COURSE CODE : 128

Time : 2 Hours
Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.

2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.

3. Read each of the question carefully and shade the relevant answer (A) or (B) or (C) or (D) or (E) in the relevant box of the ANSWER SHEET using HB pencil.

4. Avoid blind guessing. A wrong answer will fetch you –1 mark and the correct answer will fetch 4 marks.

5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.

6. Do not open the question paper until the start signal is given.

7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.

8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.

9. Use of Calculators, Tables, etc. are prohibited.
1. The phenomenon of Phagocytosis which led to cellular concept of immunity was discovered by:
   (A) Metchnikoff (B) Portier & Richet
   (C) Ruska (D) Wright

2. Following are the contributions of Louis Pasteur EXCEPT:
   (A) Establishment of growth requirements of microbes.
   (B) Introduction of staining techniques.
   (C) Process of attenuation
   (D) Techniques of sterilization.

3. The unit of resolution with unaided eye is:
   (A) 10 μ (B) 100 μ (C) 200 μ (D) 300 μ

4. In which of the following, the reflected light is used instead of transmitted light?
   (A) Dark ground microscope (B) Electron microscope
   (C) Light microscope (D) Phase contrast microscope

5. One micron is equivalent to:
   (A) 0.01 mm (B) 0.001 mm (C) 0.0001 mm (D) 0.00001 mm

6. The thickness of bacterial cell membrane ranges between:
   (A) 2.5 nm (B) 5-10 nm (C) 10-15 nm (D) 15-20 nm

7. The bacteria are uniformly stained in the following phase of bacterial growth curve:
   (A) Lag phase (B) Log phase
   (C) Decline phase (D) Stationary phase

8. The lethal effect of moist heat is due to the following methods EXCEPT:
   (A) Coagulation of enzymes
   (B) Coagulation of proteins
   (C) Denaturation of proteins
   (D) Oxidative damage of essential constituents
9. The ‘D’ value measure the rate of kill at a given temperature and is expressed as the time required in minutes to reduce the number of viable organisms by:
   (A) 30%          (B) 50%          (C) 80%          (D) 90%

10. Which of the following is used as a biological indicator to monitor steam sterilizer?
    (A) Bacillus subtilis  (B) Bacillus stearothermophilus
    (C) Clostridium tetani  (D) Pseudomonas aeruginosa

11. Heart lung machine is sterilized by:
    (A) Betapropiolactone  (B) Ethylene oxide
    (C) Formaldehyde  (D) Glutaraldehyde

12. Physiological saline means:
    (A) 0.75% NaCl in water  (B) 0.8% NaCl in water
    (C) 0.85% NaCl in water  (D) 0.9% NaCl in water

13. The range of pH of methyl red indicator is:
    (A) 2.8-4.6  (B) 3.6-5.2  (C) 4.4-6.2  (D) 4.5-8.3

14. The new glasswares:
    (A) can be need as such
    (B) can be used washing with water
    (C) should be placed in alkaline solution and then sterilization
    (D) should be placed in acidic solution and then sterilization

15. In virology lab, for spilled blood, the effective concentration of hypochlorites is:
    (A) 10,000 ppm of available chlorine  (B) 1000 ppm of available chlorine
    (C) 100 ppm of available chlorine  (D) 10 ppm of available chlorine

16. The use of Beta Lactamase producing control strains is recommended when testing the sensitivity of coliforms and staphylococcus aureus isolates to amoxyclyave.
    (A) E. coli NCTC 10418 + Staphylococcus aureus NCTC 6571
    (B) E. coli NCTC 11560 + Staphylococcus aureus NCTC 11561
    (C) E. coli NCTC 10418 + Staphylococcus aureus NCTC 11561
    (D) E. coli NCTC 11560 + Staphylococcus aureus NCTC6571
17. The maximum amount of blood can be collected from the heart of the rabbit is up to
(A) 25 ml    (B) 50 ml    (C) 75 ml    (D) 150 ml

18. Aminoglycosides interfere with;
(A) Cell wall synthesis    (B) Cytoplasmic membrane function
(C) Nucleic acid synthesis    (D) Protein synthesis

19. For providing microaerophilic atmosphere, the preferred mixtures is:
(A) 90% Nitrogen + 10% Carbon dioxide
(B) 90% Hydrogen + 10% Carbon dioxide
(C) 80% Oxygen + 10% Carbon dioxide + 10% Nitrogen
(D) 100% Hydrogen

20. The concentration of agar used for solidifying culture media is usually:
(A) 0.5 – 1.0%    (B) 1.0 – 2.0%    (C) 3.0 – 4.0%    (D) 4.0 – 5.0%

II. IMMUNOLOGY

21. Which of the following statements best describes the properties of haptens?
(A) Immunogenic & reactive with antibody
(B) Immunogenic but not reactive with antibody
(C) Not immunogenic but reactive with antibody
(D) Chemically complex, macromolecular structures

22. Precipitation reaction is very sensitive for the detection of:
(A) Antibodies    (B) Antigens
(C) Antigen-Antibody complex    (D) Complement

23. Serological reaction in which soluble antigen adsorbed on a carrier particle is called:
(A) Haemagglutination    (B) Passive Precipitation
(C) Passive agglutination    (D) Reverse passive agglutination
24. Most widely accepted theory of antibody production is:
   (A) Clonal selection theory       (B) Direct template theory
   (C) Indirect template theory     (D) Side chain theory

25. Drug-induced haemolytic anaemia is due to:
   (A) Type I hypersensitivity      (B) Type II hypersensitivity
   (C) Type III hypersensitivity    (D) Type IV hypersensitivity

28. Th cells recognize antigen in association with:
   (A) DP/DR locus                  (B) MHC - I
   (C) MHC - II                     (D) MHC - III

III. SYSTEMATIC BACTERIOLOGY

27. Neonatal meningitis that is acquired in the birth canal is often caused by:
    (A) Staphylococcus aureus        (B) Streptococcus agalactiae
    (C) Staphylococcus epidermidis   (D) Streptococcus pyogenes

28. Meningococcal meningitis in children less than five years most often is
    caused by strains belonging to:
    (A) Serogroup A                  (B) Serogroup B
    (C) Serogroup C                  (D) Serogroup W-135

29. The following statements are true in case of Corynebacterium
    diphtheriae EXCEPT:
    (A) Dick’s test                  (B) Elek’s gel precipitation test
    (C) Non toxigenic strain can be converted into toxigenic
    (D) Schick’s test

30. A positive Schick’s test implies that the person is:
    (A) Immune & hypersensitive      (B) Immune & non hypersensitive
    (C) Non Immune & hypersensitive  (D) Susceptible & non hypersensitive
31. Which of the following foods is most often associated with enteric type of food poisoning caused by Bacillus cereus?
(A) Egg  (B) Milk  (C) Meat  (D) Rice

32. A 23 year old Olympic high diver received an abrasion of the right fore arm by striking the side of the swimming pool. A granulomatous lesion developed at the site of the injury and eventually ulcerated. The most likely etiological agent of the lesion is:
(A) Mycobacterium intracellulareae  (B) Mycobacterium kansasii
(C) Mycobacterium marinum  (D) Mycobacterium ulcerans

33. The following statements are true regarding Mycobacterium tuberculosis EXCEPT:
(A) Form rough, tough and buff colonies on L-J medium
(B) Niacin test positive
(C) Nitrate reduction test positive
(D) Aryl sulphatase test positive

34. Tuberculoid leprosy is seen in patients with:
(A) Good cell mediated immunity  (B) Good humoral immunity
(C) Poor cell mediated immunity  (D) Poor humoral immunity

35. Which of the following bacterial colonies fluoresce brick red in UV light?
(A) Bacteroides fragilis  (B) Bacteroides gingivalis
(C) Bacteroides levii  (D) Bacteroides melaninogenicus

36. Sereny's test is used for detection of:
(A) EPEC  (B) EIEC  (C) EPEC  (D) ETEC

37. An elderly hospitalized patient has developed lobar pneumonia. Which of the following organisms can be suspected?
(A) Enterobacter areogenes  (B) Escherichia coli
(C) Klebsiella pneumoniae  (D) Proteus mirabilis

38. Which of the following species of Shigella is predominant in India?
(A) Shigella boydii  (B) Shigella dysenteriae
(C) Shigella flexneri  (D) Shigella sonnei
39. Identify the appropriate clinical specimen for culture & sensitivity during the first week of Enteric fever:
   (A) Blood       (B) Bile       (C) Faeces       (D) Urine

40. On Wilson & Blair medium, the colour of colonies of Salmonella paratyphi ‘A’ will be:
   (A) Black       (B) Green      (C) Purple      (D) Pink

41. Identification of Salmonella typhi in culture is confirmed by slide agglutination with:
   (A) Factor 2 antiserum   (B) Factor 4 antiserum
   (C) Factor 5 antiserum   (D) Factor 9 antiserum

42. The most reliable investigation for the diagnosis of Syphilis is:
   (A) DGM       (B) FTA-ABS   (C) RPR        (D) VDRL

IV. PARASITOLOGY

43. Diphyllobothrium latum causes
   (A) Haemorrhage          (B) Iron deficiency anemia
   (C) Megaloblastic anemia (D) Thalassemia

44. Infective agent in Schistosoma haematobium infection is
   (A) Cercaria            (B) Metacercaria
   (C) Miracidium          (D) Sporocyst

45. Redia stage is seen in the life cycle of
   (A) Diphyllobothrium latum
   (B) Fasciola hepatica
   (C) Strongyloides stercoralis
   (D) Trichinella spiralis

46. Non bile stained eggs are seen in the following parasite EXCEPT
   (A) Ascaris lumbricoides          (B) Ancylostoma duodenale
   (C) Enterobius vermicularis       (D) Hymenolepis nana

47. The infected RBC's are enlarged in case of infection caused by
   (A) Plasmodium ovale          (B) Plasmodium falciparum
   (C) Plasmodium malariae       (D) Plasmodium vivax
V. VIROLOGY

48. The following are the live vaccines EXCEPT
   (A) Measles
   (B) Rabies
   (C) Varicella
   (D) Yellow fever

49. The time interval from the stage of penetration till the appearance of mature daughter virions inside the host cell is called
   (A) Eclipse phase
   (B) Extrinsic incubation period
   (C) Incubation period
   (D) Latent period

50. Which of the following is not a clinical manifestation of Epstein barr virus infection?
   (A) Burkitt's lymphoma
   (B) Infectious mononucleosis
   (C) Intrauterine infection
   (D) Nasopharyngeal carcinoma

51. Presence of HBe Ag in a patient is indicative of
   (A) High infectivity
   (B) Recovery
   (C) Resistance
   (D) Simple carrier state

52. Most effective, cheapest and easily available disinfectant against HIV is
   (A) Dettol
   (B) Glutaraldehyde
   (C) Sodium hypochlorite
   (D) Spirit

53. The most common cause of viral diarrhea in young children is caused by
   (A) Enterovirus
   (B) Echovirus
   (C) Norwalk virus
   (D) Rotavirus

54. The transmission of arboviral diseases is by the following vectors EXCEPT
   (A) Mosquito
   (B) Reduvid bug
   (C) Sandfly
   (D) Tick

VI. MYCOLOGY

55. Sclerotic bodies are seen in
   (A) Chromoblastomycosis
   (B) Mycetoma
   (C) Rhinosporidoisis
   (D) Sporotrichosis

56. The pH of Sabouraud's dextrose agar is
   (A) 5.4
   (B) 6.4
   (C) 7.4
   (D) 8.0
57. A minor thorn pick progresses from a local pustule to an ulcer. The most likely agent is
   (A) Candida albicans           (B) Cryptococcus neoformans
   (C) Histoplasma capsulatum     (D) Sporothrix schenckii

58. The causative agent of desert rheumatism is
   (A) Blastomyces dermatitidis    (B) Coccidioides immitis
   (C) Histoplasms capsulatum      (D) Sporothrix schenckii

59. Favus is caused by
   (A) Tinea mentagrophytes        (B) Tinea rubrum
   (C) Tinea schoenleinii          (D) Tinea tonsurans

60. Fungal agents acquired by inhalation include EXCEPT
   (A) Cryptococcus neoformans     (B) Coccidioides immitis
   (C) Histoplasma capsulatum      (D) Candida

   IMMUNOLOGY

   Multiple completion type (Q.61 to 100)
   (A) If 1, 2 & 3 are correct
   (B) If 1 & 3 are correct
   (C) If 2 & 4 are correct
   (D) If 4 is correct
   (E) If all 4 are correct

61. The potential of bacteria to cause infection depends upon their ability to
   1. Adhere to the host cell
   2. Colonise the host tissues
   3. Multiply on or within the host tissues
   4. Penetrate host tissue

62. Artificial passive immunity is transferred by:
   1. Convalescent sera
   2. Hyperimmune sera
   3. Pooled gammaglobulin
   4. Typhoid vaccine
63. A patient is admitted to the hospital of a suspected deficiency in T cell reactivity tests that would be useful for determination of this deficiency include
   1. Enumeration of blood cell bearing HLA determinants.
   2. Enumeration of blood cell bearing receptors for sheep erythocytes.
   3. Enumeration of lymphocytes bearing surface immunoglobulins
   4. Tuberculin skin testing

64. Prozone phenomenon
   1. Occurs in the area of antibody excess.
   2. Occurs in the area of antigen excess.
   3. Causes misinterpretation of results.
   4. Involve the rapid differentiation of antigen & antibody.

**SYSTEMIC BACTERIOLOGY**

65. Clostridia that have been associated with gas gangrene and called established pathogen in humans include
   1. Clostridium bifermantans
   2. Clostridium novyi
   3. Clostridium difficile
   4. Clostridium septicum

66. The antibiotics associated with pseudomembrane colitis are
   1. Ampicillin
   2. Clindamycin
   3. Chloramphenicol
   4. Ofloxacin

67. Antibiotic therapy is useful in
   1. Anthrax
   2. Diphtheria
   3. Food poisoning
   4. Gas gangrene

68. The grading of smear in case of Mycobacterium tuberculosis is useful
   1. For a quantitative assessment of the number of bacilli in sputum.
   2. To estimate the infectiousness of the patient.
   3. To monitor effectiveness of the antimycobacterial activity.
   4. To determine the disconfirmation of respiratory isolation.
69. Carrier state in enteric fever can be detected by culturing the following clinical specimen
1. Bile
3. Faeces
2. Blood
4. Bone marrow

70. Shigella produces toxins namely
1. Enterotoxin
3. Verocytotoxin
2. Neurotoxin
4. Endotoxin

71. The drugs used for treatment of enteric fever are
1. Cotrimoxazole
3. Cefotaxime
2. Chloramphenicol
4. Ceftriaxonellfish

72. Wound infection following exposure to sea water of infected shellfish is caused by
1. Aeromonas
3. Vibrio vulnificus
2. Vibrio alginolyticus
4. Vibrio cholerae

73. Distinguishing features of classical and elTor vibrio include:
1. Hemolysis on blood agar
3. Sensitivity to
2. Sensitivity to polymyxin B
4. Voges Proskauer reaction

74. Regarding the seventh pandemic of cholera the following statements are true
1. Originated in Indonesia
3. Severity of illness is less
2. Caused by El Tor vibrio
4. originated in India.

75. Premunition or infection immunity is seen in the following
1. Chicken pox
3. Rickettsial fever.
2. Malaria
4. Syphilis.

76. The following bacteria require arthropod vector for transmission.
1. Coxiella burnetti
3. Rickettsia prowazakii
2. Rickettsia akari
4. Bartonella Quintana

77. The following act as vectors in transmission of Rickettsial diseases
1. Louse
3. Rat flea
2. Mite
4. Tick
78. The diseases caused by Chlamydiae trachomatis serotypes A-K are
   1. Endemic blinding trachoma
   2. Genital Chlamydiasis
   3. Inclusion conjunctivitis
   4. Acute Psittacosis

79. The primary amoebic meningoencephalitis is caused by
   1. Acanthamoeba castelanii
   2. Escherichia coli
   3. Entamoeba histolytica
   4. Naegleria fowleri

80. Which diseases is transmitted by insect vectors?
   1. Filariasis
   2. Hydatid cyst
   3. Malaria
   4. Paragonimiasis

81. Creeping infections is caused by:
   1. Ancylostoma caninum
   2. Ancylostoma braziliensis
   3. Strongyloides stercoralis
   4. Trichuris trichura

82. The following microfilariae are found in the blood EXCEPT
   1. Dipetolonea perstans
   2. Loa Loa
   3. Onchocerca volvulus
   4. Wuchereria bancrofti

83. The parasite which enters through skin is
   1. Ancylostoma duodenale
   2. Drancunculus medinensis
   3. Strongyloides stercoralis
   4. Taenia saginata

84. The following are flagellated protozoans
   1. Balantidium
   2. Giardia
   3. Naegleria
   4. Trypanosoma

85. Lab diagnosis of kala azar involves
   1. Aldehyde test
   2. Blood smear examination
   3. Bone marrow examination
   4. Culture on NNN medium
86. Which morphological forms of Plasmodium falciparum are observable in stained smears of peripheral blood?
   1. Gametocytes
   2. Merozoites
   3. Ring forms
   4. Schizonts

87. Examples of acid fast protozoan parasite include
   1. Cryptosporidium parvum
   2. Entamoeba histolytica
   3. Isospora belli
   4. Pneumocystis carinii

88. Infections acquired on eating poorly cooked meat include
   1. Enterobius vermicularis
   2. Taenia saginata
   3. Trichuris trichura
   4. Trichinella spiralis

89. The growth of virus in tissue culture can be detected by
   1. CPE
   2. Presence of viral proteins
   3. Hemadsorption
   4. IF

90. The following are the continuous cell line
   1. HeLa
   2. HEP-2
   3. McCoy
   4. Rhesus monkey kidney cell culture

91. The infections caused by Adenoviruses include
   1. Acute follicular conjunctivitis
   2. Diarrhoea
   3. Epidemic keratoconjunctivitis
   4. Hepatitis

92. Congenital rubella syndrome is characterized by
   1. Candida defects
   2. Cataract
   3. Deafness
   4. Pneumonia

93. Opportunistic infections in HIV positive patients are caused by
   1. Candida species
   2. Cytomegalovirus
   3. Strongyloides stercoralis
   4. Tuberculosis
94. True statements regarding HB carrier state include
   1. High titers of HBs Ag in blood 2. DNA polymerase
   3. HBV in circulation 4. Elevated transaminases

95. Intranuclear inclusion bodies are seen with viruses such as
   1. Adenovirus 2. Pox virus
   3. Herpes virus 4. Rabies virus

96. Arboviruses causing haemorrhagic fever are
   1. Russian Spring Summer Encephalitis
   2. Kyasanur Forest Diseases.
   3. Japanese Encephalitis
   4. Chickungunya

97. The commonest moulds that grow on damp bread
   1. Aspergillus 2. Epidermophyton
   3. Penicillium 4. Sporothrix

98. Actinomycotic mycetomas are usually caused by
   1. Actinomyces israelii 2. Madurella girea

99. The true statement regarding Cryptococcus neoformans
   1. Gram positive large, spherical budding cell
   2. Causes severe meningitis
   3. Gram positive large, oval budding cell
   4. Dimorphic fungus

100. Aetiological agents of superficial mycoses include
    1. Candida 2. Epidermophyton
    3. Microsporum 4. Trichophyton