-content of the supragingival calculus is the saliva, therefore its main predilection areas can be found near the ducts of the major salivary glands. Its color is yellowish white, but it can be discolored by pigments, nicotine and coffee. No predilection areas for subgingival calculi. Both calculi’s surface is always covered by a fresh, noncalcified plaque and therefore it is an important etiologic factor of the inflammatory periodontal diseases.

The inflamed hyperemic and edematous gingival margin, the increased crevicular fluid’s flow rate and positive bleeding on gentle probing test are characteristic to both gingivitis and chronic periodontitis. In both cases the probing pocket depth can exceed 5 mm measured from the cemento-enamel junction, since in severe hyperplastic gingivitis such deep pseudopockets can develop. Periodontal attachment loss occurs only in chronic periodontitis.

Both pregnancy gingivitis and acute ulcerative periodontitis are plaque related diseases. Both can be cured by meticulous oral hygiene. Theoretically neither can develop without the presence of the dental plaque. In acute ulcerative gingivitis the gingival necrosis is caused by the micro embolisation occurring in the gingival microvasculature. Its risk factor can be stress and smoking. If no adequate treatment is provided in time, severe irreversible gingival damage can occur. In pregnancy gingivitis there is a marked capillary hyperplasia and it is a contributing factor for gingival enlargement. There is no irreversible gingival damage in this case.
Fibromatosis gingivae is a familiar mostly inherited disease. Dental plaque accumulation does not play a role in its development. On the contrary, the fibrotic gingival tissue is quite resistant to plaque related inflammatory reactions. Its therapy is definitely surgical. In pregnancy gingivitis primarily the gingival capillary hyperplasia is responsible for the gingival enlargement, but the primary etiologic factor is dental plaque. The color of the gingiva is purple or dark red and it easily bleeds; while in gingival fibromatosis the gingival color is very pale. The therapy can be surgery, but just after meticulous professional hygienic therapy. Metronidazole (Klion) systemic administration in pregnancy is contraindicated and in familiar gingival fibromatosis is not indicated.

Both surgeries are indicated to enhance the efficacy of subgingival scaling and root planning. In both cases the first step is the internal reverse bevelled incision. Both can totally eradicate periodontal pockets although apically repositioned flap technique provides immediate pocket reduction accompanied by immediate postoperative gingival recession. With modified Widman’s flap the pocket reduction is dependent on the additional surgical interventions (e.g. GTR, bone grafting etc.) Postoperative oral hygiene is very important in both surgeries to guarantee uneventful healing and predicted postoperative results. The keratinized pocket wall in toto will not **be excised neither with Widman’s flap** nor with apically repositioned flap techniques. The Widman’s flap technique repositions the flap to its original position to the cement-enamel junction, while with apically repositioned flap techniques the new gingival margin is positioned to the given alveolar bone crestal level. Twovertical releasing incisions are necessarily made for apically positioned flaps, although it can be used for Widman’s flap as well.
Both are objective, quantitative parameters. The attachment loss measures the distance between the cemento-enamel junction and the pocket base and is totally independent from the gingival mass, the occurring gingival enlargements or recessions. The probing pocket depth totally depends on the actual gingival recession or enlargement. The decrease of probing pocket depth indicates the improvement of the periodontal condition.

Both are objective, quantitative parameters. The attachment loss measures the distance between the cemento-enamel junction and pocket base and is totally independent of the gingival mass the occurring gingival enlargements or recessions. Attachment loss almost excusably occurs with plaque related periodontitis. Although gingival recession can be caused by inflammation but also by non-inflammatory factors, like tooth malposition, frenum pull, tooth brush abuse or occlusal traumatism can also cause gingival recession. In those cases no real attachment loss occurs, because a hidden alveolar bone fenestration or dehiscence is always present under the gum line on the buccal or, less frequently, on the palatal aspect of the roots. Before the manifest gingival recession a hidden recession occurs, and the gingiva attaches to the naked root surface with very long and wide dentogingival Sharpey’s fiber system. The opposite can also occur in gingival enlargement when the gingival margin does not recede, but coronally progresses.

Both techniques are very technique sensitive and require manual skills. Both can completely cover narrow gingival recessions. The coronally positioned flap techniques combined with barrier membranes can improve vertical periodontal bony defects. In the first couple of postoperative days, the nutrition of free gingival grafts after their transfer is provided only by diffusion. Consequently their survival depends on the vascularization of the recipient area.

The non-biodegradable membrane material is primarily made of e-
polytetrafluorethilene that is essentially very bio inert material. They should be removed 6-8 weeks after surgery the with a second surgery. The membrane should be fixed to the root surface with a special suture material before closing the gingival flaps. There is also a titanium reinforced version that can be successfully used for alveolar bone augmentation. Bio degradable membranes are metabolized by the tissues therefore there is no need for a second surgery. They can be successfully applied for gingival recession correction. They have synthetic and biologically manufactured versions. Both membranes can be combined with different bone substitutes and with their application histologically proved several millimeters periodontal attachment gain can be obtained.

PAR-286.-(C)
PAR-287-(A)
PAR-288.- (C)
PAR.289.(C)
PAR-290. (D) Both are important risk factors in the etiology of chronic adult periodontitis. Directly or indirectly, both of them influence the gingival blood circulation, and the plaque and calculus formation. Diabetes has rather an indirect effect on plaque and calculus formation. Metabolically badly controlled diabetes and higher blood sugar level leads to excessive sugar excretion into the saliva that promotes the growth of initial plaque forming streptococci and consequently caries. Although in the past we believed that the negative effects of both diabetes and smoking can be eliminated with excellent oral hygiene now it is clear that the smokers and diabetics, on the same oral hygienic level, show significantly worse periodontal conditions than matched non-smoker or-non diabetic controls. Consequently the negative effects of those factors cannot be totally eliminated with excellent oral hygiene.

PAR-291.(C)
PAR-292.(B)
PAR-293.- (B)
PAR-294.(C)
PAR-295.- (C)
PAR-296. (A) Both techniques can be used for total gingival pocket elimination if true soft pockets developed due to horizontal bone loss. Nevertheless gingivectomy today is an obsolete technique for real periodontal pocket elimination. It is only indicated for the surgical correction of fibrotic gingival hyperplasia. With apically repositioned flap techniques limited alveolar bone correction can also be performed. They are also suitable to widen the keratinized attached gingiva.
Preventive Dentistry
Explanations

PRE-2 (C) Caries-frequency (prevalence) means the number of caries affected individuals, in relation to the number of individuals examined, in a given population, at the time of examination. DMF-T and DMF-S index relates to DMF-Index calculated per tooth (T) or tooth surface (S). Caries increment refers to longitudinal assessment of newly developed caries in a given period of time. Caries intensity is the mean number of caries affected teeth (DMF-Index).

PRE-3. (D) DMF–S index means calculating the number of decayed (D), missing (M) and filled (F) tooth surfaces (S). The sum of the three figures in an individual forms the DMFS-value. DMF-S index refers to prevalence data of a population, sum of values divided by number of individuals examined. See also PRE-2

PRE-4. (A) Root Caries Index is the ratio of the number of surfaces with carious lesions of the root to the number of tooth surfaces with gingival recession. See also PRE-2

PRE-5. (A) Enamel demineralization takes place below the critical plaque pH of about 5.2-5.7 (a fall in pH is due to the ingestion of sugar/lactic acid production by bacteria)

PRE-6. (E) Systemic determinant factors in caries risk are dentition and macroscopic structure of teeth, genetics, saliva, immunology factors, but ingestion of sugar relates more to socio-economic factors and level of education.

PRE-7. (B) Optimal concentration of fluorides in table salt is 250-350 mg/ kilogramms.

PRE-8. (B) Dentocar fluoride supplement pills contain 0.23 mg fluoride/tablet. Dentocar forte pills contain: 1.0 mg fluoride.

PRE-9. (A) Mouthrinse: 0.2% concentrate Na-fluoride solution (once a week, prophylactic, kindergartens, elementary schools)

PRE-10. (B) Probably Toxic Dose (PTD) of fluorides for children is: 5mg fluoride per kilogram of body weight.

PRE-11. (E) Out of According to the mostly accepted group level caries activity tests, determination of Streptococcus mutans count in plaque is the mostly reliable method. There is no need to emphasize superior importance of Streptococcus mutans from all above mentioned determinants. Saliva „acid production”- non-existing term in reality-, as acid production depends on Streptococcus mutans count as well.

PRE-12. (D) „Toothfriendly” sweets do not lower plaque pH below 5.7.

PRE-13. (C) Fructose is a caloric and cariogenic sweetener.

PRE-14. (C) End products of metabolism is are formic acid and ethanol, that are less harmful to enamel than lactic acid (sugar metabolism).

PRE-15. (D) Acceptable daily intake of sweeteners is 50-60 g. Intestinal absorption of sugar alcohols is slower than in case of sugar. Due to osmotic effects of relative higher amount of sugar alcohol in distal intestine, sweeteners can cause diarrhea.
PRE-16. (B) Polarizing microscopy of enamel with caries incipient showed the most porosity in the body of the lesion. Ratio of porosity in the periphery of the lesion: 5%, in the center of the lesion: 25%, intact enamel: 0.1%, translucent zone: 1%, dark zone: 2-4%, and surface zone: 1%.

PRE-17. (B) Chlorhexidine does not reduce acid solubility of enamel.

PRE-18. (D) Erythrosine 5%, a vital stain and coloring agent is used in dentistry for disclosure of plaque.

PRE-19. (E) When taking the OHI-S Index, debris and calculus is measured only on six tooth surfaces: upper first molars’ (16 and 26) buccal surfaces, lower first molars’ (36 and 46) lingual surfaces, 11 buccal and 31 lingual surfaces.

PRE-20. (C) Some stains and coloring agents of plaque disclosure are not widely used because they discolor teeth and oral tissues, for example: malachite-green, tartrazine, Bismarck-brown and metilénkék methylene blue.

PRE-21. (E) Maximum value of the index is 6, that is the sum of maximum Debris Index and maximum Calculus Index. The arithmetical average is counted: sum of surface values divided by number of surfaces examined. Highest value is 3 for a surface, that means (3x6) : 6= 3, for DI, and for CI as well.

PRE-22. (D) Cohen Plaque Index is used after plaque disclosure with coloring agent. Oral-Debris Index and Calculus Index make OHI-S, similar to Silness-Löe Plaque Index they do not require disclosing the plaque with any coloring agent. Russell Periodontal Index was used in epidemiologic studies of the mid 80-s for screening periodontal health conditions.

PRE-23. (E) Composite and compomer based fissure sealants are considered to be the best and it is a requirement to contain fillers (abrasivity!).

PRE-24. (E) Löe-Silness Gingivalis index, Muhlemann Papilla Bleeding Index (PBI) and Gingival Bleeding Index (Ainamo-Bay) are so called gingival indexes. CPITN Index is for monitoring periodontal treatment needs and Quigley-Hein Index is for screening oral hygiene.

PRE-25. (E) According to clinical examinations, the most effective method of plaque elimination is brushing with a medium hard toothbrush, this is recommended for healthy individuals. Contraindicated hard toothbrushes are less effective in plaque reduction and might damage soft and hard tissues. Soft, sensitive toothbrushes are recommended for patients with gingival recession or periodontal disease.

PRE-26. (B) Electric toothbrush is not an additional cleaner device, brushing with electric or manual toothbrush are the most effective methods of oral hygiene. Dental floss, hydrotherapy device, single tufted toothbrush and interdental toothbrush are additional interdental cleaners..

PRE-27. (D) Toothpastes do not contain silans. (Silan-copolimerisation – composite!) Abrasive agents, solving agents, stabilizing and bonding agents, surfactants etc. are essential components.
PRE-28. (E) Abrasive agents of toothpastes are: silicate, calcium-phosphate, aluminum-oxide and calcium-carbonate. Strontium chloride is the active substance of special medical-toothpastes for hypersensitivity.

PRE-29. (A) Ideal concentration of chlorhexidine mouthrinse is: 0, 2%. Antiplaque effect of any higher concentrate showed no significant difference.

PRE-30. (A) Conventional bite-wing technique is not suitable for diagnosing initial caries, but plays a major role in the diagnosis of approximater superficial caries.

PRE-31. (B) Maximum amount of fluoride allowed in children toothpaste is: 250-500 ppm.

PRE-32. (B) The index caries intensity is described by the following features: Caries intensity means the number of decayed teeth, expressed by DMF Index considering the number of individuals examined. Its value can be expressed for a single individual (number of caries affected teeth in relation to erupted teeth) it is the mean value of caries per capita of an examined population. See also PRE-3, PRE-4.

PRE-33. (A) Caries protective effects of Fluorine: increased resistance of enamel, pr-eeruption inside effect on tooth hard tissues, influence on the environment of the teeth (mainly in the plaque). Fluorine is an inhibitor of carbohydrate metabolizing enolase and phospho-glucos-mutase enzymes.

PRE-34. (A) Xylitol, Lycasil, Mannit are sweeteners. Elmex is an aminofluoride containing product line (toothpaste, gel, solution).

PRE-35. (B) True for sweeteners: they do not raise blood sugar level, they are not metabolized, or only partially metabolized (rate and amount lower) by oral microorganisms, they are a lot more expensive than sugar. Sweeteners have a laxative-effect, so they don’t cause obstipation. See: PRE-15.

PRE-36. (D) Values of Cohen Plaque Index: 2 = narrow plaque both on mesioapproximal and distoapproximal surface, but the two plaques are separate and 4= plaque on more than 1/3 of tooth, but less than 2/3.

PRE-37. (B) True for caries frequency: ratio of caries affected individuals in a given population, at the time of examination. Caries prevalency: ratio of caries free individuals can be expressed with it. See PRE-2.

PRE-38. (A) Characteristic of the translucent zone of caries incipient: Located between intact enamel and dark zone, not typical for all lesions, only minimal mineral loss. But However, no dark and determinate X-ray shadow.

PRE-39. (C) Indexes for caries affected primary teeth assessment: def-t and df-s. „e” refers to primary tooth indicated for extraction. There is no use of „m” because of intermediate state „s” and „t” refers to surfaces and tooth see also PRE-2. „e” stands for severe lesions and there is no straight line between „d” and „e”. df Indexet is a better choice. RCI = Root Caries Index is for screening root caries. See also PRE-4.
PRE-40. (D) Caries activity tests are: saliva buffer capacity test and salivary secretion ratio test.

PRE-41. (B) Fluorides help remineralizing caries incipient, they have a strong local remineralizing effect. Decayed enamel is a very active tissue, its fluoride uptake is faster compared to intact enamel. Decayed enamel serves as a fluoride-reservoir. Fluoride alone is not enough for remineralization, calcium and phosphate are also required.

PRE-42. (E) Main requirements of fissure sealants are: no local or systemic toxic effect, strong adhesion to enamel, thermal and mechanical properties similar to enamel, long-life in oral environment.

PRE-43. (D) No cleaning with fluoride-containing pastes, tooth surfaces are to be cleaned with fluoride-free pastes. Cleaning with a fluoride paste means local fluoride application which makes the acid conditioning less effective. It is not the fissure sealant but the enamel that is conditioned.

PRE-44. (A) Dental debris/plaque is: an aggregate of bacteria and microorganisms, that has an organic attachment to teeth and to fixed and removable dentures and only mechanical brushing can remove it. Pellicula is an unstructured, thin (0.1µm-1.0µm) layer of bacteria free glycoprotein, derived from salivary proteins.

PRE-45. (E) Health education means interactive learning and teaching methods to preserve health and develope positive manners and attitude. Attitude development applies health promotion as a method of developing knowledge.

PRE-46. (E) Methods of health education (WHO) are: personal communication, group communication, community organizsations and promoting knowledge through mass media.

PRE-47. (A) Methods of health education are: in the office (chairside) method, outside the office method and written and oral words.

PRE-48. (A) Fissure sealants are applied soon (six months) after eruption. At that time, teeth haves not yet been attacked by microorganisms for too long, time and are supposed to be caries-free (initial caries is hard to detect in the fissures!), its enamel is not „mature”, incipient caries can develop very quick, enamel layer is highly soluble to acids. There is a thin enamel layer in deep fissures and fossas, caries can quickly spread through destroyed enamel to dentin.

PRE-49. (E) Occlusal fissure relief have a high caries susceptibility because half of the fissures have an undesirable shape, with neither self-cleansing method nor optimal mechanical cleaning possibilities. Missing opposing tooth contact increases plaque accumulation until final occlusion develops. Enamel after eruption is not enough matured in the pits and fissures, and it has a lower fluoride content. On smooth surfaces fluorides are highly effective in reducing decay but fluoride is not nearly as effective in the pits and fissures.
PRE-50. (C) Micro-retention and surface enlargement are the reasons for conditioning when fissure sealants applied.

PRE-51. (D) „Mature” plaque is about 3 weeks (21 days) old and its microorganism content is stable.

PRE-52. (D) Methylene blue and acid fuchsin are coloring agents suitable for plaque disclosure of iodine sensitive individuals.

PRE-53. (D) Cohen Plaque Index is preferred for taking the oral hygiene status, because, it considers chronology and topography of plaque accumulation and it is taken on every tooth buccal and oral surface (more reliable data).

PRE-54. (E) Fluorides’ effects on enamel are: decrease in acid solubility, strengthening mineral structure, remineralization of demineralised regions, increase in micro-hardness.

PRE-55. (A) Cancer, mongolismus, osteoporosis are not side effects of fluoride prevention. High fluoride consumption can cause fluorosis dentium.

PRE-56. (E) Surface zone, body of the lesion, dark zone and the translucent zone all have less mineral content.

PRE-57. (E) Fluoride toothpastes can contain all four components.

PRE-58. (C) Xylitol, sorbitol are caloric sweeteners. Aspartam and Saccharin are non-caloric sweeteners.

PRE-59. (B) Only „cheap to produce” is not true. See also PRE-34

PRE-60. (A) Except for sodium, all the ions can be built in enamel through remineralisation.

PRE-61. (B) Characteristics of caries incipient: dissolves mineral salts, located only in enamel and hard to detect in case of fissure or approximal caries.

PRE-62. (A) Possible side effects of chlorhexidine: excessive keratinization of oral soft tissues, discoloration of lingual piliform papillae and taste sensing dysfunction. See also: PRE-17, PRE-29.

PRE-63. (A) Main features of def Index (primary teeth assessment) are that its value equals with dmfs, shows caries intensity, „e” stands for severe lesions and there is no straight line between „d” and „e”, so using the df Index is a better choice. Its value does not mean primary tooth decay prevalence, because prevalence means frequency. See also: PRE-2, PRE-3, PRE-37, PRE-39

PRE-64. (E) Relation between caries and diabetes mellitus: caries activity is higher in children with manifestating diabetes compared to the control group. Caries intensity improves in children treated with insulin and sugar free diet, decrease in caries intensity proves cariogenic role of carbohydrates. Inflammation level of gingivitis does not show any correlation to blood sugar level.
PRE-65. (E) Chewing gum increases saliva secretion rate, it helps to reduce risk of caries. Chewing gum with sugar gives an extra sugar load and adds to caries increment. Chewing sugar-free chewing gums after meal neutralizes acids and increases plaque pH. Chewing sugar free chewing gums (Xylitol, Sorbitol) after meals is recommended. See also: PRE-12, PRE-13, PRE-34.

PRE-66. (A) Nutriments influence teeth in two different ways: pre-resorption effect means a local effect on the environment of teeth, post-resorption effect means systemic influence after resorption. Pre-resorption effect occurs previous to dentition, that is how vitamins work: deficiency of vitamin A causes ameloblast s, deficiency of vitamin C causes odontoblastic degeneration.

PRE-67. (B) The statement and justification are separately true, there is no relation inbetweent them, reversibility of initial caries has got nothing to do with odontoblasts. See also: PRE-16, PRE-38, PRE-61.

PRE-68. (A) Recovery of approximatel incipient caries can be controlled with digital radiography, because remineralisation makes a change in tooth density. Ultrastructure of remineralised/recovered caries can be described with less prisms than before but prisms are wider with higher density. Conventional techniques are not suitable for detecting incipient caries.

PRE-69. (A) CLSM-technique is a non invasive microscopic method for observing outer 0,1mm layer of enamel, structure of the enamel prisms can be examined from all directions.

PRE-70. (C) Shallow, wide open fissures of flat cusp occlusal morphology is the only contraindication of fissure sealing – the statement is true, but the problem is not the life time of fissure sealing. Sealing here is unnecessary because self cleansing and mechanical cleansing of these fissures is possible. See also: PRE-42, PRE-43, PRE-49, PRE-50.

PRE-71. (E) The statement and justification are not correct, because in the remineralization process crystal structure is built over, minerals precipitate, crystal growth occurs. Remineralized enamel is more resistant to acid attacks and it has less, but wider and more resistant prisms.

PRE-72. (A) The statement and justification are both correct and there is a connection between them. See also PRE-66.

PRE-73. (A) The statement and justification are separately correct, and the justification prooves the statement - chocolate coated sweets are less cariogenic because of higher percentage of fat in cocoa butter.

PRE-74. (C) Caries protective effect of fluorides is well known but caries is not a fluorine deficiency. Fluorides alone can not prevent caries. Thus the justification is false. See also PRE-33, PRE-55.

PRE-75. (A) Fluorides reduce acid solubility of enamel because in the presence of fluorides partly fluoro-apatite crystals grow in enamel instead of hydroxy-apatite ones. Hard tissues of teeth are
directly influenced by this effect. In the presence of fluorides hydroxy-apatite of enamel converts to fluoro-apatite, because hydroxyl ions and fluoride ions are isomorphic substitutes. See also PRE-33, PRE-55, PRE-74.

PRE-76. (A) When fluorosis dentium happens, 5-6 ppm drinking water fluoride concentration is an etiologic factor of severe fluoroses. Microscopic examination shows ameloblast development dysfunction and their enamel-matrix apposition and mineralisation not functioning either. See also PRE-55.

PRE-77. (C) Children under the age of 4-5 year can swallow fluoride solutions (reasonable amount of fluorides, for example 0.2% NaF solution). Thus the statement is true, but the justification is incorrect.

PRE-78. (A) Iontophoresis devices use electric current source to make the fluoride ions of fluoride gels put in impression trays penetrate into enamel. The effectiveness is not yet confirmed.

PRE-79. (A) In case of incipient caries, saliva can penetrate to the body of the lesion (through the water–protein matrix) into the interprismatic layer. (That way in the remineralisation process, saliva’s calcium and phosphate ions can precipitate on the surface of the prisms.

PRE-80. (A) Out of sweeteners: Xylitol is not metabolized, and Sorbitol is only partially metabolized (rate and amount lower) by oral microorganisms. Formic acid and ethanol produced is less cariogenic than lactic acid of sugar metabolism. There is no extracellular polysaccharide production. They also reduce adhesion of microorganisms and the plaque.

PRE-81. (A) Sorbitol is a toothfriendly sweetener, there is no Streptococcus mutans extracellular polysaccharide production after consumption. See also: PRE-12, PRE-35, PRE-59, PRE-81.

PRE-82. (C) Sugar alcohols can cause diarrhoea due to osmotic effects, the statement is right, but the intestinal resorption is slower than in case of sugar.

PRE-83. (D) Permanent use of chlorhexidine increases keratinisation of oral mucosa and it can cause methaplasia, disclores teeth, dental plaque and acquired pellicula brown. See also: PRE-17, PRE-29, PRE-62.

PRE-84. (A) The statement is true, the justification is correct, the justification verifies the statement.

PRE-85. (A) Chewing sugar-free gum after meals helps remineralisation because it can neutralise plaque acid pH and remineralise incipient enamel lesions.

PRE-86. (C)
PRE-87. (B)
PRE-88. (D) – „Dentocult SM” Strip is for assaying plaque and salivary Streptococcus mutans level. See also PRE-11.
Pre-89. (B)
Pre-90. (D)
Pre-91. (B)
See also Pre-12, Pre-34, Pre-59, Pre-81, Pre-82.

Pre-92. (B)
Pre-93. A
Pre-94. (B)
Pre-95. D
See also Pre-33, Pre-55, Pre-75, Pre-76.

Pre-96. (C)
Pre-97. (B)
Pre-98. (A) See also Pre-43, Pre-49, Pre-50, Pre-70

Pre-99. (B)
Pre-100. (A)
Pre-101. (C) See also Pre-20, Pre-22.

Pre-102. (B)
Pre-103. (A)
Pre-104. (D) See also Pre-24.

Pre-105. (A)
Pre-106. (D) In the initiation of caries Lactobacilli are not producing acid, but they are acid-tolerant bacteria of caries, they multiply at pH 4, produce lactic acid and increase demineralisation. They are not that much involved in the initiation but the progression of caries. In spite of higher Candida albicans count in decayed dentin, there is still a question about their cariogenity.

Pre-107. (B)
Pre-108. (C)
Pre-109. (D) Dark- and translucent zones are in caries incipient, which is an enamel lesion. Front line of the lesion is the translucent zone with intact enamel under it.

Pre-110. (A)
Pre-111. (D)
Pre-112. (C) See also Pre-19, Pre-22, Pre-24.
Impantology
Explanations

IMP-1. (E) Implant is not inserted into the tooth. Alloplastic material, inserted into the tooth, which restores the destructed parts of the tooth, is not considered to be an implant.

IMP-2. (C) Custom made subperiosteal implant should be made of a material which has a reasonable strength, corrosion resistant and can be easily processed by the traditional dental technological methods.

IMP-3. (A) The exostructure of the implant is the part of the implant which extends into the oral cavity. The body of the implant, the endostructure is the part of the implant between the apical part and the gingival finish line, the piece in the bone and the soft tissue.

IMP-4. (E) The Osteoplate 2000 is a blade type implant, a so called two-dimensional implant, with other words it is a sample of the extension implants.

IMP-5. (B) Horizontal forces should also be distributed, it can neither be used in the support nor in the retention.

IMP-6. (C) The expression of osteointegration (bony integration) was introduced in the literature by Branemark in 1977. Not only light microscopic but also ultrastructural (electronmicroscopic) evidence of it has been proven.

IMP-7. (D) This expression was formulated, introduced and defined on the Congress of the European Society for Biomaterials in 1986.

IMP-8. (D) The blade shape implants, belonging to the endosteal type implants, are the extension implants. See also E-4.

IMP-9. (B) The average diameter of the cylindrical or the screw type implants is in this given range.

IMP-10. (A) In this given clinical situation (the number of the implants is not enough) neither a fixed bridge nor a hybrid prosthesis would be able to provide satisfactory prosthetic result. Considering the atrophy of the maxillary edentulous ridge, the overdenture is the most suitable solution, because the path of insertion of the implants, the need for the support of the soft tissues and
the esthetic and phonetic requirements can be fulfilled many often times only with this kind of appliance

IMP-11. (B) Iron-sulfate is not the inorganic material of the bone tissue.

IMP-12. (E) The D1 bone tissue is very dense, it can be most often found between the two foramen mentales. It is most probably formed by the muscle attachments and the torsion forces.

IMP-13. (C) Intramuscular implant is not employed in the oral cavity.

IMP-14. (C) Titanium is the most widely known metal among the bioinert materials.

IMP-15. (D) Ultrasound is used for cleaning only, and not for surface treatment of implants.

IMP-16. (D) The package of the implant is in connection with sterility (aseptic storage), the recently used implants completely fulfill the recent sterility requirements.

IMP-17. (E) the others are only relative contraindications

IMP-18. (A) the others are used much more rarely

IMP-19. (A) it is the actual value!

IMP-20. (C) The main indication field of the blade shape implant, employed in the lateral region of the mandible, is the narrow edentulous ridge.

IMP-21. (C) Mainly resilient impression materials are used in case of screw retained prosthetic appliances. Compound and zinc-oxide eugenol are rigid impression materials but their characteristics does not make their use possible in this field.
IMP-22. (D) Neither the metal stock tray nor “the special tray, made in the laboratory” allow the removal of the transimplant screw of the transfer abutment.

IMP-23. (D) These appliances make the guided sinking of the removable prosthesis possible and the overloading of the implants can be prevented by the help of the these prostheses.

IMP-24. (C) The overloading of the implant can be prevented in this way.

IMP-25. (B) The diameter of the crown, which is to be made onto the implant, at the gingival margin depends on the diameter of the inserted implant.

IMP-26. (A) The laser surface treatment of the implants is not a cheap method.

IMP-27. (E) Every time point can be appropriate.

IMP-28. (C) Computer tomography is not a cheap method and it is accompanied by a high dose of irradiation.

IMP-29. (D) The main indication of the measurement with metal pellets is the calculation of the distance of the edentulous ridge from the mandibular canal or from the maxillary sinus.

IMP-30. (A) Development of the jaws is already completed by the age of 18 years.

IMP-31. (E) Every drill is used.

IMP-32. (C) Osseointegration can be enhanced, but can not be not hindered by the bone grafting material or by the presence of a wide, extended tight mucosa.

IMP-33. (A) The short bounded saddle does not belong to a separate topographical class according to the Brinkmann classification.

IMP-34. (B) Connective tissue may not develop during the osseointegration. Not mesh-like fibrous connective tissue, but mesh-like fibrous bone is formed during the 2-6 weeks of the healing process of the injured bone. The preformed collagen tissue matrix transforms into bone tissue.

IMP-35. (D) These are real data!

IMP-36. (A) Lingual movements do not influence the atrophy of the jaw bone.

IMP-37. (C) Transdental implantation cannot recover the extensive periodontitis involving more teeth. Root canal filling can be corrected.

IMP-38. (E) All the listed examination have to be carried out.

IMP-39. (D) Bio glass is a bioactive material. plastic belong to the biotolerant materials.

IMP-40. (A) It is not necessary to carry out computer tomography routinely in every year.

IMP-41. (A) This is a real data, different kinetic behavior of the abutments as well as the clinical experience supports this written statement.

IMP-42. (A) The diameter of the implant is always smaller in size than the diameter of the clinical crown, therefore torsion forces may be detected in single tooth replacement restorations. To compensate torsion, anti-rotation abutments are used.

IMP-43. (C) Direct impression can be taken by a special tray, but zinc-oxide-eugenol is not a suitable material.

IMP-44. (C) Anchorage of the osseointegrated implant can be called ankylotic, but this fact itself does not make the use of the stress breakers necessary in every case.

IMP-45. (C) See the previous question (IMP-44.) regarding this statement. There is not osseointegration yet in case of the immediately loaded implant, thus it can not be considered as an ankylotic anchorage. The necessary preconditions of the immediate loading are: the good primary stability of the implant, distributing the load by splinting, and the reduction of the micro movements, occurring during function to a minimum.

IMP-46. (B) The terminology is not in connection with the function.

IMP-47. (C) Dental implants are open type implants.

IMP-48. (E) The time of the subperiosteal implants is up.

IMP-49. (C) Metallosis sets biocompatibility back.
IMP-50. (D) Intraoral radiographic image is taken occasionally only.
IMP-51. (A)
IMP-52. (B)
IMP-53. (B)
IMP-54. (C) The endosteal implant is always inserted into the bone, while the subperiosteal implant is placed between the mucosa and the bone. Nowadays negligibly low is the number of the subperiosteal implants. Subperiosteal implants are made of corrosion resistant (biotolerant) materials. Since both of them are metals, they are radiopaque materials.
IMP-55. (B)
IMP-56. (A)
IMP-57. (D)

**IMP-58** (C) In case of plasma spray, the surface of the implant is coated by a titanium-hybrid powder, in case of sand blasting solid aluminum oxide particles are forced across the surface. Metallosis is conformed by observations it is a real data. To the material-transport-free methods belong those surface finishing techniques, which do not use any material to treat the surface. Plasma spray and sandblasting are the most commonly used surface finishing methods.

IMP-59. (C)
IMP-60. (B)
IMP-61. (A)
IMP-62 (D) Loadability is independent from the number of the operation phases. Nowadays the two phase implantation is the most common method, this is a real data. During the one-phase implantation method the transgingival part of the implant is inserted immediately into the oral cavity at the same time. One-phase implantation technique requires one operation, while two-phase implantation method requires two operations.

IMP-63. (C)
IMP-64. (B)
IMP-65. (C)
IMP-66. (A) Drills can help with the determination of the hardness of the bone in a practiced hand. Twist drill extends into the bony bed, thus it can help with the assessment of the parallelism. Bone can easily be necrotized, without using a cooling fluid during the preparation. Twist drill may only have a spiral form..

IMP-67. (A)
IMP-68. (B)
IMP-69. (C)
IMP-70. (C) Titanium and tantalum are bioinert materials. Hydroxi apatite and tricalcium-phosphate are bioactive materials. Titanium, tantalum and also the hydroxi apatite can be porous. Occasionally titanium implants are coated by hydroxi apatite.
IMP-71. (A)
IMP-72. (A)
IMP-73. (B)
IMP-74. (B) In case of bounded edentulous saddles and free end saddles, it is possible to make a bridge, supported and retained only on implants. In this case, all the implants have the same reaction to the occlusal load, since all of these implants have an ankylosic anchorage in the bone. Nevertheless, sensory nerve endings of the periodontium are missing. If natural teeth as well is involved into the
fixed restoration, then certainly less implant is ought to be inserted, and the natural teeth should also be prepared.

IMP-75. (C)
IMP-76. (C)
IMP-77. (C)
IMP-78. (C) The advantages of the overdenture prostheses are that the operator can simply accommodate with wide boundaries to the jaw relations when outlining the dental arch, they are easier to be kept clean compared to the fixed appliances. Their disadvantage is that patients do not prefer them. Since fewer implants are required for overdentures, than in case of bridges, it is accompanied by less uncomfort associated with the operation.

IMP-79. (C)
IMP-80. (D)
IMP-81. (B)
IMP-82. (C) Crown can be retained by luting cement and screw anchoring too. Both of the solutions are suitable for restoring a single tooth, short bounded saddles and free end saddles, when osseointegrated implants or a cylindrical type screws restore all the missing teeth without splinting, only single crowns are fabricated. Hybrid prosthesis should be made in case of complete edentulousness. Bridge with mixed retention (tooth and implant) should be made only in cases when not every missing tooth can be replaced by implants.

IMP-83. (A)
IMP-84. (C)
IMP-85. (C)
IMP-86. (C) Impressions in the clinical practice are taken by ‘closed’ stock trays or by special trays individually formed in the dental laboratory. The most commonly used impression materials are the silicones, the polyether, and the poly-sulphides, those materials together form the group of the elastomeric impression materials. In the implant prosthodontic practice, both of the impression-taking methods are used.

IMP-87. (A)
IMP-88. (B)
IMP-89. (C)
IMP-90. (A) mucosa born denture, anchored by a ball and socket attachment is fabricated in those cases, when the number and the localization of the inserted implants do not allow of a mesostructure improving the condition of the denture’s support and retention. If the number and the location of the implants are favorable, then they can be connected by a bar. In this case, the support and the retention of the prosthesis are provided by the implants in different extent. It is possible to use the ‘closed’ or the ‘open’ tray indirect method for impression taking in both cases.