

**EXAM QUESTIONS
PHARMACEUTICAL MICROBIOLOGY**

Faculty of Pharmacy

2019-2020, 2nd semester

I.

1. The science of microbiology: history, famous microbiologists, classification
2. Size and shape of bacteria, structure of bacterial cell
3. Bacterial metabolism (nutrients, oxygen), replication; growth curve
4. Cultivation of bacteria, different culture media
5. Biochemical activity of microbes and its use in diagnostics
6. Microscopic examinations, staining procedures
7. Theory and practice of sterilisation
8. Theory and practice of disinfection. Mode of action of disinfectants
9. Microbiological requirements for medicaments, conservation, sterility control
10. Mode of action of antibiotics: cell wall inhibition and membrane destruction
11. Mode of action of antibiotics: inhibition of protein and nucleic acid synthesis
12. Antibiotic resistance of bacteria
13. Determination of antibiotic susceptibility in the laboratory
14. Targeted and empiric therapy. Combinations of antimicrobial agents. Possible side effects
15. Possible ways of horizontal gene transfer
16. Infections: source, transmission, entry, outcome, etc.
17. Definitions of pathogenicity and virulence; measurement of virulence; virulence factors
18. Description and comparison of exotoxins and endotoxin
19. Host defence mechanisms against microbes: specific and aspecific immunity
20. Hypersensitivity reactions
21. Principles and possibilities of active and passive immunisation
22. Obligatory vaccines in Hungary
23. Non-obligatory vaccines in Hungary
24. Principles and methods of diagnosing infectious diseases
25. Significance of serological reactions in microbiological diagnostics
26. Significance of gene technology in pharmaceutical industry. Medicaments produced by microorganisms
27. Microbes causing respiratory infections
28. Microbes causing diarrhoeal infections
29. Microbes causing infections of the central nervous system
30. Microbes causing congenital infections
31. Nosocomial infections and the most important pathogens
32. Infections transmitted by insect vectors
33. Zoonotic infections

II.

1. *Staphylococcus aureus*: morphology, virulence factors, diseases, resistance
2. Coagulase-negative staphylococci: major species and infections caused by them
3. *Streptococcus pyogenes*
4. *Streptococcus agalactiae*
5. *Streptococcus pneumoniae* and the viridans streptococci
6. Enterococci: major species and infections caused by them
7. Neisseria genus: major species and infections caused by them
8. *Escherichia coli*
9. Klebsiella-Enterobacter-Serratia group and Proteus genus (major species and infections caused by them)
10. Salmonella genus and the different diseases caused by them
11. Shigella genus
12. Vibrio genus
13. Campylobacter and Helicobacter
14. Corynebacteria
15. Mycobacteria
16. Pseudomonas genus
17. Haemophilus genus
18. Vaccines against encapsulated bacteria
19. Legionella and Bordetella genus
20. Brucella and Francisella genus
21. Yersinia and Pasteurella genus
22. Listeria and Lactobacillus genus
23. Significance and process of spore formation. Spore forming bacteria (list)
24. Bacillus genus: major species and infections caused by them
25. *Clostridium tetani* and *C. botulinum*
26. Gasgangrene clostridia and *Clostridium difficile*
27. General characterisation of Spirochaetes. Leptospira genus
28. Treponema genus: major species and infections caused by them
29. Borrelia genus: major species and infections caused by them
30. Mycoplasma genus
31. Rickettsia genus
32. Chlamydia genus
33. Sexually transmitted bacterial infections (STDs)

III.

1. General characterisation of viruses (structure, size, classification)
2. Cultivation of viruses. Steps of viral multiplication
3. *In vitro* interactions of host cells and viruses
4. Laboratory diagnosis of viral diseases
5. Antiviral chemotherapy
6. Prevention of viral diseases
7. General description of Adenoviruses and the diseases caused by them
8. General description of Parvo- and Poxviruses and the diseases caused by them
9. Herpesviruses: HSV-1, HSV-2, VZV
10. Herpesviruses: EBV, CMV, HHV-6, HHV-7, HHV-8
11. General description of Papillomaviruses and the diseases caused by them
12. General description of Picornaviruses and the diseases caused by them
13. General description of Orthomyxoviruses and the diseases caused by them
14. General description of Paramyxoviruses and the diseases caused by them
15. General description of Flaviviruses and the diseases caused by them
16. General description of Hepatitis viruses and the diseases caused by them
17. General description of Rota- and Caliciviruses and the diseases caused by them
18. General description of Togaviruses and the diseases caused by them
19. General description of Corona- and Filoviruses and the diseases caused by them
20. Most important arbo- and reoviruses
21. Retroviruses. AIDS
22. General description of Rhabdoviruses and the diseases caused by them
23. Oncogenic viruses
24. Slow virus infections and prions (most important diseases)
25. General description and laboratory diagnosis of fungi
26. Antifungal agents
27. Dermatomycoses (examples)
28. Systemic mycoses. Opportunistic mycoses (examples)
29. General description of protozoa, classification; anti-protozoal agents
30. Intestinal and body cavity protozoa. Most important species
31. Blood and tissue protozoa. Most important species
32. General description of helminths, classification; anti-helminthic agents
33. Most important intestinal helminths