Medical microbiology & Diagnostic microbiology

1. Which one of the following *E. coli* types is characterized by the presence of LT (heat labile) and ST (heat-stable) toxins:
   - a- ETEC
   - b- EIEC
   - c- EHEC
   - d- EPEC

2. Shigellosis is a common disease in travelers to developing countries. The infection is commonly acquired through:
   - a- Gastrointestinal tract
   - b- Burns and trauma
   - c- Respiratory tract
   - d- Sexual intercourse

3. *Pseudomonas aeruginosa* is associated with the following diseases except:
   - a- Wound and burn infections
   - b- Eye infection in swimmers
   - c- UTI
   - d- Food poisoning

4. One of the following bacteria is highly motile and caused swarming on agar media:
   - a- *E. coli*
   - b- *Staphylococcus aureus*
   - c- *Proteus vulgaris*
   - d- *Shigella sonii*

5. Which one of the following bacteria responsible for lymphogranuloma venereum:
   - a- *Pseudomonas aeruginosa*
   - b- *Chlamydia trachomatis*
   - c- *Mycoplasma pneumonia*
   - d- *Treponema pallidum*

6. One of the following statements concerning *Clostridium perfringens* is not correct:
   - a- It produces a toxin that inhibits the release of acetylcholine at the synapse.
   - b- It is a gram positive rod, anaerobic, spore-forming
   - c- It is an important cause of gas gangrene
   - d- It is an important cause of tetanus

7. Acid fastness of Mycobacterium is mainly due to:
   - a- Cell wall thickness
   - b- Lipid and waxy cell wall
   - c- Peptidoglycan
   - d- Capsules

8. *Haemophilus influenzae* type -b is responsible for all of the following disease except:
   - a- Childhood meningitis
   - b- Acute epiglotitis in children
   - c- Sinusitis and otitis media
   - d- Urinary tract infection

9. The causative agent of congenital syphilis is:
   - a- *Chlamydia trachomatis*
   - b- *Treponema pallidum*
   - c- *Mycobacterium leprae*
   - d- *Corynebacterium diphtheriae*

10. Which of the following bacteria is not associated with zoonotic diseases (diseases that are transmitted from animal to human):
    - a- *Yersinia pestis*
    - b- *Brucella abortus*
    - c- *Salmonella typhi*
    - d- *Streptococcus pyogenes*

11. Group A, beta-hemolytic streptococci may be distinguished from other hemolytic streptococci by one of the following test:
    - a- Catalase production
    - b- Growth in 6.5% NaCl broth
    - c- Coagulase production
    - d- Bacitracin susceptibility
12. Which one of the following organisms is, to date, considered universally susceptible to penicillin?
   a- Staphylococcus aureus  b- Neisseria gonorrhoeae  
   c- Streptococcus pyogenes  d- Corynebacterium diphtheria

13. In a disk diffusion susceptibility test, which of the following might result if the disks are placed on the inoculated media and left at room temperature for an hour before incubation?
   a- The antibiotic would not diffuse into the medium, resulting in no zone of inhibition  
   b- Zones of smaller diameter would result  
   c- Zones of larger diameter would result  
   d- There would be no effect on the final zone diameter

14. Beta-hemolytic, catalase positive, Gram-positive cocci appeared coagulase-negative by the slide coagulate test. Which of the following is the most appropriate action in identification of this organism?
   a- Report as coagulate-negative Staphylococcus  
   b- Report as coagulate-negative Staphylococcus aureus  
   c- Reconfirm the hemolytic reaction on a fresh 24-hour culture  
   d- Do a tube coagulate test to confirm the slide test results

15. Why should a control strain of Clostridium species be used in the anaerobe jar?
   a- To ensure that plate media is working  
   b- To ensure that anaerobic environment is achieved  
   c- To ensure that a jar is filled with sufficient number of plates  
   d- To ensure the indicator strip is working

16. Two sets of blood cultures were obtained. The aerobic bottle of one set had growth of coagulase-negative Staphylococcus on the 5-day subculture. What would this indicate?
   a- There was low-grade bacteremia  
   b- The organism is most likely a contaminant  
   c- The subculture plates were defective  
   d- The subculture should not be done after 5 days

17. A gastroenterologist submits a gastric biopsy from a patient with a peptic ulcer. To obtain presumptive evidence of Helicobacter pylori, a portion of the specimen should be added to which media?
   a- Urea  b- Blood  
   c- Selenite  d- Citrate

18. A small, diplococcus, a Gram-negative bacterium is isolated from eye culture of an infant. It grows only on chocolate agar and is oxidase-positive. The most likely organism is:
   a- Neisseria gonorrhoeae  b- Staphylococcus aureus  
   c- Streptococcus pneumonia  d- Proteus mirabilis
19. A gram-positive bacterium was isolated from a patient's spinal fluid and produces a positive swelling (Quelling) test. What is the most likely diagnosis?
   a- Tuberculous meningitis  
   b- Meningococcal meningitis  
   c- Viral meningitis  
   d- Pneumococcal meningitis

20. What enzyme is produced by a penicillin-resistant bacteria that is helpful in breakdown penicillin?
   a- Alpha-hemolysin  
   b- Beta-lactamase  
   c- Enterotoxin  
   d- Coagulase

21. Which of the following organisms is not studied in Parasitology?
   a- Protozoa  
   b- Helminthes  
   c- Bacteria  
   d- Arthropods

22. The correct statement about parasitism:
   a- Host get benefit from this association  
   b- Parasite get benefit from this association  
   c- Parasite get harm from this association  
   d- Also called mutualism

23. In which of the following hosts the mature stage of parasite taken place?
   a- Final or definitive host  
   b- Intermediate host  
   c- Transporter host  
   d- Reservoir host

24. The correct statement about the cyst is:
   a- Cannot withstand dryness  
   b- It is the reproductive stage  
   c- It is not infective for host  
   d- Immotile (do not move) and infective for host

25. The mastigophora groups are moving by:
   a- Cilia  
   b- Flagella  
   c- Pseudopodes  
   d- Do not move

26. The infective stage of *Entamoeba histolytica*:
   a- Trophozoite  
   b- Egg  
   c- Cyst  
   d- Spore

27. The largest intestinal protozoan in human body is:
   a- *Balantidium coli*  
   b- *Entamoeba histolytica*  
   c- *Giardia lamblia*  
   d- *Plasmodium* spp

28. Which of the following protozoa is an intestinal parasite?
   a- *Plasmodium* spp.  
   b- *Trichomonas vaginalis*  
   c- *Giardia lamblia*  
   d- *Trypanosoma* spp.
29. The protozoa that exist only in the trophozoite stage is:
   a- Entamoeba histolytica  b- Trichomonas vaginalis
   c- Giardia lamblia  d- Balantidium coli

30. African sleeping sickness is transmitted by:
   a- Sand flies  b- Snail
   c- Tsetse fly  d- Female Anopheles mosquito

31. The suitable specimen used to diagnose Trypanosomiasis:
   a- Blood  b- Urine
   c- Stool  d- Sputum

32. The vector of Plasmodium spp (which cause malaria) is:
   a- Sand flies  b- Tsetse
   c- Snail  d- Female Anopheles mosquito

33. Chagas disease is caused by:
   a- Trypanosoma rhodesiense  b- Trypanosoma gambiense
   c- Trypanosoma cruzi  d- Leishmania donovani

34. Toxoplasmosis which caused by Toxoplasma gondii is transmitted by:
   a- Respiratory tract (droplets)
   b- Contaminated food with cat and dog feces
   c- Eating raw snails
   d- Mosquitoes

35. Roundworms (cylindrical) belong to the phylum:
   a- Nematodes  b- Cestodes
   c- Trematodes  d- Flatworms

36. Which of the following characteristics is correct about Taenia saginata:
   a- Intermediate host is swine (pig)
   b- Infect stage is Cysticercus cellulosae
   c- Transmitted to human by eating undercooked (not well cooked) cow meat
   d- Cause Cysticercosis in human

37. The correct statement about Schistosoma haematobium is:
   a- Main sites affected are veins of the colon
   b- Schistosoma haematobium egg has a terminal spine
   c- Seminal fluid sample used to diagnose the infection
   d- Biomphalaria snail is the intermediate host

38. Pinworm is the common name for:
   a- Trichuris trichiura  b- Enterobius vermicularis
   c- Ancylostoma lumbricoides  d- Ancylostoma duodenale

39. The causative agent of lymphatic filariasis is:
   a- Necator americanus  b- Ancylostoma duodenale
   c- Ascaris lumbricoides  d- Wuchereria bancrofti
40. Which of the followings is an ectoparasite?
   a- Body Louse  b- Entamoeba histolytic
   c- Necator americanus  d- Leishmania spp

41. The first period of hematopoiesis is known as:
   a- Myeloid period  b- Lymphoid period
   c- Hepatic period  d- Mesoblastic period

42. Intravascular hemolysis occurs in:
   a- The blood vessels  b- The bone marrow
   c- The lymph nodes  d- The spleen

43. The large RBCs with normal color are classified as:
   a- Hyperchromic normocytic  b- Macrocytic normochromic
   c- Microcytic normochromic  d- Normocytic hypochromic

44. In G6PD deficiency disease, the defect occur in:
   a- Hemoglobin  b- Enzymes
   c- Blood vessels  d- Cell membrane

45. The microcytic hypochromic disease in the following is:
   a- Megaloblastic anemia  b- Pernicious anemia
   c- Iron deficiency anemia  d- Hemolytic disease of the new born

46. The acquired disease in the following is:
   a- Auto immune hemolytic anemia  b- Sickle cell anemia
   c- Hereditary elliptocytosis  d- Pyruvate kinase deficiency

47. Eosinophils increase in the case of:
   a- Fungal infection  b- Viral infection
   c- Bacterial infection  d- Parasite infection

48. Severe burns(loss of high amount of plasma) causes:
   a- Primary polycythemia  b- Secondary polycythemia
   c- Polycythemia vera  d- Relative polycythemia

49. The true statement about acute leukemia is:
   a- Not occur in children  b- Prolonged clinical course
   c- Very high number of blasts in the circulation  d- All of them are of myeloid origin
50. ALLs (acute lymphocytic leukemia’s) are classified into:
   a- 2 types  
   b- 3 types  
   c- 7 types  
   d- 8 types

51. Which of the following is referred to the acute megakaryocytic leukemia:
   a- M1  
   b- M3  
   c- M5  
   d- M7

52. Infectious mononucleosis is a disease of lymph nodes which caused by:
   a- Genetic defect  
   b- Virus  
   c- Irradiation  
   d- Chemicals

53. factor II is:
   a- Christmas factor  
   b- Fibrinogen  
   c- Prothrombin  
   d- Calcium

54. Which of the following findings belongs to the hemophilia A:
   a- High PT  
   b- High APTT  
   c- Increase fdps  
   d- Increase factor VIII

55. In which disease you will find the following results: RBCs count decreased, platelets count decreased and fibrinogen decreased?
   a- DIC (disseminated intravascular coagulation)  
   b- Hemophilia A  
   c- Von Willebrand’s disease  
   d- Hemophilia B

56. The largest cell in the bone marrow is:
   a- Megakaryocyte  
   b- Macrophage  
   c- Monocyte  
   d- Plasma cell

57. Von Willebrand factor is part of factor:
   a- V  
   b- VII  
   c- VIII  
   d- IX

58. The substance that causes fibrinolysis is:
   a- Serotonin  
   b- Collagen  
   c- Plasmin  
   d- Fibrinogen

59. The clotting factor that is involved in the extrinsic pathway of clot formation is:
   a- VII  
   b- IX  
   c- VIII  
   d- XI

60. Vitamin K- dependent factors are:
   a- I, II, X, XIII  
   b- II, VII, IX, X  
   c- I, V, VIII, XIII  
   d- III, V, IX, XI
### Immunology & Serology

**61.** One of the following is not a characteristic of the inflammation process:
- a. Increases blood supply to the area
- b. Migration of white blood cells
- c. Decrease capillary permeability
- d. Appearance of acute phase reaction

**62.** Skin, lactic acid secretions, stomach acidity, and the motion of cilia represent which type of immunity:
- a. Natural
- b. Acquired
- c. Adaptive
- d. Autoimmunity

**63.** Which of the following is a characteristic of NK cells:
- a. They rely on memory for antigen recognition
- b. They share antigens with B cell
- c. They are found only in the lymph nodes
- d. They attack target cells without previous exposure

**64.** CD8 is a surface membrane protein on T-cells with one of the following characteristics:
- a. It recognizes class II MHC
- b. It recognizes class I MHC
- c. It is strongly chemotactic
- d. It characterizes T-helper cells

**65.** One of the following does not enhance opsonization:
- a. IgG
- b. C3b
- c. CRP
- d. IgD

**66.** Which of the following cells is considered as a specific cellular immunity component:
- a. Phagocytic cells
- b. Macrophage
- c. Natural killer
- d. Tc-cell

**67.** The following are true regarding T-cells except:
- a. They are the majority of lymphocytes in the circulation
- b. They derived from precursors in the bone marrow
- c. They originate from the thymus
- d. They are involved in cell mediated immunity

**68.** The end product of alternative and classical pathways is:
- a. Antibody production
- b. Membrane attack complex (MAC)
- c. Phagocytosis
- d. Phagosome formation

**69.** One of the following is considered as a secondary immunodeficiency disease:
- a. Nezelof’s disease
- b. DiGeorge syndrome
- c. AIDS
- d. SCID
70. In type III hypersensitivity, the immune complexes are formed in response to:
   a- Surface antigen  
   b- Soluble foreign molecules  
   c- Rh factor  
   d- ABO blood group antigens

71. One of the following is not a known characteristic of the complete antigen:
   a- Immunogenicity  
   b- Antigenicity  
   c- Degree of complexity  
   d- Every antigen has one epitope

72. Which immunoglobulins can activate the classical pathway of the complement systems?
   a- IgA and IgM  
   b- IgG (all subgroups) and IgD  
   c- IgG1, IgG2, IgG3, and IgM  
   d- IgE and IgD

73. Which of the following is a characteristic of the variable domains of immunoglobulin’s:
   a- They occur in both the heavy and the light chains  
   b- They represent the complement binding site  
   c- They are at the carboxy-terminal ends of the molecules  
   d- They represent the macrophage attachment sites

74. All of the following are true of IgM except that it:
   a- Can cross the placenta  
   b- Fix complement  
   c- Has a J chain  
   d- Is a primary response antibody

75. Tissue transplant between different species, such as from pig to human is called:
   a- Allograft  
   b- Autograft  
   c- Xenograft  
   d- Isograft

76. In mismatched blood transfusion, the rapid destruction of the transfused RBCs is:
   a- Type I hypersensitivity reaction  
   b- Type II hypersensitivity reaction  
   c- Type III hypersensitivity reaction  
   d- Type IV hypersensitivity reaction

77. One of the following is not true regarding antibodies:
   a- They all have alpha heavy chain  
   b- They are produced by plasma cells  
   c- They react specifically with antigens  
   d- They are also called immunoglobulin’s

78. Which of the following is a light chain of the antibody molecules:
   a- μ  
   b- κ  
   c- γ  
   d- α

79. Prozone phenomenon occurs when:
   a- Antibodies concentration is higher than antigens concentration  
   b- Antigens concentration is higher than antibodies concentration  
   c- the concentration of antigen is equivalent to that of antibodies  
   d- there is no antibody in the solution
80. **IL-2 produced by:**
   a- T- helper  
   b- T- suppressor  
   c- Macrophage  
   d- T- cytotoxic

**Histology & Microtechniques**

81. **The four principal types of tissues are:**
   a- Muscle, nervous, skeletal, connective  
   b- Epithelial, skeletal, connective, reticular  
   c- Connective, skeletal, epithelial, nervous  
   d- Epithelial, connective, muscle, nervous

82. **Which type of epithelium is adapted to protect underlying tissues from abrasion and friction:**
   a- Simple squamous  
   b- Stratified squamous  
   c- Transitional  
   d- Simple cuboidal

83. **Non-ciliated simple columnar epithelium often contains ____________, which increase the surface area for secretion and absorption.**
   a- Flagella  
   b- Collagen fibers  
   c- Microvilli  
   d- Hairs

84. **What are the three basic components of connective tissue?**
   a- Ground substance, cells, and basement membrane  
   b- Cartilage, intercellular matrix, and serum  
   c- Cells, protein fibers, and ground substance  
   d- Collagen, elastin, and reticular fibers

85. **Examples of apocrine glands include which of the following?**
   a- Mammary and some sweat glands  
   b- Thyroid and adrenal glands  
   c- Salivary and sebaceous glands  
   d- Pancreas and ovary

86. **Which term describes a band of dense regular connective tissue that attaches two bones?**
   a- Aponeurosis  
   b- Tendon  
   c- Ligament  
   d- Capsule

87. **Which type of tissue facilitates movement of the skeleton or organ walls?**
   a- Epithelial  
   b- Muscular  
   c- Connective  
   d- Nervous

88. **The two types of cells in nervous tissue are:**
   a- Dendrites and axons  
   b- Nerve processes and nerve fibers  
   c- Satellite cells and neurons  
   d- Neurons and glial cells
89. All of the following are types of serous membranes except:
   a- Pleurae   b- Perichondrium   c- Peritoneum   d- Pericardium

90. Nervous tissue cells that play several supporting roles but do not transmit impulses are called:
   a- Glial cells   b- Dendrites   c- Nerve cells   d- Neurons

91. The minute passage ways in the bony matrix that allow osteocytes to communicate with each other are called:
   a- Lamellae   b- Lacunae   c- Osteons   d- Canaliculi

92. After dehydration, it is necessary to further treat tissue blocks with a reagent that is miscible with both alcohol and paraffin wax. For this purpose we used:
   a- Xylene   b- Formalin   c- Paraffin   d- Acetic acid

93. Positive reaction, in the PAS relies on the presence of which groups?
   a- Aldehyde   b- Anionic   c- Cationic   d- β-pleated proteins

94. The aim of dehydration is to:
   a- Add water to the tissue   b- Remove water from the tissue
   c- Add paraffin to the tissue   d- Remove paraffin from the tissue

95. The one technical fault(mistake) which cannot be modified or corrected is:
   a- Improper mounting   b- Over staining   c- Inadequate fixation   d- Inadequate clearing

96. All of the following are functions of Preservation of the cells and tissue except:
   a- Prevent desiccation   b- Prevent osmotic swelling and shrinkage
   c- Induce autolysis   d- Inhibit putrefaction (bacterial decomposition)

97. Which fixative is widely used to transport tissue to another laboratory?
   a- 80% alcohol   b- Glacial acetic acid   c- 10% formalin   d- Mercuric chloride
98. The most commonly used acidic dye is:
   a- Eosin  
   c- PAS  
   b- Methylene blue  
   d- Hematoxylin

99. Following fixation, the first step in tissue processing is:
   a- Dehydration  
   c- Embedding  
   b- Impregnation  
   d- Clearing

100. Clearing is done by placing the tissues in:
   a- Hydrochloric acid  
   c- Zinker  
   b- Acetic acid  
   d- Xylol or benzol

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