

MEDICAL MICROBIOLOGY
Topics of the Final Examination - Faculty of Medicine
2013/2014 academic year

I.

1. Prokaryotic cell structure, essential and non-essential organelles
2. Antibiotics inhibiting bacterial cell wall synthesis. Mechanism of action, spectrum of effect, resistance mechanisms
3. Antibiotics inhibiting bacterial protein synthesis. Mechanism of action, spectrum of effect, resistance mechanisms
4. Antibiotics inhibiting bacterial folate, DNA, or RNA synthesis. Mechanism of action, spectrum of effect, resistance mechanisms
5. Antituberculous agents. Mechanism of action
6. Sterilization
7. Disinfectants
8. Bacterial virulence factors
9. Transmission of infections, the portals of entry of pathogenic microbes
10. Non-specific defenses against pathogenic microbes
11. Specific immune responses against pathogenic microbes
12. Hypersensitivity reactions in infectious diseases, serum sickness
13. Active and passive immunization, principles, side effects. **Types of vaccines**
14. Diagnostic immune reactions in microbiology
15. Entamoeba
16. **Naegleria, Acanthamoeba**
17. Giardia lamblia, Trichomonas
18. Trypanosoma, Leishmania
19. Plasmodia, **Babesia**
20. Toxoplasma gondii
21. **Cryptosporidium, Isospora, Microsporidia**
22. Enterobius vermicularis, Trichuris trichiura
23. Ascaris lumbricoides, Toxocara
24. Strongyloides stercoralis, Ancylostoma duodenale, Necator americanus
25. Trichinella spiralis
26. Hymenolepis nana, Diphyllotrium latum
27. Taenia solium, T. saginata
28. Echinococcus, Dipylidium caninum
29. Infections caused by Trematodes (Schistosoma, Paragonimus, **Clonorchis**, Fasciola)
30. Tissue infecting filarial Nematodes (Wuchereria, Loa, Onchocerca, Dracunculus)
31. **Pneumocystis jiroveci**
32. Fungal cell structure. Diagnostic procedures in fungal infections
33. Cutaneous mycoses
34. Superficial and subcutaneous mycoses
35. Systemic mycoses
36. Yeasts causing opportunistic mycoses (Candida, Cryptococcus)
37. Molds causing opportunistic mycoses (Aspergillus, Penicillium, Mucor, Rhizopus)
38. Antifungal agents, mechanisms of action

II.

1. Staphylococci
2. Streptococcus pyogenes
3. Alpha hemolytic streptococci (S. pneumoniae, viridans group)
4. Streptococcus agalactiae, E. faecalis, anaerobic streptococci
5. Neisseria
6. E. coli
7. Salmonellae causing enteric fever
8. Salmonellae causing enterocolitis
9. Shigella genus
10. Klebsiella, Serratia, Enterobacter, Proteus - Morganella - Providencia group
11. Yersinia genus
12. Vibrio genus
13. Haemophilus genus, Gardnerella vaginalis
14. Pseudomonas, Acinetobacter, Burkholderia, Stenotrophomonas
15. Legionella pneumophila, Listeria monocytogenes
16. Brucella genus, Francisella tularensis
17. Bordetella genus
18. Bacillus genus
19. Clostridia causing gas gangrene
20. Clostridia producing neurotoxins
21. Clostridia causing intestinal diseases
22. Non-spore forming anaerobic bacteria
23. Campylobacter genus, Helicobacter pylori
24. Treponema genus
25. Borrelia genus
26. Leptospira genus
27. Corynebacterium diphtheriae
28. Mycobacterium tuberculosis
29. Mycobacterium leprae, atypical mycobacteria
30. Rickettsia genus, Coxiella burnetii
31. Chlamydia genus
32. Mycoplasmas

III.

1. General properties of viruses (structure, origin, chemical composition and classification)
2. Replication of viruses. Stages of viral replication.
3. Viral pathogenesis. Transmission and portal of entry. Localised and disseminated infections. Mechanisms of cell injury
4. Persistent viral infections. Congenital viral infections
5. Diagnosis of viral infections (cultivation, nucleic acid detection, antigen detection , electron microscopy, serological methods)
6. Viral vaccines
7. Antiviral agents: mechanisms of action
8. Adenoviridae
9. Herpes simplex virus 1 and 2, Varicella-zoster virus
10. Cytomegalovirus, Human herpesvirus 6
11. Epstein-Barr virus, Human herpesvirus 8
12. Parvoviridae, Poxviridae
13. Influenza viruses
14. Parainfluenza viruses, RS virus , Coronaviruses, SARS virus
15. Mumps virus
16. Measles virus
17. Poliomyelitis viruses
18. Coxsackie-, Echo-, Rhinoviruses
19. Viral gastroenteritis (Rota- and Caliciviruses)
20. Rabies virus
21. Rubella virus
22. Hepatitis A and E viruses
23. Hepatitis B, C, and D viruses
24. Arboviruses causing encephalitis (mosquito- and tick-borne encephalitis viruses)
25. Arboviruses causing hemorrhagic fever (yellow fever virus, dengue viruses)
26. Roboviruses (Hantaviruses, LCM virus, Lassa fever virus, Ebola virus, Marburg virus)
27. Slow virus infections, prions
28. Human tumor viruses (human papillomaviruses, HTLV-I)
29. Human immunodeficiency virus

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