

***Microbiology final examination  
List of topics for medical students 2022/2023.***

1. Gene transfer in bacteria
2. Nosocomial and iatrogenic infections
3. Pathogenicity and virulence of microorganisms (Koch's postulates; classical and molecular postulates)
4. Beta-lactams
5. Active immunization
6. Bacterial cytoplasmic membrane, cytoplasm and nucleoid
7. Passive immunization
8. Nontoxic virulence factors
9. Exotoxins
10. Chemotherapy of infections by mycobacteria
11. Immune response to viruses
12. Endotoxins
13. Quinolones and fluoroquinolones
14. General principles of usage of antibiotics, selective toxicity, therapeutic index
15. Immune response to fungi and parasites
16. Resistance of bacteria to antimicrobial drugs. Development and mechanisms of resistance
17. Sulfonamides and trimethoprim
18. Macrolides, lincosamides, ketolides and streptogramins
19. Shape and size of bacteria, structure of prokaryotic cells
20. Immune response to extracellular and intracellular bacteria
21. The cell wall of bacteria
22. Glycopeptides, fosfomycin, bacitracin
23. Aminoglycosides and tetracyclines
24. Cultivation of bacteria. Phases of the bacterial growth
25. Rifamycins, nitroimidazoles, nitrofurans
26. Inhibitors of cytoplasmic membrane function
27. Nonessential bacterial components
28. Chloramphenicols, oxazolidinones, mupirocin, fusidic acid
29. Mutations of bacteria
  
30. *Treponema pallidum* and other *Treponema* species
31. *Campylobacter*
32. *Streptococcus pyogenes*
33. *Staphylococcus aureus*
34. Lyme disease
35. *Bartonella*
36. *Neisseria gonorrhoeae*
37. *Chlamydia trachomatis*
38. *Mycoplasma*
39. *Helicobacter pylori*
40. *Yersinia enterocolitica*
41. Atypical mycobacteria
42. *Francisella tularensis*

43. *Neisseria meningitidis*
44. HACEK group
45. *Streptococcus pneumoniae* (Pneumococcus)
46. Brucellae
47. *Pseudomonas aeruginosa*, *Burkholderia mallei*
48. *Stenotrophomonas* genus
49. *Actinomyces israelii*, *Lactobacillus*, *Mobiluncus*, *Nocardiae*
50. Klebsiellae, *Proteus*, *Morganella*, *Providencia*
51. *Yersinia pestis*
52. *Haemophilus influenzae* and other *haemophilus* species
53. Shigellae
54. Salmonellae causing enteric fever
55. *Coxiella burnetii*
56. Salmonellae causing enterocolitis
57. *Bordetella pertussis*
58. Histotoxic clostridia. *Clostridioides difficile*.
59. *Chlamydia psittaci*, *Chlamydia pneumoniae*
60. Leptospirae
61. *Listeria monocytogenes*, *Cutibacterium acnes*
62. Coagulase-negative staphylococci
63. Relapsing fever: etiological agents and disease
64. *Escherichia coli*
65. *Vibrio cholerae* and other *Vibrio* species
66. *Bacillus anthracis*, *Bacillus cereus*
67. Rickettsiae of the typhus group
68. *Legionella pneumophila*
69. *Mycobacterium tuberculosis*
70. *Streptococcus agalactiae*, viridans streptococci, *Enterococcus faecalis*, *Peptostreptococci*
71. Neurotoxic clostridia
72. *Bacteroides*, *Prevotella*, *Porphyromonas*, *Fusobacterium*
73. *Corynebacterium diphtheriae* and other *Corynebacterium* species
74. Biological characteristics of rickettsiae. The spotted fever group. *Orientia tsutsugamushi*
  
75. Rubella virus
76. Oncoviruses
77. Adenoviruses
78. SARS-CoV-2 (Severe acute respiratory syndrome coronavirus 2)
79. Hepatitis B virus
80. Poxviruses
81. Pathomechanism, clinical manifestations and therapy of AIDS
82. Human pathogenic parvoviruses
83. Rhabdoviruses
84. Human (gamma) herpesvirus 5 /Cytomegalovirus/
85. The viruses of yellow fever and dengue fever
86. Human (alfa) herpesvirus 3 (varicella-zoster virus)
87. Human (beta) herpesvirus 4 /Epstein-Barr virus/
88. The aetiology and epidemiology of AIDS
89. Antiviral chemotherapy. Viral interference and interferon
90. Papillomaviruses

91. Human herpesvirus 6, 7 and 8
92. Retroviruses
93. Conventional slow virus infections
94. Replication of viruses
95. Echoviruses and other enterovirus types (68-71)
96. Hepatitis A and E viruses
97. Human (alfa) herpesvirus 1 and 2
98. Orthomyxovirus influenzae
99. Polioviruses
100. Flaviviruses causing encephalitis. Alphaviruses
101. Arenaviruses
102. Structure and morphology of virions, chemical composition of viruses
103. Filoviruses, bunyaviruses
104. Respiratory syncytial virus, mumps virus and other paramyxoviruses
105. Rhinoviruses, coronaviruses
106. Parainfluenza virus, measles virus
107. Characteristics of nonconventional viruses (prions) and prion diseases in human and animal
108. Polyomaviruses
109. Hepatitis C (HCV) and hepatitis Delta virus (HDV)
110. Reovirus, calicivirus, astrovirus
111. Coxsackieviruses
112. Opportunistic infections in AIDS patients
113. Classification of viruses. Resistance of virions to physical and chemical agents
114. Congenital viral infections
  
115. Fungi of systemic mycoses
116. Trypanosomes and leishmania species
117. Therapy of parasitic infections
118. Fungi of superficial and subcutaneous mycoses
119. Causative agents of malaria
120. General properties of fungi
121. Fungi of opportunistic mycoses
122. Dermatophytes and dermatophytoses
123. General properties of protozoa
124. *Toxoplasma gondii*
125. *Cryptosporidium* species
126. *Giardia lamblia*, *Trichomonas vaginalis*
127. *Entamoeba histolytica*
128. *Enterobius vermicularis* and *Trichinella spiralis*
129. *Strongyloides stercoralis* and schistosomes
130. *Ancylostoma duodenale*, *Necator americanus*
131. *Fasciola hepatica*, *Toxocara cati*, *Toxocara canis*
132. *Ascaris lumbricoides* and *Trichuris trichiura*
133. General properties of helminths
134. *Taenia solium*, *Taenia saginata*, *Hymenolepis nana*
135. Therapy of fungal infection
136. *Echinococcus granulosus* and *Echinococcus multilocularis*
137. *Naegleria* and *acanthamoeba* species

***Microbiology final examination***  
***List of practical-topics for medical students***  
**2022/2023**

1. Methods for sterilization and their practical application.
2. Disinfectants and disinfection in practice.
3. Microscopic examinations of unstained specimens for morphological studies.
4. Preparation of bacterial smears, simple staining.
5. Gram staining and Ziehl-Neelsen (acid-fast) staining.
6. Neisser staining, spore staining.
7. Categories of culture media. Colony morphology of bacteria.
8. Selective media.
9. Differential media.
10. Methods for counting bacteria.
11. Sterility and pyrogenicity tests.
12. Cultivation of viruses.
13. Quantitation of viruses.
14. Serological reactions in viral diagnosis.
15. Laboratory diagnosis of viral infections.
16. Phage titration, phage typing.
17. Precipitation and its diagnostic application.
18. Agglutination and its diagnostic application.
  
19. Biochemical tests related to intracellular enzymes of bacteria.
20. Biochemical tests related to extracellular enzymes of bacteria.
21. Differential diagnosis of cocci on the bases of their morphology and cultural characteristics.
22. Collection and examination of specimens deriving from anaerobic infection. Anaerobic culture techniques.
23. Bacteriological examination for specimens of the throat, sputum, nasopharynx and ear.
24. Bacteriological test of the urine and specimens from urethral and vaginal secretion.
25. Bacterial examination of the blood. Preparation and evaluation of haemocultures.
26. Bacteriological examination of pus, wound secretion, puncture and liquor.
27. Bacteriological examination of faeces.
28. Laboratory diagnosis of mycoses.
29. Laboratory diagnosis of diseases caused by parasites.
30. Serological diagnosis of typhus abdominalis.
31. Serological methods for diagnosis of syphilis.
32. Molecular methods in the diagnosis of infectious diseases.
33. Immunofluorescence. ELISA. Western-blot.
34. Quantitation and modification of virulence.
35. Antimicrobial susceptibility testing.
36. Bacterial identification by MALDI-TOF