INTEGRATED ACADEMIC STUDIES OF MEDICINE
Course: MICROBIOLOGY
Examination questions for the oral part of the examination

GENERAL BACTERIOLOGY

1. Morphology and structure of the bacterial cell
2. Bacterial cell wall
3. Flagella and fimbriae of the bacterial cell
4. Bacterial cell spores, sporulation and germination
5. Growth and multiplication of bacteria
6. Bacterial cell metabolism and molecular oxygen
7. Effect of physical and chemical agents on bacteria
8. Antimicrobial agents – mechanisms of action
9. Mechanisms of bacterial resistance acquisition to antimicrobial agents
10. Phenotypic variations of bacteria
11. Genotypic variations of bacteria
12. Plasmids, transposons and insertion sequences
13. Bacteriophage
14. Transfer of genetic material in bacteria
15. Pathogenicity and virulence of bacteria
16. Bacterial toxins

SPECIAL BACTERIOLOGY

1. *Staphylococcus spp.*
2. *Streptococcus spp.*
3. *Streptocooccus pyogenes*
4. *Streptocooccus pneumoniae*
5. *Neisseria meningitidis*
6. *Neisseria gonorrhoae*
7. *Haemophilus spp.*
8. *Bordetella pertussis*
9. *Brucella spp.*
10. *Francisella tularensis*
11. *Legionella pneumophila*
12. *Salmonella spp.*
13. *Shigella spp.*
14. *Escherichia coli*
15. *Yersinia spp.*
16. *Vibrio cholerae*
17. *Campylobacter spp.* and *Helicobacter pylori*
18. *Pseudomonas spp.*
19. *Corynebacterium diphtheriae*
20. *Listeria monocytogenes*
21. *Bacillus anthracis*
22. *Clostridium tetani*
23. *Clostridium botulinum*
24. *Clostridium spp. as the causative agents in gas gangrene*
25. *Mycobacterium tuberculosis*
26. *Treponema pallidum*
27. *Borrelia spp.*
28. *Leptospira spp.*
29. *Chlamydia spp.*

30. *Mycoplasma spp.*

VIRUSOLOGY

1. Viral structure
2. Viral replication
3. Cytocidic viral infections
4. Persistent viral infections
5. Virus-induced cell transformation
6. Oncogenic viruses
7. Antiviral effects of interferon
8. Picornaviridae
9. Coxsackievirus
10. Poliovirus
11. Hepatitis A virus
12. Rubella virus
13. Rotavirus
14. Hantavirus
15. Orthomyxoviridae
16. Influenza A virus
17. Mumps virus
18. Parainfluenza viruses 1-4
19. Morbillivirus
20. Pneumovirus
21. Rabies virus
22. Retroviridae
23. HIV
24. Parvoviridae
25. Polyomaviridae
26. Papillomaviridae
27. Adenoviridae
28. Herpes simplex virus
29. Varicella-zoster virus
30. Cytomegalovirus
31. Epstein-Barr virus
32. Variola virus
33. Hepatitis B virus
34. Hepatitis C virus
35. Hepatitis D virus

PARASITOLOGY

1. Morphology and biology of protozoa
2. Entamoeba hystolytica
3. Giardia duodenalis (lamblia intestinalis)
4. Trichomonas vaginalis
5. Plasmodium spp
6. Trypanosoma spp
7. Leischmania spp
8. Toxoplasma gondii
9. Cryptosporidium parvum
10. Morphology and biology of helmints
11. Tenia saginata
12. Tenia solium

13. Cysticercosis
14. Hymenolepis nana
15. Echinococcus spp
16. Fasciola hepatica
17. Ascaris lumbricoides
18. Trichiuris trichiura
19. Enterobius vermicularis
20. Strongyloides stercoralis
21. Ancylostoma duodenale
22. Trichinella spiralis
23. Dirofilaria spp.

MYCOLOGY

1. Morphology of fungi
2. Risk factors for opportunistic mycoses
3. Superficial mycoses
4. Opportunistic mycoses
5. Dermatomycoses
6. Trichophyton spp
7. Microsporum spp
8. Epidermophyton spp
9. Malassezia furfur
10. Candida spp
11. Cryptococcus spp
12. Geotrichum spp
13. Aspergillus spp

QUESTIONS FOR THE PRACTICAL PART OF THE EXAM

1. Microscopy methods in the study of microorganisms
2. Culture media (purpose, types and division)
3. Cultural and biochemical identification of bacteria
4. Examination of bacterial sensitivity to antimicrobial agents in vitro
5. Use of a biological experiment in bacteriology
6. Microbiological diagnosis of infections caused by bacteria of the genus Staphylococcus
7. Microbiological diagnosis of infections caused by bacteria of the genus Streptococcus
8. Microbiological diagnosis of infections caused by bacteria Streptococcus pyogenes
9. Microbiological diagnosis of infections caused by bacteria Streptococcus pneumoniae
10. Microbiological diagnosis of infections caused by bacteria Neisseria meningitidis
11. Microbiological diagnosis of infections caused by bacteria Neisseria gonorrhoae
12. Microbiological diagnosis of infections caused by bacteria of the genus Haemophilus
13. Microbiological diagnosis of tuberculosis
14. Microbiological diagnosis of infections caused by bacteria of the genus Salmonella
15. Microbiological diagnosis of infections caused by bacteria of the genus Shigella
16. Microbiological diagnosis of infections caused by bacteria Yersinia enterocolitica
17. Microbiological diagnosis of infections caused by bacteria of the genus Campylobacter
18. Microbiological diagnosis of infections caused by bacteria Helicobacter pylori
19. Microbiological diagnosis of infections caused by bacteria Escherichia coli
20. Microbiological diagnosis of infections caused by bacteria Vibrio cholerae
21. Microbiological diagnosis of infections caused by bacteria Bacillus anthracis
22. Sampling, transport and processing of patient material in infections caused by anaerobic bacteria (Clostridium spp.)

23. Bloodculture
24. Urinoculture
25. Microbiological diagnosis of syphilis
26. Microbiological diagnosis of Lyme disease
27. Microbiological diagnosis of infections caused by genital mycoplasmas
28. Microbiological diagnosis of infections caused by bacteria Chlamydia trachomatis
29. Principle and use of agglutination reaction and precipitation
30. Principle and use of complement fixation test
31. Principle and use of ELISA method
32. Principle and use of immunofluorescence technique
33. Principle and use of immunoblot method
34. Sampling and transport of patient material for diagnosis of viral infections
35. Methods for direct detection of viruses in patient's sample
36. Techniques of isolation of viruses in living cell systems
37. Primary cell culture and continuous cell lines
38. Methods for demonstration of viral replication in cell cultures
39. Isolation of viruses in chicken embryo
40. Techniques of molecular biology in diagnostic virology (hybridization and PCR)
41. Use of immunoblot method in diagnostic virology
42. Use of ELISA method in diagnostic virology
43. Use of immunofluorescence technique in diagnostic virology
44. Principle and use of Paul-Bunnell reaction in diagnostic virology
45. Principle and use of hemagglutination inhibition reaction in diagnostic virology
46. Principle and use of neutralization reaction
47. Interpretation of immunodiagnostic test results in diagnostic virology
48. Rational use of indirect immunodiagnostic methods in the diagnosis of protozoal diseases
49. Direct diagnosis of infections caused by digestive tract protozoa
50. Diagnosis of toxoplasmosis
51. Diagnosis of malaria
52. Direct and indirect diagnosis of blood-borne and tissue protozoa
53. Rational use of indirect immunodiagnostic methods in the diagnosis of helminth infections
54. Direct diagnosis of infections caused by digestive tract helminths
55. Diagnosis of echinococcosis
56. Diagnosis of trichinellosis
57. Direct and indirect diagnosis of blood-borne and tissue helminths
58. Diagnosis of candidiasis
59. Diagnosis of cryptococcosis
60. Diagnosis of dermatomycoses
61. Standard methods for isolation and identification of fungi in a mycology laboratory
62. Immunodiagnosis of mycoses: significance, use, interpretation, dilemmas