Note : Answer all following questions

Q1 \\ **Choose the correct answer:** **(150 M.)**

1. **The protein shield that cover the viral nucleic acid called**
   a- Capsid. b- Capsomeres. c- Nucleocapsid. d- Envelope.

2. **Peplomers are:**
   a- Virus-encoded RNA polymerase.
   b- Virus-encoded proteins which used in viral DNA replication.
   c- Virus-encoded glycoproteins which exposed on the surface of the envelope.
   d- Virus-encoded DNA polymerase.

3. **The complete viral particles called:**
   a- Viroid. b- Prion. c- Virion. d- Porin.

4. **All cubic symmetry observed with animal viruses is of the icosahedral pattern. The icosahedron has:**
   a- 10 Faces. b- 12 Faces. c- 20 Faces. d-22 Faces.

5. **According to viral genome, which of the following is NOT TRUE:**
   a- Viral nucleic acid may be single stranded or double stranded.
   b- Viral nucleic acid may be linear or circular.
   c- Viral nucleic acid may be segmented or non-segmented.
   d- Viral particles contain both DNA and RNA.

6. **When virus fail to produce infectious progeny, this type of infection know as:**
   a- Productive. b-Abortive. c- Permissive. d- None of the above.

7. **In latent viral infection there is:**
   a- Persistence of viral genomes. b- Expression of no or a few viral genes.
   c- Survival of the infected cells. d- All of the above.

8. **The first step in viral infection is attachment via receptor molecules which are generally composed of:**
   a- Glycoproteins. b- Lipids. c- Proteins. d- Nucleic acids.

9. After binding, the virus particle is taken up inside the cell. This step is referred to as:

a- Tropism. b- Penetration. c- Uncoating. d-Budding.

10.In negative-strand (negative-sense) viruses, single-strand RNA genome is complementary to:

a- mRNA. b- Host RNA. c- Host DNA. d- tRNA.

11.Virus family names have the suffix:

a- Virinae. b- Virales. c- Viridae. d- None of the above.

12.The viral infection are:

a- Intracellular. b- Extracellular. c- Both a and b are correct.
d- None of the above

13.Viroids are agents that do not fit the definition of classic viruses because they are:

a- Protein without genetic materials. b- Viruses that lack envelope.
c- Nucleic acid molecules without a protein coat. d- All of the above.

14.The majority of available antiviral agents are:

a- Protease Inhibitors. b- Fusion Inhibitors.
c- Nucleoside and Nucleotide Analogs. d- Integrase Inhibitors.

15.Amantadine specifically inhibit influenza A viruses by:

a- Blocking viral attachment. b- Blocking viral uncoating.
c- Inhibiting viral protease. d- All of the above.

16.Acyclovir is a guanosine analog DNA polymerase inhibitor used for the treatment of:

a- HIV. b- Rabies. c- Influenza A and B virus d- HSV & varicella-zoster virus

17.Interferons are:

a- Innate immune response. b- Adaptive immune response.
c- Produced by viruses d- All of the above

18.With regard to killed virus vaccines, which of the following is TRUE:

a- Tend to stimulate longer-lasting antibody production and induce a good cell-mediated response.

b- Disadvantages include a risk of reversion to greater virulence, severe infection in immunocompromised.

c- Disadvantages include relatively brief immunity requiring boosting shots to maintain effectiveness.

d- Acting more like the natural infection with regard to their effect on immunity.

19.Interferons are an important part of the host defense against viral infections. The interferon's principal mode of action is:

a-It is present in the serum of healthy individuals, providing a viral surveillance role.

b-It coats viral particles and blocks their attachment to cells.

c-It induces synthesis of one or more cellular proteins that inhibit translation or transcription.

d-It protects the virus-infected cell that produced it from cell death.

20.Virus differ than other unicellular microorganism in:

a- Lose of protein synthesis system. b- Lose of Nucleic acid

c- Lose of Protein wall d- All of the above

21.The main advantage of killed vaccine in compare to attenuated vaccine is

a- Potency. b- Safety. c- Long duration. d- Fast action.

22.The following statements are true EXCEPT:

a-All viruses are sensitive to antiviral agents.

b- Virus infected cells may be transformed.

c-Viruses may have a lipid envelope.

d- Some viruses are destroyed by lipid solvents.

23.Viruses are:

a- Obligate intracellular parasites. b- May divide by binary fission.

c- Have their own metabolism. d- All of the above.

24.Which of the following is/are used in the classification of viruses:

a- Virion morphology. b- Type of nucleic acid.

c- Antigenic properties. d- All of the above.

25.The type of nucleic acid in animal viruses with helical symmetry is:

a- RNA. b- DNA. c- RNA or DNA. d- All of the above.

26.All viruses contain:

a- Envelope. b- DNA. c- RNA. d- Protein coat.

27.Lipid-containing viruses are sensitive to treatment with:

a-Interferon. b- Vaccines. c- Antiviral drugs. d- Ether and other organic solvents.

28.The function of the surface glycoproteins of an enveloped virus is:

a- Used for protection. b- Used for replication.
c- Used for attachment. d- Used for releasing.

29.Which of the following antibodies are protective neutralizing antibodies:

a-Antibody against viral nucleic acids.
b-Antibodies against viral envelope glycoproteins.
c-Antibodies against viral RNA polymerase.
d- d- Antibodies against viral DNA polymerase.

30.Viruses can grow on the following EXCEPT:

a-Living tissues. b- Laboratory animals. c- Culture media. d- Embryonated eggs.

31.Conidia (arrows) which are produced by budding call :

a- Blastoconidia b- Arthmconidia c- Chlamydoconidia d- Microconidia

32.Small nulti celled which are produced by certain dermatophyies call

a-Blastoconidia b- Arthmconidia c- Chlamydoconidia d- Microconidia

33. Spores which are formed and subsequently released during the process of hyphal fragmentation

a-Blastoconidia. b- Arthoconidia. c- Chlamydoconidia. d- Microconidia.

34. Conidia produced from phialides of Aspergillus species arise from a vesicle call

a-Blastoconidia. b- Phlaloconidia. c- Chlamydoconidia. d- Microconidia.

35.Spores (arrow) formed by zygomycetes such as Rhizopus species and release when a mature call

a- Sporangiospores. b- Basidiospores. c-Ascosdores. d-Zygospores.

36.Spore Produced by members of Zygornycoia call

a- Sporangiospores. b- Basidiospores. c- Ascosdores. d- None of the above.

37.Fungi characterized by:

a- Eukaryotic and Cell walls contain chitin.
b- Prokaryotic and Cell walls contain chitin.
c- Sensitive to high osmotic pressures and low pH.
d- Non of the above.

38.Fungi are:

a- Majority are pathogenic and cause ringworm in animals and humans.
b- Majority are saprophytes and some cause opportunistic infections.
c-Dermatophytes fungi caused systemic disease.
d- All of the above.

39.Fungi characterized by:

a- Reproduce both sexually and asexually. b- Produce exoenzymes.
c- Obtain nutrients by absorption. d- All of the above.

40.Fungi characterized by:

a- Grow aerobically at 37C. b- Not have nuclear membrane.
c- Photosynthetic heterotrophs. d- None of the above.

41.Fungi imperfecti so-called because

a- A sexual form has not been found. b- Sexual form has not been found.
c- Reproduction by sexual and a sexual methods. d- None of the above.

42.Dimorphic fungi so-called because

a- Reproduction by sexual and a sexual methods
b- Caused superficial and systemic disease.
c- Occur in both mould and yeast forms
d- Growth aerobically and anaerobically

43. Chain of elongated bud of fungi call

a- Hyphae. b- Pseudohyphea. c- Septum. d-Mold.

44. Classification of fungi depend on

a- Mode a sexual reproduction. b- Mode of asexual reproduction.
c- Pathogenesis. d- Hosts.

45.Mushroom belong to

a- Zygomycota. b- Ascomycota. c- Basidiomycota. d-None of the above.

46.Cell structures of fungi contain

a- Peptidoglycan and chitin. b- Peptidoglycan and ergosterol.
c- Chitin and ergosterol. d- All of them.

47.Fungi sensitive to amphotericin B unlike human due to

a-Type of rRNA. b- Type of tRNA . c- Genetic contains d- Membrane sterols.

48.Fungi staining by

a-Gram- stain. b- Nonacid fast stain. c- PAS and GMS. d- All of the above.

49.Aerial spores of fungi include

a-Sporangiospores. b- Conidiospores. c- Macroconidia. d- All of the above.

50.Vegetative sporesof fungi include

a-Arthrospores and chlamydospores. b- Arthrospores and blastospores.
C-Blastospores&chlamydospores d-Arthrospores,blastospores &chlamydospores.

51.The families that belong to order Mycoplasmatales are:

a- Mycoplasmataceae, Acholeplasmataceae, Spiroplasmataceae, and Anaplasmataceae.
b- Mycoplasmataceae, and Anaplasmataceae.
c- Mycoplasmataceae and Acholeplasmataceae,
d- Mycoplasmataceae, Acholeplasmataceae, and Spiroplasmataceae

52.The genera of Mycoplasmataceae that required steroil are:

a- Mycoplasma and Acholeplasma. b- Mycoplasma and Ureaplasma.
c- Acholeplasma and Ureaplasma. d- All of them.

53.Mycoplasma differ then virus in

a- Contain (RNA) and (DNA).
b- Able to grow on cell-free media *in vitro*.
c- Show both intracellular and extracellular parasitism *in vivo*.
d- All of the above.

54- Mycoplasma differ than L forms bacteria in

a- Have sterols in the cell membrane and do not show any reversion to structure with cell walls
b- Staining with gram stain.
c- Loose of cell wall.
d- Contain only one type of nucleic acid.

55- Genome of mycoplasma characterized by:

a- Low molecular weight and high guanine and cytosine contents.
b- Low molecular weight and low guanine and cytosine contents.
c- High molecular weight and high guanine and cytosine contents.
d- Low molecular weight and low guanine and cytosine contents.

56-Mycoplasma have

a- flagella. b- pili. c- flagella and pili. d- None of the above.

57- Ureaplasma charichterized by :

a- Require to 10% urea for grown b- Cause genital infections
c- Lake of cell wall d- All of the above.

58- Mycoplasma differ than other microorganisms in

a- Smallest size b- Lake cell wall
c- Smallest organism can grow on cell free media d- All of them

59- The best antibiotic can be add to mycoplasma culture media is

a- Penicillin. b- Gentamycin. c- Nitrofurin. d- Trimethoprim.

60- Mycoplasma sensitive to

a-Penicillin and cephalosporin b- Penicillin and ketoconazole
c- Tetracycline and erythromycin d- All of the above.

61- Any substance or molecules that interact with antibodies are called-----

a-Antigens b-Antibodies c-Epitope d-Immunogens

62- Immunogenicity is determined by the ----------

a-Size b- Chemical and structural complexity

c- Recognition of foreignness. d-All of the above

63- Adjuvants are substances that

a- reduce immunogenicity

b- stimulate the immune response

c- facilitate uptake into antigen-presenting cells (APCs)

d- Both b and c

64- What is the minimum overall size for potent immunogenicity?

a- Molecular weight less than 10,000

b- Molecular weight greater than 10,000

c- Molecular weight greater than 100,000d

d- No specific size threshold

65- Superantigens can stimulate much larger numbers of the T cells and -

a-Require processing before binding to MHC

b-Bind to the peptide-binding cleft of MHC

c-Able to bind to MHC molecules outside the peptide-binding cleft

d-Do not interact with MHC molecules

66-Some small molecules, called ----------, become immunogenic only when linked to a carrier protein.

a- Antibodies b-Epitope c-Immunogens d-Haptens

67-The main function of MHC I in the immune response is-------

a-Antibody production b-Antigen presentation to CD8+ T cells

c-Activation of the complement system d-Cytokine production

68-One of the important features of human MHC II gene products present peptide antigens to:

a-CD8+ T cells b- CD4+ T cells c- B cells d-Natural killer cells

69-The polyclonal antibodies ----------

a-React with a different antigenic determinant on the complex antigen
b-Have a single antigen-binding site.
c-Have a lower affinity for their target antigen
d-Produced in vitro by fusing a myeloma cell with an b lymphocyte

70-Which of the following is the antigen-binding site?

a) Fab b-Fc c-Hinge region d-None of the above

71-Which is the major class of immunoglobulin present in the serum.?

a) IgA b) IgG c) IgM d) IgE

72-IgM is secreted as----------

a) Monomer b) Dimer c) Tetramer d) Pentamer

73- IgA mainly is found in----------

a) Serum b) Extravascular secretions c) Lymph nodes d) Bone marrow

74-Antibodies can bind and neutralize viruses by---------

a- Blocking attachment of viruses to its cellular receptor
b- Complement-mediated lysis
c- Antibody-dependent cell cytotoxicity
d- Phagocytosis

75-The first antibodies produced in the primary response are------

a. Producing of IgM, then, IgG, IgA, or both
b. Producing of IgA, then, IgG, IgM, or both
c. Producing of IgG, then, IgG, IgA, or both
d. Producing of IgE, then, IgM, IgG, or both

76-Which of the following is a characteristic of a secondary immune response?

a) A secondary immune response produces as many antibodies as a primary response
b) A secondary immune response is slower than a primary immune response.
c) A secondary immune response persists much longer than primary immune response
d) A secondary immune response is started by naive lymphocytes

77-At the present time, the function of IgD is ----------

a. Well-defined role in the immune response.
b. Unclear
c. Responsible for mucosal immunity.
d. Opsonization of antigen

78-What is the function of the Fc region of an antibody molecule?

a. Binding to antigen
b. Activating the complement system
c. Phagocytes
d. Both b and c

79-The complement components are --------

a) Proenzymes b-Antibodies c-Hormones d-None of these

80-Complement system pathways lead to produce a membrane attack complex consisting of ----------

a) C5b, C6, C7, C8, and C9
b) C5b,C6,C7
c) C8 and C9
d) C5a and C3a

81-The membrane attack complex (MAC) causes cell lysis by -------

a) Blocking cell surface receptors
b) Inhibiting cellular metabolism
c) Creating holes in the cell membrane
d) Triggering apoptosis

82-How is the lectin pathway initiated?

a) By the binding of C1q to antibody-antigen complexes
b) By the activation of the alternative pathway C3 convertase
c) By the binding of MBL to polysaccharides on bacterial surfaces.
d) By triggering the cellular production of factors B, D, and properdin

83-Which of the following protein is responsible for cleaving C4 and C2 in the classic pathway?

a) C1q b- C1r c-C1s d- C4b2b

84-Which of the following is a main feature of the alternative pathway activation?

a. It requires the presence of specific antibodies
b. It is initiated by the binding of C1q to immune complexes
c. It can be activated by infectious agents
d. It is dependent on the cleavage of C4 and C2

85- The main event that causes symptoms of type 1 hypersensitivity is --------

a. Antigen binding to specific IgE antibodies
b. Release of pharmacologically active mediators from mast cells and basophils
c. Cross-linking of cell-bound IgE molecules
d. All of the them

86-What are the major actions of histamines?

a- Vasoconstriction, decreased capillary permeability, and smooth muscle relaxation
b- Vasodilation, decreased capillary permeability, and smooth muscle contraction
c- Vasodilation, increased capillary permeability, and smooth muscle contraction
d- Vasoconstriction, increased capillary permeability, and smooth muscle relaxation

87-Type II hypersensitivity involves the binding of :

a- IgE antibodies to cell surface antigens
b- IgG antibodies to extracellular matrix molecules
c- IgA antibodies to cell surface antigens
d- IgG antibodies to cell surface antigens or extracellular matrix molecules

88-Which of the following hypersensitivity reactions involve antibody-directed complement activation and antibody-dependent cell cytotoxicity?

a- Type I hypersensitivity
b- Type II hypersensitivity
c- Type III hypersensitivity
d- Type IV hypersensitivity

89-What is the primary trigger for type III hypersensitivity reactions?

a- Formation of immune complexes
b- Activation of mast cells
c- Binding of IgE to cell surface antigens
d- Stimulate of T cell-mediated cytotoxicity

90-A characteristic feature of type IV cell-mediated (delayed) hypersensitivity is

a- A T cell–mediated response
b- Immediate beginning within minutes
c- Involvement of IgG and IgM antibodies
d- Stimulation of mast cell degranulation

91-Staphylococcus bacteria secrete all, EXCEPT

a- Lipase. b- Cellulase. c- Coagulase. d-Lecithinase.

92- Arrangement of bacteria Staphylococcus :

a- Clusters b-Clusters/Tetrads. C-Tetrads d-All of them

93-Klebsiella spp caused some infections like :

a- Blood stream infections.
b- Urinary tract infections.
c- Lower respiratory tract infections.
d- All of them.

94- **Virulance factors of Escherichia coli :**

a) Capsule b)Adhesins c)Fimbriae d)All of them

95- Staphylococcus can grow on a wide range of media include:

a-Nutrient agar. b-Blood agar. c-MacConkey agar. d-All of them

96-Which of the following bacteria is rarely associated with urinary tract infections?

a) E.coli. b) Enterobacter spp. c) Proteus spp. d)Shigella spp.

97- Which of the following is less likely to be found as the normal flora of the intestine

a) Escherichia spp b) Salmonella spp c) Staphylococcus spp d) Proteus spp

98-**Which of the following bacteria is a non-lactose fermenter**

a) Klebsiella spp b) Salmonella spp c) Enterobacter spp d) Citrobacter spp.

99- Morphology of bacteria Staphylococcus :

a-Motile b-Nonsporing c-Noncapsulated d-All of them.

100- **All of the following are the cultural characteristics of Proteus mirabilis, EXCEPT?**

a) Facultative aerobe b) Urease positive c) Motile d) Citrate positive.

101-**Which type of salmonellae is primarily infectious to humans**

a)Salmonella typhi A b) Salmonella paratyphi A, B, and C

c) Salmonella paratyphi A and B d) Salmonella paratyphi A

102- **Peptidoglycan is made up of :-**

a) N-acetylglucosamine b) N-acetylmuramic acid

c) N-acetylglucosamine, N-acetylmuramic acid

d) N-acetylglucosamine, N-acetylmuramic acid, amino acids.

103- Clinical syndromes of E.coli causes :

a-Urinary tract infection b-Septicemia . c-neonatal meningitis .

d-All of them.

104- with regard to the cell wall of gram-positive bacteria, which of the following is true ?

a) consist of many layers b) contain peptidooglycan more in gram negative bacteria

c) contain of teichoic acids d) All of the abov.

105- Klebsielleae organism cause a variety of clinical syndromes.

a-community –acquired pneumonia b-UTI

C-Bacteremia and sepsis d-all of them

106- Staphylococcaceae characterized by

a) Gram-positive cocci b) Facultative anaerobes

c) grow on simple culture media d) All of the above

107- E. coli 0157 different from the other species in

a) O-antigen b) K-antigen c) Lipoprotein d) All of the above

108-*Salmonella typhi* is:

a) produces H2S b) Non-spore forming

c) Grow in media contains bile salts d) All of the above.

109- Virulance factors of Proteus :

a-Pili b-Multible adhesion c-Capsule d-Exotoxin .

110-Which one is not the selective culture media for salmonellae and Shigella

a- Deoxycholate citrate agar b-Xylose-lysine decarboxylase agar
c-Salmonella -Shigella agar d-Blood agar.

111-**Ribosomes of prokaryotes have a sedimentation coefficient of?**

a) 90S b)80S c) 50S d) 70S

112-Which of the following may contain fimbriae

a) Gram-positive bacteria b) Gram-negative bacteria
c) Both (a) and (b) d) None of these

113-The cell walls of many gram positive bacteria can be easily desfroyed by the enzyme known as

a) lipase b) lysozyme c) pectinase d) peroxidase

114-All are the general characteristics of enteric bacteria, EXCEPT

a) Catalase positive b) Non-spore forming
c) Grow in media with bile salts d) Nitrate negative.

115- What laboratory test allows differentiation between Proteus and Salmonella?

a) Urease test b)Motility
c) Growth on MacConkey agar d) Lactose fermenting abilities

116- Among these bacterial components, which is least likely to contain valuable antigens?

a)Cell wall b)Flagella c)Ribosomes d)Capsule

117- Biochemical properties of *Proteus mirabilis* ferment:

a-Sucrose. b-Mannitol c-Trehalose d-Maltose

118-Virulanc factors of Salmonella spp.

a-Endotoxin b-Fimbriae c-Catalase d-All of them

119-Gram-negative bacteria are associated with endotoxin because of

a)Steroids b)Peptidoglycan c)Lipopolysaccharides d)Polypeptide.

120- Staphylococcus epidermidis cause disease :

a-UTI b-Bacteremia c-Opportunistic infection d-Endocarditis.

121- Giardia trophozoite multiples by

a- schizogony b-binary fission c- endodyogeny d- conjugation

122- *Trypanosoma bruci* transmitted by

a- *Glossina* b- Anophles c-Triatoma d- sand fly

123- C.N.S. manifestations appear with

a- early stage with African trypanosomiasis
b- last stage with American trypanosomiasis
c- last stage with African trypanosomiasis
d- early stage with American trypanosomiasis

124- Pernicious Malaria caused by

a- *P. ovale* b- *P. falciparum* c- *P.vivax* *d- P. malariae*

125- Reservoir hosts for Trypanosoma gambiens are

a- small mammals b- sheep and goat c- game animals d- dog

126- Giardia possesses unique biochemical pathways that involve

a- vitamins B and bile salts and glucose b- ethanol, acetate and carbon dioxide
c- none of the above d- all the above

127- Site of giardiasis infection in

a- large intestine b-duodenum c- liver d- brush border

128- The infective stage of *Plasmodium* is

a- cyst b- trypomatigote c- sporozoites d- tachyzoite

129- Mode of transmission of *T. gambie* by

a-contamination of skin abrasion by bug faeces
b-contamination of skin abrasion by bug saliva
c-injection the parasite with salive
d- drinking contaminated water

130- In malaria tropica fever is

a- irregular high fever b- 72 hrs. high fever
c- 48 hrs. high fever d- none of the above

131- Damage in heart muscle fibers with Chagas disease due to

a- increasing the numbers of the parasite b- pernicious anemia
c- auto-antibodies production d- parasite reproduction

132- Fatty diarrhea with giardiasis due to

a- the impaired absorption in the damaged intestinal wall
b- the damage in gall bladder
c- the lack of B12-vitamin
d- Anemia

133- Black Water Fever occurs because

a- the parasite infects the kidneys b- the infection with *Babesia*
c- the red blood corpuscles are destroyed d- splenomegaly

134- Giardia habitat in

a- duodenum b- ileum c- large intestine d- fat cell

135- Cardiovascular collapse and shock are a complications with

a- amoebiasis b- toxoplasmosis c- malaria d-diarrhea

136- In malaria, Fever may reach upto 40c and last for several hoursdue to:

a- invading newer red cells b- occurrence in blood vessels
c- immunity reaction d- invading liver cells

137- All merozoites invade RBC's without re-invading liver cells in the species:

a- P. falciparum b- P. malariae c- none of the above d- all the above

138- Malaria is transmitted by the bite of

a-male of Anophles b- female of Anophles
c- female of Culex d- female of Aedes

139- **The vector of Plasmodium is:**

a- sand fly b- snail c- dog d-mosquito

140- **sexual stages of Plasmodium are**

a- sporozoites b- schizonts c- gametes d- meronts

141- *P.falciparum* needs about …. Days as incubation period

a- 6 days b- 21 days c- 3 days d- 24 hrs.

142- In highly endemic areas with malaria and high mortality among children due to

a- severe anemia
b- very high fever
c- Respiratory distress syndrome
d- CNS damage

143- ***Anopheles'*** **female plays as a vector for**

a- *P.vivax* b- *Leishmania sp.* c- *E. histolytica* *d*-none of the above

144- Winterbottom's stage accompanied with:

a- chagas disease b- sleeping sickness c- skin infection d- anemia

145- Development of sleeping sickness is more rapid in

a- Trypanosoma brucei rhodesiense b- Trypanosoma brucei brucei
c- Trypanosoma cruzi d- Trypanosoma brucei gambei

146- T. cruzi develops in :

a- mid gut of the vector b- hind gut of the vector
c- salivary gland of the vector d- environment

147- In American trypanosomiasis, Chagoma occurs at:

a- the heart muscle b- the blood c- the skin d-the CNS

148- Romana's sign accompanied with

a- Trypanosoma brucei rhodesiense b- Trypanosoma brucei brucei
c-Trypanosoma cruzi d-Trypanosoma brucei gambei

149- Giardia trophozoites remain in the lumen where they can feed freely or attached to the mucosa by:

a- pseudopoda b- flagella c- sucking discs d- pellicle

150- The infective stage of Giardia is :

a- cyst b- trypomatigote c- sporozoites d-tachyzoite

Examiner Examiner Examiner Examiner Head of the Dept.