

वरिष्ठ प्रदर्शक (जिकित्सा शिक्षा विभाग) स्वीक्षा परीक्षा - 2020

पुस्तिका में पृष्ठों की संख्या : 24
Number of Pages in Booklet : 24

पुस्तिका में प्रश्नों की संख्या : 180
No. of Questions in Booklet : 180

Paper Code : 07

SUBJECT : Microbiology

समय : 3.00 घण्टे
Time : 3.00 Hours

प्रश्न-पत्र पुस्तिका संख्या /
Question Paper Booklet No.

5217101

MSD Mb-02

परीक्षा दिनांक - 16/09/2020

परीक्षा समय - 9:00 to 12:00 ^{Maximum} अधिकतम अंक : 180
Maximum Marks : 180

प्रश्न-पत्र पुस्तिका एवं उत्तर पत्रक के पेपर सील/पॉलिथीन बैग को खोलने पर परीक्षार्थी यह सुनिश्चित कर लें कि उसके प्रश्न-पत्र पुस्तिका पर वही प्रश्न-पत्र पुस्तिका संख्या अंकित है जो उत्तर पत्रक पर अंकित है। इसमें कोई भिन्नता हो तो वीक्षक से दूसरा प्रश्न-पत्र प्राप्त कर लें। ऐसा न करने पर जिम्मेदारी अभ्यर्थी की होगी।

The candidate should ensure that Question Paper Booklet No. of the Question Paper Booklet and Answer Sheet must be same after opening the Paper Seal / Polythene bag. In case they are different, a candidate must obtain another Question Paper. Candidate himself shall be responsible for ensuring this.

परीक्षार्थियों के लिए निर्देश

1. सभी प्रश्नों के उत्तर दीजिए।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का केवल एक ही उत्तर दीजिए।
4. एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
5. प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले अथवा बबल को उत्तर पत्रक पर नीले बॉल प्वाइंट पेन से गहरा करना है।
6. OMR उत्तर पत्रक इस परीक्षा पुस्तिका के अन्दर रखा है। जब आपको परीक्षा पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्र निकाल कर ध्यान से केवल नीले बॉल पॉइंट पेन से विवरण भरें।
7. प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा। गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है। किसी भी प्रश्न से संबंधित गोले या बबल को खाली छोड़ना गलत उत्तर नहीं माना जायेगा।
8. मोबाइल फोन अथवा इलेक्ट्रॉनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।
9. कृपया अपना रोल नम्बर ओ.एम.आर. पत्रक पर सावधानीपूर्वक सही भरें। गलत अथवा अपूर्ण रोल नम्बर भरने पर 5 अंक कुल प्राप्तांकों में से काटे जा सकते हैं।

चेतावनी: अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए विविध नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही विभाग ऐसे अभ्यर्थी को भविष्य में होने वाली विभाग की समस्त परीक्षाओं से विवर्जित कर सकता है।

INSTRUCTIONS FOR CANDIDATES

1. Answer all questions.
2. All questions carry equal marks.
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as 1, 2, 3, 4. You have to darken only one circle or bubble indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
6. The OMR Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with blue ball point pen only.
7. 1/3 part of the mark(s) of each question will be deducted for each wrong answer. A wrong answer means an incorrect answer or more than one answers for any question. Leaving all the relevant circles or bubbles of any question blank will not be considered as wrong answer.
8. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
9. Please correctly fill your Roll Number in O.M.R. Sheet. 5 Marks can be deducted for filling wrong or incomplete Roll Number.

Warning: If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would liable to be prosecuted. Department may also debar him/her permanently from all future examinations.

इस परीक्षा पुस्तिका को तब तक न खोलें जब तक कहा न जाए।

Do not open this Test Booklet until you are asked to do so.

07-□



1. The specificity of an antibody is due to :

- (1) its valence
- (2) the heavy chains
- (3) the Fc portion of the molecule
- (4) the variable portion of the heavy and light chain

2. The mononuclear phagocyte system does not include :

- (1) Endothelial cells
- (2) Kidney mesangial cells
- (3) Kupffer cells
- (4) Lymph node medullary macrophages

3. Monoclonal antibodies are routinely used in all of the following, EXCEPT :

- (1) The classification of leukemias.
- (2) The identification and epidemiological study of infectious microorganisms.
- (3) The identification of tumor antigens.
- (4) The manipulation of the immune response.

4. Which of the following is used for typing when a patient is being prepared for an organ transplant ?

- (1) MHC class I molecules
- (2) MHC class II molecules
- (3) MHC class III molecules
- (4) All of these

5. Which of the following species of Pasteurella species has been associated with infections of the female genital tract and of newborn ?

- (1) Pasteurella multocida
- (2) Pasteurella pneumotropica
- (3) Pasteurella ureae
- (4) Pasteurella bettyae

6. Each of the following statements concerning the Gram stain is correct EXCEPT :

- (1) Escherichia coli stains pink because it has a thin peptidoglycan layer.
- (2) Streptococcus pyogenes stains blue because it has a thick peptidoglycan layer.
- (3) Mycoplasma pneumoniae is not visible in Gram's stain because it does not have a cell wall.
- (4) Mycobacterium tuberculosis stains blue.

7. An 8 year old girl was playing in a slowly moving stream when she cut her foot on a sharp object. Three days later she was brought to the emergency room of a hospital because of pain and swelling at the site of the wound and drainage of pus from it. The most likely cause of the infection is -

- (1) Vibrio vulnificus
- (2) Escherichia coli
- (3) Aeromonas hydrophila
- (4) Salmonella typhimurium

8. 16 bacteria are produced by 1 bacterium after-
- (1) 2 generation
 - (2) 4 generation
 - (3) 5 generation
 - (4) 3 generation
9. Creutzfeldt-Jakob disease (CJD), Kuru, Scrapie, and Mad Cow diseases are caused by :
- (1) Viroids
 - (2) Retroviruses
 - (3) DNA viruses
 - (4) Prions
10. Resistance of *Staphylococcus aureus* to methicillin is most often caused by -
- (1) Alternation of the major target for the drug
 - (2) Cell membrane impermeability
 - (3) Decreased uptake of the antibiotic
 - (4) Synthesis of a potent Beta Lactamase
11. Which one of the following factors, released by heating a suspension of sheep erythrocytes, is required for the growth of *Haemophilus Influenzae* in chocolate agar ?
- (1) Coagulase
 - (2) Nicotinamide adenine dinucleotide (NAD)
 - (3) Hemoglobin
 - (4) Hemolysin
12. Which of the following bacteria are not most important causes of acute bacterial meningitis ?
- (1) *Neisseria meningitidis*
 - (2) *Streptococcus pneumoniae*
 - (3) *Haemophilus influenzae*
 - (4) *Streptococcus pyogenes*
13. Cold agglutinin test is useful for the diagnosis of-
- (1) *Mycoplasma pneumoniae*
 - (2) *H. influenzae*
 - (3) *N. meningitidis*
 - (4) *Cryptococcus neoformans*
14. A massive lesion caused by spread of *Staphylococcus aureus* infection (often on the neck and upper back) is called :
- (1) Boil
 - (2) Abscess
 - (3) Furuncle
 - (4) Carbuncle
15. Which of the following are not the characteristics of impetigo ?
- (1) Common in children
 - (2) Can be caused by *Streptococcus pyogenes*
 - (3) Is highly contagious
 - (4) Can be caused by pseudomonads

16. The bacteria that multiply in blocked skin pores, metabolize sebum, and can lead to the development of acne are :

- (1) Pseudomonas aeruginosa
- (2) Propionibacterium spp.
- (3) Serratia marcescens
- (4) Streptococcus pyogenes

17. Gram-negative bacteria, responsible for food poisoning are :

- (1) Salmonella
- (2) Pseudomonas
- (3) Clostridia
- (4) None of these

18. The inflammatory disease of the middle ear caused by Moraxella species is known as :

- (1) Deafness
- (2) Ear disorder
- (3) Hearing impairment
- (4) Otitis media

19. The minimum time for doubling of E.coli generation is approximately :

- (1) 1 hour
- (2) 30 minutes
- (3) 40 minutes
- (4) 20 minutes

20. In the death phase, there is a remarkable decrease in the number of :

- (1) Bacteria
- (2) Viable bacteria
- (3) Dividing bacteria
- (4) Progeny

21. A cluster of polar flagella is called :

- (1) Lophotrichous
- (2) Amphitrichous
- (3) Monotrichous
- (4) Petritrichous

22. Which of the following inference(s) indicate(s) the ability of an organism to utilize citrate as a sole source of carbon in Simmon's citrate medium ?

- (1) Blue colour
- (2) Appearance of growth
- (3) Both Blue colour and Appearance of growth
- (4) None of these

23. A positive Mantoux test indicates an area of induration of :

- (1) 4-9 mm in diameter
- (2) 1-4 mm in diameter
- (3) 10 mm or more in diameter
- (4) None of these

24. The bacteria which cause(s) tuberculosis in man is/are :

- (1) M bovis
- (2) Mycobacterium tuberculosis
- (3) M africanum
- (4) All of these

25. The bacteria which is microaerophilic on primary isolation, is :
- (1) *M fortuitum*
 - (2) *Mycobacterium tuberculosis*
 - (3) *M bovis*
 - (4) None of these
26. Example of a Saprophytic bacteria is :
- (1) *M xenopi*
 - (2) *Msmegmatis*
 - (3) *Mycobacterium chelonae*
 - (4) *M marinum*
27. Ascoli's thermoprecipitation test helps in confirming the laboratory diagnosis of :
- (1) Tetanus
 - (2) Anthrax
 - (3) Typhoid
 - (4) Cholera
28. The test(s) which can be used to differentiate anthrax bacilli from anthracoid bacilli is/are :
- (1) presence of medusa-head colony
 - (2) presence of capsule
 - (3) susceptibility to gamma phage
 - (4) All of these
29. The toxin of *Staphylococcus aureus* that may result into scalded skin syndrome is :
- (1) Enterotoxin
 - (2) Leucocidin
 - (3) Epidermolytic toxin
 - (4) Haemolysin
30. Which of the following test(s) may establish retrospective diagnosis of streptococcal infection ?
- (1) Anti-DNase B test
 - (2) ASO test
 - (3) Streptozyme test
 - (4) All of these
31. Which of the following Staphylococcal haemolysins does not possess leucocidal activity ?
- (1) α haemolysin
 - (2) γ haemolysin
 - (3) β haemolysin
 - (4) δ haemolysin
32. *Streptococcus pyogenes* can be differentiated from other haemolytic Streptococci on the basis of :
- (1) Bacitracin sensitivity
 - (2) Erythromycin sensitivity
 - (3) Aminoglycosides sensitivity
 - (4) Penicillin sensitivity
33. Which of the following test indicates the susceptibility to streptococcal pyrogenic exotoxin ?
- (1) Schick test
 - (2) Disk test
 - (3) ASO test
 - (4) Precipitation test



34. Which is most likely to be exposed on the surface of a gram-negative bacterium ?
- (1) Pore protein (porin)
 - (2) Protein involved in energy generation
 - (3) Lipoteichoic acid
 - (4) Phospholipids
35. The next to last step in peptidoglycan biosynthesis is :
- (1) synthesis of the NAM-peptide subunit.
 - (2) removal of the subunit from bactoprenol.
 - (3) linking the sugar of the disaccharide-peptide unit to the growing peptidoglycan chain.
 - (4) cross-linking the peptide side chains of peptidoglycan.
36. Implicit factors :
- (1) depend on developing microflora
 - (2) can be synergistic
 - (3) both depend on developing microflora and can be synergistic
 - (4) None of these
37. The enzyme, which hydrolyses the murein is :
- (1) Peroxidase
 - (2) Tannase
 - (3) Lysozyme
 - (4) None of these
38. Coliform bacteria on fermentation of carbohydrates yields :
- (1) Lactic acid
 - (2) Acetic acid
 - (3) Formic acid
 - (4) All of these
39. Which of the following cross-reacts with cell wall carbohydrate of *Streptococcus pyogenes* ?
- (1) Cardiac valves
 - (2) Synovial fluid
 - (3) Myocardium
 - (4) Vascular intima
40. Crystal violet blood agar is a selective medium for :
- (1) β -haemolytic streptococci
 - (2) *Staphylococcus aureus*
 - (3) *Corynebacterium diphtheria*
 - (4) *Mycobacterium tuberculosis*
41. The most pathogenic *Brucella* spp. for man is :
- (1) *B. melitensis*
 - (2) *B. abortus*
 - (3) *B. suis*
 - (4) *B. canis*
42. Which of the following can be identified by milk ring test ?
- (1) Brucellosis
 - (2) Salmonellosis
 - (3) Bovine tuberculosis
 - (4) All of these

43. Colonies resembling molar teeth are produced by :

- (1) *Nocardia brasiliensis*
- (2) *N. asteroides*
- (3) *Actinomyces israelii*
- (4) *Actinomadura madurae*

44. The commonest species of *Bacteroides* in fragilis group, which causes human infection is :

- (1) *B vulgatus*
- (2) *B fragilis*
- (3) *B ovatus*
- (4) *B merdae*

45. Which of the following bacterial colonies fluoresce brick-red in UVlight ?

- (1) *B gingivalis*
- (2) *B melaninogenicus*
- (3) *Bacteroides fragilis*
- (4) *B levii*

46. Which of the following bacteria is moderately saccharolytic ?

- (1) *Bacteroides fragilis*
- (2) *B gingivalis*
- (3) *B melaninogenicus*
- (4) *B levii*

47. Nagler's reaction is useful for the identification of :

- (1) *C tetani*
- (2) *C perfringens*
- (3) *C botulinum*
- (4) *C difficile*

48. *Clostridium botulinum* food poisoning is due to :

- (1) invasion of bacteria in the intestine
- (2) preformed toxin
- (3) both invasion of bacteria in the intestine and preformed toxin
- (4) None of these

49. Typical drumstick appearance of bacilli is generally seen in :

- (1) *C perfringens*
- (2) *C botulinum*
- (3) *C tetani*
- (4) *C histolyticum*

50. Which of the following bacteria is associated with food poisoning due to consumption of sea fish ?

- (1) *Vibrio parahaemolyticus*
- (2) *V alginolyticus*
- (3) *V vulnificus*
- (4) All of these



51. Which of the following medium are used to differentiate the colonies of *Vibrio cholerae* and *V. parahaemolyticus* ?
- (1) Alkaline bile salt
 - (2) Thiosulphate-citrate-bile-sucrose
 - (3) MacConkey
 - (4) All of these
52. The transport medium for *Vibrio cholerae* can be :
- (1) Venkatraman-Ramakrishnan medium
 - (2) Selenite F broth
 - (3) Tetrathionate broth
 - (4) Nutrient broth
53. Which of the following toxin resembles cholera toxin ?
- (1) Stable toxin of *E. coli*
 - (2) Diphtheria toxin
 - (3) Labile toxin of *Escherichia coli*
 - (4) Tetanus toxin
54. Cord growth seen on mycobacterial culture is characteristic of :
- (1) Avirulent strains
 - (2) Virulent strains
 - (3) Saprophytic strains
 - (4) Atypical mycobacteria
55. Which one of the following are constituent of Lowenstein Jensen media except :
- (1) Agarose
 - (2) Malachite green
 - (3) Mineral salts
 - (4) Asparagine
56. Mutations in *katG* gene of *Mycobacterium tuberculosis* are responsible for resistance to :
- (1) INH
 - (2) Rifampicin
 - (3) Pyrazinamide
 - (4) Streptomycin
57. All of the following are non photochromogens, except :
- (1) *Mycobacterium ulcerans*
 - (2) *Mycobacterium xenopi*
 - (3) *Mycobacterium avium*
 - (4) *Mycobacterium marinum*
58. *M. Bovis* is also a causative agent for Tuberculosis in human and is transmitted by :
- (1) Cow's milk
 - (2) Goat's milk
 - (3) Camel's milk
 - (4) Poultry
59. Non-tuberculous mycobacteria are those that do not infect lungs and are also called as :
- (1) Atypical bacteria
 - (2) Non disease causing
 - (3) Facultative bacteria
 - (4) Neutral bacteria

60. The Actinomycetes that causes abscesses in the brain and kidney in immunodeficient patients are :
- (1) Actinomycetes israelii
 - (2) Nocardia asteroides
 - (3) M. marinum
 - (4) M. leprae
61. An elderly male presented with fever, chest pain and dry cough. Sputum was cultured on charcoal yeast medium, the organism identified will be :
- (1) H.influenza
 - (2) Moraxella catarrhalis
 - (3) Legionella
 - (4) Burkholderia cepacia
62. Salmonella typhi is the causative agent of typhoid fever. The infective dose of S. typhi is :
- (1) One bacillus
 - (2) 10⁸-10¹⁰ bacilli
 - (3) 10²-10⁵ bacilli
 - (4) 1-10 bacilli
63. Clostridium perfringens type A occurs as a natural flora of
- (1) Stomach
 - (2) Mouth
 - (3) Intestine
 - (4) Eyes
64. Erythrasma is caused by which of the following microorganism ?
- (1) Corynebacterium diphtheria
 - (2) Corynebacterium ulcerans
 - (3) Corynebacterium minutissimum
 - (4) Listeria monocytogenes
65. The finding of large, multinucleated, clumps of cells in the bronchial secretions of a 2 year old girl with acute bronchopneumonia suggests that this infection is caused by :
- (1) Bordetella pertussis
 - (2) Epstein-Barr virus
 - (3) Rhino virus
 - (4) Respiratory syncytial virus (RSV)
66. What is the most common cause of aseptic meningitis of viral etiology ?
- (1) Enteroviruses
 - (2) Herpesviruses
 - (3) Arboviruses
 - (4) Orthomyxoviruses
67. When a virus enters a cell but does not replicate immediately, the situation is called :
- (1) Lysogeny
 - (2) Fermentation
 - (3) Symbiosis
 - (4) Synergism



68. Which of the following is semi-continuous (diploid) cell line ?
- (1) HeLa
 - (2) HEp-2
 - (3) WI-38
 - (4) KB
69. The viral DNA is removed from the host's chromosomes and the lytic cycle occurs. The process is called :
- (1) Spontaneous induction
 - (2) Inductive infection
 - (3) Resultant induction
 - (4) Spontaneous infection
70. In the simplest capsid, there is a capsomere at each of the 12 vertices. This capsomere, which is surrounded by five other capsomeres, is termed as :
- (1) Penton
 - (2) Polyhedral
 - (3) Icosahedral
 - (4) Helical
71. Which one is not useful in the treatment of viruses EXCEPT :
- (1) Acyclovir
 - (2) Interferon
 - (3) Penicillin
 - (4) Antibodies
72. The most popular indirect method of counting virus particles is by :
- (1) Hemagglutination assay
 - (2) Plaque-assay
 - (3) Counting plaque-forming units
 - (4) Colony counting
73. Inclusion bodies of measles virus are :
- (1) Intracytoplasmic
 - (2) Intranuclear
 - (3) Both Intracytoplasmic and Intranuclear
 - (4) None of these
74. Which of the following oncogenic viruses was first detected ?
- (1) Rous sarcoma virus
 - (2) Epstein-Barr virus
 - (3) Herpes simplex virus type 2
 - (4) Human T cell leukaemia virus
75. Which of the following viruses can rescue adenovirus in simian cells ?
- (1) Rabies
 - (2) Vaccinia
 - (3) Simian virus 40
 - (4) Cytomegalovirus
76. The extracellular phage number increases until a constant titer at the end of the multiplication cycle. This time interval is termed as :
- (1) Eclipse period
 - (2) Rise period
 - (3) Latent period
 - (4) Burst size

77. Viral gastroenteritis in young children is caused by :
- (1) Echo virus
 - (2) Rota virus
 - (3) Coxsackie virus
 - (4) Rhino virus
78. In the virion structure, the regulatory protein is present which is known as :
- (1) Tegument
 - (2) Cell membrane
 - (3) Antigen
 - (4) Coat
79. The mutations that are valuable in determining the function of the viral gene is called :
- (1) Substitution
 - (2) Frameshift mutation
 - (3) Conditional lethal mutation
 - (4) Point mutation
80. Which of the following viruses have a complex symmetry ?
- (1) Alphavirus
 - (2) Mobillivirus
 - (3) Orthopoxvirus
 - (4) Parvovirus
81. The human virus that has been associated with Burkett's lymphoma (a malignant tumor of the jaw) is :
- (1) Cytomegalovirus
 - (2) Human papilloma virus (HPV)
 - (3) Retroviruses
 - (4) Epstein- Barr virus

82. All the following viruses are disseminated throughout the body EXCEPT ONE :
- (1) HBV
 - (2) Rabies virus
 - (3) Yellow fever virus
 - (4) Human papilloma virus
83. Each of the following diseases is associated with infection by picornaviruses EXCEPT ONE :
- (1) Myocarditis
 - (2) Hepatitis
 - (3) Meningitis
 - (4) Mononucleosis
84. Epidemic pleurodynia and myocarditis are both caused by :
- (1) Group B Coxsackievirus
 - (2) Polymavirus
 - (3) RSV
 - (4) Reovirus
85. Certain viruses have been associated with birth defects, these teratogenic viruses include all the following EXCEPT :
- (1) Rubella virus
 - (2) CMV
 - (3) Parvovirus B19
 - (4) Rhino virus



86. All of the following association are true EXCEPT ONE :
- (1) EBV can cause nasopharyngeal carcinoma
 - (2) CMV causes heterophil-negative mononucleosis
 - (3) Mumps virus can cause meningitis
 - (4) Astrovirus causes gastroenteritis only in adults
87. What are the safe methods of disposal of dead bodies of persons who have died of suspected or confirmed COVID-19 ?
- (1) Cremation
 - (2) Burial
 - (3) Both Cremation & Burial
 - (4) None of these
88. All the RNA viruses contain single-stranded RNA except :
- (1) Reovirus
 - (2) Retrovirus
 - (3) Human Immunodeficiency Virus (HIV)
 - (4) Hepatitis B virus (HBV)
89. Which of the following is an example of head-and-tail bacteriophage ?
- (1) M13
 - (2) Lambda phage
 - (3) Pbr322
 - (4) M16
90. Which infection cycle is characterized by retention of the phage DNA molecule in the host bacterium for many thousands of cell division ?
- (1) Lysogenic cycle
 - (2) Lytic cycle
 - (3) Integrative phase
 - (4) Protein synthesis
91. Which herpes virus is most commonly associated with a dangerous fetal infection ?
- (1) Herpes simplex
 - (2) Herpes zoster
 - (3) EBV
 - (4) CMV
92. Which of the following is true about hepadnaviruses ?
- (1) All have double stranded RNA
 - (2) All have reverse transcriptase
 - (3) All have V oncogene
 - (4) All have double capsid
93. Bacteriophage are readily counted by the process of :
- (1) Immunoassays
 - (2) ELISA
 - (3) Plaque assays
 - (4) Tissue cell culture

94. A type of cell culture that can reproduce for an extended number of generations and is used to support viral replication is a :
- (1) Primary cell culture
 - (2) Continuous cell line
 - (3) Cell strain
 - (4) Diploid fibroblast cell
95. Aspergillosis is recognized in tissue by the presence of :
- (1) Metachromatic granules
 - (2) Psuedohyphae
 - (3) Septatehyphae
 - (4) Budding cells
96. Infection with dermatophyte is most often associated with :
- (1) intravenous drug abuse
 - (2) inhalation of the organism from contaminated bird feces
 - (3) adherence of the organism to perspiration moist skin
 - (4) Fecal-oral transmission
97. Fungal cells that reproduce by budding are seen in the infected tissues of patients with :
- (1) Candidiasis, cryptococcosis, and sporotrichosis
 - (2) Mycetoma, candidiasis and mucormycosis
 - (3) Tinea corporis, tinea unguium, and tinea versicolor
 - (4) Sporotrichosis, mycetoma and aspergillosis

98. Each of the following statements concerning *Cryptococcus neoformans* are correct EXCEPT-
- (1) Its natural habitat is the soil, especially associated with pigeon feces.
 - (2) Budding yeasts are found in the lesions.
 - (3) The initial site of infection is usually the lung.
 - (4) Pathogenesis is related primarily to the production of exotoxin A.
99. Fungi often colonize lesions due to other causes. Which of the following is least likely to be present as colonizer,
- (1) Candida
 - (2) Sporothrix
 - (3) Mucor
 - (4) Aspergillus
100. A 35-year-old man with a CD4 count of 50 presents with a skin nodule on his chest. The nodule is about 3 cm in diameter and is not red, hot, or tender. He says it has been slowly growing bigger for the past 3 weeks. You biopsy the nodule, and the pathologist calls to say that the patient has disseminated cryptococcosis. Which one of the following is the BEST description of what the pathologist saw in the biopsy specimen ?
- (1) Non-septate hyphae
 - (2) Spherules
 - (3) Septate hyphae with low-angle branching
 - (4) Budding yeasts with a thick capsule



101. Each of the following statements concerning mucormycosis is correct EXCEPT :

- (1) Tissue sections from a patient with mucormycosis show budding yeasts.
- (2) Ketoacidosis in diabetic patients is a predisposing factor to mucormycosis.
- (3) Hyphae typically invade blood vessels and cause necrosis of tissue.
- (4) The fungi that cause mucormycosis are transmitted by airborne asexual spores.

102. Which one of the following fungi is MOST likely to be found within reticuloendothelial cells ?

- (1) *Cryptococcus neoformans*
- (2) *Histoplasma capsulatum*
- (3) *Candida albicans*
- (4) *Sporothrix schenckii*

103. Each of the following statements concerning fungi is correct EXCEPT :

- (1) Thermally dimorphic fungi exist as yeasts at 37°C and as molds at 25°C.
- (2) Molds are fungi that have elongated filaments called hyphae.
- (3) Yeasts are fungi that reproduce by budding.
- (4) Both yeasts and molds have a cell wall made of peptidoglycan.

104. To inhibit synthesis of DNA which drug is used ?

- (1) Caspofungin
- (2) Micafungin
- (3) Parafungin
- (4) None of these

105. A girl who pricked her finger while pruning some rose bushes develops a local pustule that progresses to an ulcer. Several nodules then develop along the local lymphatic drainage. The most likely agent is -

- (1) *Aspergillus fumigatus*
- (2) *Sporothrix schenckii*
- (3) *Cryptococcus neoformans*
- (4) *Candida albicans*

106. The host of *Penicillium marneffe* is -

- (1) Bugs
- (2) Bamboo rats
- (3) Wild rats
- (4) Cats

107. A network of fine white filaments in the vegetative part of the fungus is called

- (1) Septa
- (2) Hyphae
- (3) Mycelium
- (4) Conidia

108. The natural habitat for the *Paracoccidioides brasiliensis* is -
- (1) Soil
 - (2) Skin
 - (3) Mud
 - (4) Water
109. The fungal cell membrane in contrast to human cell membrane is composed of
- (1) Sterol
 - (2) Lipids
 - (3) Cholesterol
 - (4) Ergosterol
110. The fungus responsible for ergotism belongs to which of the following fungal divisions ?
- (1) Deuteromycota
 - (2) Oomycota
 - (3) Zygomycota
 - (4) Ascomycota
111. Each of the following statements concerning *Candida albicans* is correct, EXCEPT :
- (1) *C. albicans* is a budding yeast that forms pseudohyphae when it invades tissue.
 - (2) *C. albicans* causes thrush.
 - (3) *C. albicans* is transmitted primarily by respiratory aerosol.
 - (4) Impaired cell mediated immunity is an important predisposing factor to disease.
112. The medium of choice for culturing yeast form of dimorphic fungi is
- (1) Brain – heart infusion
 - (2) Sabouraud's
 - (3) Sabouraud's plus antibiotics
 - (4) Any medium incubated at 35-37 °C
113. What would be the best temperature to incubate fungi like *Candida albicans* and *Aspergillus fumigatus* for antifungal susceptibility testing ?
- (1) 25°C
 - (2) 28°C
 - (3) 30°C
 - (4) 35°C
114. A 19-year-old migrant worker from south India is brought to the family doctor complaining of cough, pleuritic chest pain, fever, and malaise. He also complains of a backache and headache. He is found to have an erythematous skin rash on his lower limbs. A chest radiograph reveals several calcifying lesions. Which of the following structures is most likely to be found ?
- (1) Broad-based budding yeast.
 - (2) Septate hyphae branching dichotomously at acute angles.
 - (3) Spherules with endospores.
 - (4) Non-septate hyphae with broad angles.

115. Each of the following parasite is transmitted by mosquitoes EXCEPT :

- (1) *Leishmania donovani*
- (2) *Wuchereria bancrofti*
- (3) *Plasmodium vivax*
- (4) *Plasmodium falciparum*

116. Each of the following statements concerning kala-azar is correct EXCEPT :

- (1) Kala-azar is caused by *Leishmania donovani*.
- (2) Kala-azar is transmitted by the bite of sandflies.
- (3) Kala-azar occurs primarily in rural India.
- (4) Kala-azar can be diagnosed by finding amastigotes in bone marrow.

117. Pigs or dogs are the source of human infection by each of the following parasites EXCEPT :

- (1) *Echinococcus granulosus*
- (2) *Taenia solium*
- (3) *Ascaris lumbricoides*
- (4) *Trichinella spiralis*

118. The stool of the patient infected with what parasite is described as steatorrheic or gruelly ?

- (1) *Balantidium coli*
- (2) *Entamoeba histolytica*
- (3) *Chilomastix mesnili*
- (4) *Giardia lamblia*

119. Associated with uveitis or ulceration of the cornea :

- (1) *Acanthamoeba culbertsoni*
- (2) *Entamoeba histolytica*
- (3) *Balantidium coli*
- (4) *Naegleria fowleri*

120. *Entamoeba histolytica* can be cultured in :

- (1) Diamonds medium
- (2) CLED medium
- (3) NNN medium
- (4) Ma conkey agar

121. Which of the following acts as a main reservoir of *balantidium coli* infection in human beings ?

- (1) Man
- (2) Monkey
- (3) Cow
- (4) Pig

122. Which protozoan has a unique appearance, with a blue halo, when viewed using ultraviolet fluorescence microscopy ?

- (1) *Giardia lamblia*
- (2) *Cryptosporidium hominis*
- (3) *Cyclospora cayentanesis*
- (4) *Entamoeba histolytica*

123. A non-segmented worm is found during a routine colonoscopy of an individual who reported having abdominal cramps, nausea and vomiting. This worm is likely which of the following ?

- (1) Nematode
- (2) Fluke
- (3) Trematode
- (4) Annelid

124. Sabin - Feldman dye test is used in the diagnosis of

- (1) Toxoplasmosis
- (2) Amoebiasis
- (3) Cryptosporidiosis
- (4) Trypanosomiasis

125. What is the smallest tapeworm infecting man ?

- (1) *Taenia sanguinata*
- (2) *Taenia solium*
- (3) *Hymenolpis nana*
- (4) *Diphyllobothrium latum*

126. Primary amoebic meningoencephalitis is caused by :

- (1) *Acanthamoeba*
- (2) *Balamuthia* spp
- (3) *Naegleria fowleri*
- (4) *Iodamoeba buetschlii*

127. In the mode of transmission for *Schistosoma mansoni*, the penetration is in :

- (1) Mucous
- (2) Intestine
- (3) Skin
- (4) Blood

128. A 30-year-old woman presents to her gynecologist with complaints of vaginal itching and a frothy, yellow discharge. She also complains of painful urination. She admits to being sexually active with several men in the past two weeks. Cultures are negative for bacterial growth, but organisms are visible via a wet preparation on low power. The most likely causal agent is -

- (1) *Giardia lamblia*
- (2) *Trichomonas vaginalis*
- (3) *Candida albicans*
- (4) *Chlamydia trachomatis*

129. The examination of sputum and stool may be necessary to diagnose infection with :

- (1) *Paragonimus westermani*
- (2) *Trichinella spiralis*
- (3) *Wuchereria bancrofti*
- (4) *Fasciola hepatica*

130. The specimen that is LEAST LIKELY to provide recovery of *Trichomonas vaginalis* is -

- (1) Urine
- (2) Urethral discharge
- (3) Prostatic discharge
- (4) Feces

131. Each of the following statements concerning *Ascaris lumbricoides* is correct except :
- (1) *Ascaris lumbricoides* is one of the largest nematode.
 - (2) *Ascaris lumbricoides* can cause pneumonia.
 - (3) Both dogs and cats are intermediate host of *Ascaris lumbricoides*.
 - (4) *A. lumbricoides* is transmitted by ingestion of eggs.
132. Which of the following nematode is a ovo – viviparous ?
- (1) *Enterobius vermicularis*
 - (2) *Trichinella spiralis*
 - (3) *Strongyloides stercoralis*
 - (4) *Dracunculus medinensis*
133. Which of the following is not a bile stained egg ?
- (1) *Ascaris lumbricoides*
 - (2) *Trichuris trichiura*
 - (3) *Taenia solium*
 - (4) *Ancylostoma duodenale*
134. A 35-year-old captain in the army reserves has been plagued by a painful, erosive lesion near his ear lobe since his return from Operation Desert Storm several years ago. He denies exposure to the toxic by-products of burning oil fields. Punch biopsy of the leading edge of the erosion reveals macrophages distended with oval amastigotes. How was this infection acquired ?
- (1) Contact with contaminated drinking water
 - (2) Bite of reduviid bug
 - (3) Bite of tsetse fly
 - (4) Bite of sandfly
135. Nystatin is produced from the strain
- (1) *Streptomyces noursei*
 - (2) *Streptomyces aureofaciens*
 - (3) *Streptomyces kanamyceticus*
 - (4) *Streptomyces fradiae*
136. Acycloguanosine is a nucleoside analog which is active against
- (1) Influenza A virus
 - (2) HIV virus
 - (3) Herpes virus
 - (4) Influenza B virus
137. Which of the following is a drug that interferes with the process of DNA production in the virus that causes genital herpes ?
- (1) Erythromycin
 - (2) Vancomycin
 - (3) Amantadine
 - (4) Acyclovir
138. By which of the following means antifungal chemotherapeutic agents may affect fungi ?
- (1) Interfere with nuclear division by preventing the aggregation of microtubules needed for mitosis.
 - (2) Interfere with normal nucleic acid synthesis.
 - (3) Interfere with ergosterol biosynthesis and thus alter the structure of the cytoplasmic membrane as well as the function of several membrane-bound enzymes like those involved in nutrient transport and chitin synthesis.
 - (4) All of these

139. Who developed the concept of specific toxicity ?

- (1) Pasteur
- (2) Fleming
- (3) Watson
- (4) Ehrlich

140. Treatment of municipal water supplies is based upon :

- (1) Coagulation, filtration, chlorination
- (2) Chlorination, filtration, coagulation
- (3) Filtration, coagulation, chlorination
- (4) Coagulation, chlorination, filtration

141. Who discovered transposons (jumping genes) ?

- (1) Abelson
- (2) Harvey
- (3) McClintock
- (4) Griffith

142. The cloning step in PCR/sequencing analysis of microbial communities is necessary for :

- (1) the amplification process
- (2) preventing contamination by outside DNA
- (3) separating the different rRNA gene sequences in the mixture
- (4) None of these

143. Factors influencing the nosocomial infection are :

- (1) Patient susceptibility
- (2) Microbial agent
- (3) Environment factors
- (4) All of these

144. What are the types of hospital acquired infection ?

- (1) Ventilator associated pneumonia
- (2) Surgical site infection
- (3) Central line associated blood stream infection
- (4) All of these

145. Which one of the following is most characteristic of Mycoplasma pneumoniae infection ?

- (1) Infection results in a fever of sudden onset accompanied by a productive cough.
- (2) Infection most commonly occurs in the upper respiratory tract.
- (3) Infection is definitively diagnosed by direct microscopic examination of sputum.
- (4) Re-infection is rare and less severe than primary infection.

146. Each of the following organisms is an important cause of urinary tract infections except :

- (1) Klebsiella pneumoniae
- (2) Escherichia coli
- (3) Bacteroides fragilis
- (4) Proteus mirabilis



147. *Candida Albicans* present as normal flora in mouth colon and

- (1) Vagina
- (2) Intestine
- (3) Uterus
- (4) Skin

148. *Lactobacillus* is a human pathogen that is also part of normal flora and found in :

- (1) Colon
- (2) Mouth
- (3) Genital Tract of female
- (4) All of these

149. Which of the following is not a toxic type of food poisoning ?

- (1) *Staphylococcus aureus*
- (2) *Bacillus cereus*
- (3) *Clostridium botulinum*
- (4) *Campylobacter jejuni*

150. A Child who has not been vaccinated with *H.influenza* comes to the OPD at 14 months. How many doses, including booster would you like to give to this child ?

- (1) 4 doses
- (2) 3 doses
- (3) 2 doses
- (4) Only one dose

151. For the prevention of human rabies, immediate flushing and washing the wound(s) in animal bite cases, with plenty of soap and water, under running tap should be carried out for how much time ?

- (1) 2 minutes
- (2) 1 minute
- (3) 15 minutes
- (4) 5 minutes

152. Which of the following antibiotics works by blocking RNA synthesis ?

- (1) Ofloxacin
- (2) Rifampicin
- (3) Chloramphenicol
- (4) Tetracycline

153. Adjuvant used in DPT is :

- (1) Silica
- (2) B. Magnesium
- (3) C. Manganese
- (4) D. Aluminum

154. Which of the following is a causative agent of acute endocarditis ?

- (1) *Salmonella typhi*
- (2) *Haemophilus influenza*
- (3) *Staphylococcus aureus*
- (4) *Pseudomonas spp*

155. Which of the following is an important disinfectant on account of effectively destroying gram-positive and gram negative bacteria, viruses and even spores at low pH levels

- (1) Phenol
- (2) Alcohol
- (3) Chlorine
- (4) Hexachlorophene

156. Phenol co-efficient indicates :

- (1) Efficacy of a disinfectant
- (2) Dilution of a disinfectant
- (3) Quantity of a disinfectant
- (4) Purity of a disinfectant

157. Prokaryotic cells are more resistant to osmotic shock than eukaryotic cells because :

- (1) Their cell wall is composed of peptidoglycan.
- (2) They are selectively permeable.
- (3) They contain osmoregulating porins.
- (4) They block water molecules from entering the cell.

158. Streptococci which are destroyed at 60°C for 30 minutes

- (1) Preptostreptococci
- (2) Strepto viridians
- (3) Strepto hemolyticus
- (4) All of these

159. Electron microscope studies does not help in identifying the section of bacterial spore :

- (1) Core
- (2) Spore cortex
- (3) Capsule
- (4) All of these

160. Cell cycle regulated by :

- (1) Cyclins
- (2) Cdks
- (3) Cyclins and Cdks
- (4) None of these

161. Which of these is a trace element for bacteria ?

- (1) Mg^{+2}
- (2) Na^{+}
- (3) Ca^{+2}
- (4) Mn^{+2}

162. The protein moiety of an enzyme is known as -

- (1) Holo enzyme
- (2) Apo enzyme
- (3) Co-enzyme
- (4) Enzyme

163. Which one of the following mineral elements play an important role in biological nitrogen fixation ?

- (1) Copper
- (2) Magnesium
- (3) Zinc
- (4) Molybdenum



164. The process of formation of mesozygote is called
- (1) Meromixis
 - (2) Exozygote
 - (3) Mitosis
 - (4) Meiosis
165. The genetic material in HIV is :
- (1) dsDNA
 - (2) ssDNA
 - (3) sRNA
 - (4) None of these
166. Humans normally have 46 chromosomes in skin cells. How many autosomes would be expected in a kidney cell ?
- (1) 46
 - (2) 23
 - (3) 47
 - (4) 44
167. Genomic DNA is extracted, broken into fragments of reasonable size by a restriction endonuclease and then inserted into a cloning vector to generate chimeric vectors. The cloned fragments are called
- (1) Clones
 - (2) Genomic library
 - (3) mRNA
 - (4) None of these
168. Following substance may act as an antigen :
- (1) Egg albumin
 - (2) RBC and serum
 - (3) Vegetable protein
 - (4) Snake venom
169. Which antibody is called millionaire molecule ?
- (1) IgA
 - (2) IgM
 - (3) IgG
 - (4) IgD
170. After the contact with foreign antigens, body produces specific antibody. These specific antibodies are readily detectable in serum following primary contact with antigen after :
- (1) 10 min
 - (2) 1 h
 - (3) 5-7 days
 - (4) 3-5 weeks
171. An anamnestic response involves a/an :
- (1) effector response
 - (2) high intensity
 - (3) rapid memory
 - (4) All of these
172. The membrane attack complex in the complement pathway consists of :
- (1) C3b3b, Bb
 - (2) C5b, 6, 7, 8, 9
 - (3) Colicins
 - (4) OH

173. One principal function of complement is to :

- (1) bind antibodies attached to cell surfaces and to lyse these cells
- (2) cross link allergens
- (3) inactivate perforins
- (4) mediate the release of histamine

174. Which of the following is useful to STIMULATE antibody production ?

- (1) An adjuvant
- (2) A hapten
- (3) Anti serum
- (4) Purified antigen

175. Agammaglobulinemia is an immunodeficiency disease due to a deficiency in :

- (1) T cells
- (2) IgE
- (3) Cytokines
- (4) B cells

176. Which disease would be most similar to AIDS in its pathology ?

- (1) SCID
- (2) Di-George syndrome
- (3) Agammaglobulinemia
- (4) ADA deficiency

177. All of the following are true with respect to IgE molecules, EXCEPT which one ?

- (1) They are involved in mediating anti-parasitic immune responses.
- (2) They are the principal immunoglobulin class involved in allergic reactions.
- (3) They can affect the release of histamine and other chemical mediators.
- (4) They will cross the placenta and fix complement.

178. Fusion between a plasma cell and a tumor cell creates a :

- (1) Myeloma
- (2) Lymphoblast
- (3) Lymphoma
- (4) Hybridoma

179. A living microbe with reduced virulence that is used for vaccination is considered :

- (1) A toxoid
- (2) Dormant
- (3) Virulent
- (4) Attenuated

180. The ability of the immune system to recognize self antigens versus nonself antigen is an example of :

- (1) Specific immunity
- (2) Tolerance
- (3) Cell mediated immunity
- (4) Antigenic immunity



रफ कार्य के लिए स्थान / SPACE FOR ROUGH WORK

