Seat No.

ENT-24

Total No. of Pages : 14

Shivaji University, Kolhapur

P. G. Entrance Examination, May-2023

M.Sc. Microbiology/Pharmaceutical Micro./Inds.Micro/App.Micro

Subject Code: 58717

Day and Date : Tuesday, 08-08-2023 **Total Marks : 100**

Time : 01.00 p.m. To 02.30 p.m.

Instructions : 1) All questions are compulsory
2) Each question carries 1 marks
3) Answer should be marked in the given OMR answer sheet by darkening the appropriate option.
4) Follow the instructions given on OMR sheet.
5) Rough work shall be done on the sheet provided at the end of question paper.

1. In allergy testing, blood is mainly checked for elevated level of .....

   A) IgG B) IgM C) IgD D) IgE

2. The maximum allowable level of aflatoxin in food is ..... ppb.

   A) 10 B) 20 C) 30 D) 40

3. Penicillin fermentation is carried out as .....

   A) aerobic fermentation followed by anaerobic fermentation

   B) anaerobic fermentation

   C) aerobic fermentation

   D) anaerobic fermentation followed by aerobic fermentation

4. Soyabean Casein digest medium is used in the testing of .....

   A) sterility B) pyrogen

   C) toxicity D) allergen

5. The ..... filters are used for continuous filtration.

   A) Plate-Frame B) Pressure leaf

   C) Stacked disc D) Rotary vacuum

6. ..... are commonly used organisms in probiotics.

A) Viruses B) Salmonella spps.

C) Lactobacillus spps. D) Vibrio spps.

7. In wine production the crushed grapes are called as .....

A) malt B) must

C) wort D) sonti

8. Fresh milk contains ..... as naturally present inhibitory substances to prevent the growth of microorganism.

A) Lactenins & anticoliform factor

B) Lysozymes

C) Benzoic acid

D) Furfurals

9. Staphylococcal food poisoning is caused by ingestion of heat stable ..... produced by the organism.

A) Exotoxin B) Enterotoxin

C) Cytotoxin D) Neurotoxin

10. ..... is the most common cause of food infection.

A) *Staphylococcus aureus*

B) *Salmonella spps*

C) *Lactobacillus spps*.

D) *Vibrio spps.*

11. D value is the time required to kill .....% of the microorganisms or spores in a sample at a specified temperature.

A) 100 B) 20 C) 90 D) 99

12. In prokaryotes, Pribnow box is present at ..... position.

A) -10 B) -20 C) -30 D) -40

13. Amber suppressors are the mutant t RNA's with ..... anticodon

A) AUU B) UAA C) UAC D) AUC

14. Selection and detection of lac negative mutants on MacConkeys agar is based on .....

A) relative growth B) relative survival

C) visual detection D) microscopic detection

15. The structural organization of E.coli chromosome is explained by .....model.

A) Fluid mosaic B) Folded fibre

C) Looping D) Rolling circle

16. The type of mutation in which expression of mutation depends on the conditions of the environment is called .....

A) Forward mutation

B) Reverse mutation

C) Conditional lethal mutation

D) Gain of function mutation

17. All of the following are composite transposons except

A) Tn5 B) Tn9 C) Tn3 D) Tn10

18. One DNA duplex after 4 cycles of PCR gives ..... DNA duplexes.

A) 08 B) 04 C) 32 D) 16

19. The single stranded loop region in hairpin structure is cleaved by using .....

A) exonuclease. B) S 1 nuclease.

C) Alkaline phosphatase. D) DNA ligase.

20. ..... of the following is NOT required for a PCR reaction.

A) A thermostable DNA polymerase

B) Dideoxy-dNTPs (ddNTPs)

C) Template DNA

D) Primers

21. ..... is an enzyme stable and functional at 72°C temperature.

A) DNA polymerase

B) Taq polymerase

C) Klenow fragment

D) DNA ligase

22. A radio labelled piece of DNA, used to detect specific DNA sequence is called .....

A) DNA vector

B) DNA adaptor

C) DNA probe

D) DNA linker

23. Cancer cells show .....

A) mortality

B) excessive contact inhibition ability

C) higher cellular adhesion

D) lower serum requirement

24. The genome of ..... virus shows hair pin loop structure during intermediate step of its replication.

A) Adeno B) TMV C) T4 D) T2

25. Prions contain .....as its structural component.

A) RNA

B) DNA

C) Proteins

D) envelope

26. The phage -host interaction in which host is lysed and phage progeny is released is called

A) Lytic cycle

B) lysogeny

C) Temperate phages

D) commensalism

27. ..... virus possess binal nucleo-capsid.

A) Rabies

B) Adeno

C) T4

D) Prions

28. Linear double stranded DNA with single stranded cuts in it are found in .....virus.

A) T2 B) T3 C) T4 D) T5

29. Scrapie is a fatal, degenerative disease caused by .....

A) bacteria B) virus

C) viroids D) prions

30. ..... is a cultivation method of animal viruses that gives comparatively maximum yield.

A) Use of animal tissue culture

B) Use of live animals

C) Use of embryonated chicken egg

D) Use of plant tissue culture

31. Temperate phages mediate the gene transfer by .....

A) Transformation

B) Transduction

C) Conjugation

D) both transformation and conjugation

32. The regulatory protein that have anti-termination effect during lysogeny of Lambda phage is called as .....

A) gp N B) gp M

D) gp cro C) gp P

33. The size of HEPA filters which are used in cleanrooms is micrometer.

A) 30 B) 3 C) 0.3 D) 0.03

34. Hazardous waste comprises ..... % of total hospital wastes.

A) 5-10 C) 25-40

B) 10-25 D) 40-65

35. In hospital waste, human anatomical waste is categorized as category number .....

A) 1 B) 2 C) 3 D) 4

36. As per standards prescribed by MPCB, the treated wastewater intended to discharge into inland surface water should have BOD less than ..... mg/l.

A) 15 B) 30 C) 45 D) 60

37. In wastewater treatment, primary treatment methods refers to .....

A) Physical unit operations

B) chemical and biological unit processes

C) physical and biological unit processes

D) physico-chemical and biological processes

38. The aerobic biological method used in wastewater treatment is .....

A) Septic tank B) Anaerobic digestion

C) Trickling filter D) All of these

39. In wastewater treatment, skimmers are used to remove ..... from wastewater.

A) grit B) oil and grease

C) dissolved solids D) colloidal solids

40. Huge amount of sludge is generated when the wastewater is treated by ..... biological methods.

A) aerobic

B) anaerobic

C) facultative

D) both facultative aerobic and anaerobic

41. The value of Secchi depth (metres) is usually low in case of ..... lakes

A) oligotrophic

B) mesotrophic

C) eutrophic

D) both oligo and mesotrophic

42. Root zone technology, a method of wastewater treatment contain ..... zones where biodegradation occurs.

A) aerobic B) anoxic

C) anaerobic D) aerobic, anoxic and anaerobic

43. Spleen cell genome in cell fusion to produce monoclonal antibodies provides .....enzyme.

A. HGPRT B. HGPT

C. HGC D. GHC

44. Classical pathway of Complement is mainly activated by .....

A. antigen antibody complex B. antigens

C. bacterial endotoxins D. serum proteins

45. ..... are called as intracellular messengers.

A. NK cells B. Null cells

C. ILS D. Lymphocytes

46. Mitogens induce ..... type of interferons.

A. alpha, B. beta

C. gamma D. delta

47. Tumor Necrosis Factor is a type of .....

A. cytokine B. interferon

C. WBC D. Complement

48. Cytokines that attract all other cells towards the site of pathogens are.....

A. Lymphokines B. Monokines

C. ILS D. Chemokines

49. Inability of Lymphocytes to undergo transformation for antibody production for certain antigens is called as .....

A. Immunological tolerance B. Auto-immune Induction

C. Phagocytosis D. Hematopoiesis

50. When activated T cells enter the lymphoid follicles, ... are formed.

A. 1° germinal centers
B. centroblasts
C. 2° germinal centers
D. dendritic cells

51. Antigen receptors on T and B cells are ..... complexes.

A. Multi-vitamin
B. Multi-protein
C. Multi-starch
D. Multi-lipid

52. Hassall's corpuscles are found in .....

A. Spleen
B. Thymus
C. Bone Marrow
D. Peyer's patches

53. ..... participate in the production of fever, activation of phagocytes and T and B cells for immune response.

A. IFNS
B. Cytokine
C. Interleukins
D. Properdins

54. ..... of the following statement is true about the tuberculin test and purified protein derivative (PPD).

A) The presence of intradermal skin induration is observed in 6 to 8 hours after being applied

B) The redness of skin or erythema is also measured while reading the tuberculin test

C) A positive tuberculin test means that a person was infected with M. tuberculosis in the past and continues to carry the viable organism

D) A positive PPD test indicates that a person can never be infected with M. tuberculosis

55. *Staphylococcus aureus* produces penicillinase to acquire penicillin resistance by .....

A) Transposition
B) Mutation
C) Transduction
D) Transformation

56. .....interferes the regeneration of monophosphate form of bactoprenol from the pyrophosphate form.

A) Ampicillin B) Bacitracin

C) Tetracycline D) Cephalosporin

57. Virulence of Staphylococcus aureus is associated with.....

A) Coagulase production

B) Catalase production

C) Pigment production

D) Mannitol fermentation

58. The common HBV subtype present in southern and eastern parts of India is .....

A) adr B) adw C) ayw D) ayr

59. String test is used to identify colonies of .....

A) *Staphylococcus aureus* B) *M. tuberculosis*

C) *Vibrio cholerae* D) *Clostridium perfringens*

60. Commonest culture media used for *Leptospria* is .....

A) Karthof's B) Fletchur's

C) Stuart's D) EMJH

61. Black water fever is a complication of .....

A) Tuberculosis B) Malaria

C) Leptospirosis D) Hepatitis

62. Methods of acquired drug resistance in bacteria include .....

A) Production of enzyme

B) Expression of efflux pumps

C) Alternation of porin channels

D) All of these

63. Rabies virus .....

A) is a flavivirus

B) is transmitted by aerosolized secretions

C) is a reverse zoonosis

D) is more likely to cause paralytic rabies in dogs than in other nonhuman animals

64. ..... is a function of PILI.

A) motility B) maintain cell shape

C) cell adhesion D) avoid phagocytes

65. ..... of *E.coli* strain was chosen to prove the experiment of conjugation.

A) prototrophs B) auxotrophs

C) polyauxotrophs D) autotrophs

66. ..... part of the cell organelles is called a suicidal bag.

A) Lysosomes B) Golgi bodies

C) Cell membrane D) Mitochondria

67. Damage and errors in DNA cause .....

A) Mutation B) DNA repair

C) Translation D) Transcription

68. .....mutation in which the cause of mutation is not known.

A) Spontaneous mutation

B) Suppressor mutation

C) Nonsense mutation

D) Mis-sense mutation

69. Volutine granules are .....in nature.

A) basophilic B) acidophilic

C) neutral D) hydrophilic

70. An increase in ..... is observed in lag phase.

A) cell number B) cell mass

C) cell size D) growth rate

71. Energy available to do work is .....

A) enthalpy B) free energy

C) standard free energy D) Entropy

72. The enzyme acetylase is involved in transfer of ..... group.

A) alkyl B) aryl

C) acetyl D) glycosyl

73. Agarose is derived from.....

A) Agar agar B) gelatin

C) acrylamide D) Sugars

74. For the synthesis of amino acids cysteine, cystine and methionine the element required is .....

A) Sulphur B) Oxygen

C) Nitrogen D) None of these

75. ..... requires only water, sunlight and CO_2 for their growth.

A) Yeast B) *E.coli*

C) fungi D) Cyanobacteria

76. ..... granules show metachromatic effect.

A) polyphosphate B) polysulphate

C) polycarbonate D) polysaccharide

77. Endotoxin produced by gram negative bacteria is present in .....

A) Peptidoglycan B) Lippolysacharide

C) Teichoic acid D) Inner membrane

78. All prokaryotes are surrounded by a cell wall except .....

A) Mycoplasmas B) Sperochetes

C) Actinomycetes D) Methanogena

79. Lipid content is more in ..... bacteria.

A) Gram negative bacteria B) Gram positive bacteria

C) Same in both D) None of these

80. Sulphur oxidizing bacteria is .....

A) Alcaligenes B) Pseudomonas

C) Thiobacillus D) None of these

81. The method in which the cells are frozen dehydrated is called as

A) Pasteurization B) Dessication

C) Disinfection D) Lypophilization

82. Important class of respiratory enzymes are .....

A) NAD B) Cytochromes

C) ATPase D) Hydrolases

83. Peptone water medium is an example of ..... type.

A) Synthetic medium

B) Semisynthetic medium

C) Differential medium.

D) None of these

84. The phenomenon in which glucose is used preferentially used and the synthesis of enzyme for metabolism of other sugar is repressed is called as .....

A. End product repression

B. End product inhibition

C. Catabolite repression

D. Feedback inhibition

85. Enzyme catalyse reaction by sharing electron pair is called as .....

A. Proximity
B. Covalent catalysis
C. Acid base catalysis
D. Distortion catalysis

86. ..... acts as proof reader and edits mismatched base pairs during replication of DNA.

A. DNA template
B.DNA polymerase
C. RNA primer
D. RNA polymerase

87. ..... is the key enzyme of ED pathway.

A. Phosphoketolase
B. KDPG aldolase
C. Phosphoglucoisomerase
D. Isocitrate lyase

88. ..... is commonly used for crosslinking of enzyme in enzyme immobilization.

A. cyanogen bromide
B. Polyacryl amide
C. DEAE-cellulose
D. Glutaraldehyde

89. Gel chromatography is based on ..... character of enzyme.

A. Molecular size
B. solubility
C. Adsorption
D. Affinity

90. Multiple forms of enzyme are called as .....

A. Inducible enzymes
C. Abzymes
B. Isozymes
D. regulatory enzymes

91. ..... coined the term enzyme.

A. Ehrlich
B Kuhne
C. Pauling
D. Jacob

92. Feedback inhibition of an enzymatic reaction is caused by .....

A. End product
B. substrate
C. Enzyme
D. rise in temperature

93. When the velocity of enzyme activity is plotted against substrate concentration ..... type of curve is obtained.

A. Hyperbola B. Parabola

C. straight line with positive slop D. Sigmoid

94. Sands are the largest particles ranges in size from

A) 0.05-2.0 mm B) 0.01-0.02 mm

C) 0.09-1 mm D) 1-2 mm

95. The oxidation of ammonia to nitrate is called as .....

A) Ammonification B) Nitrification

C) Nitrate Reduction D) Denitrification

96. Platy structure if soil can be found below..... horizon.

A) B B) D C) A D) C

97. Phosphate solubilizing bacteria are isolated on .....

A) Pikovskaya's medium B) Jensen's medium

C) CRYEMA D) Nitrogen free mannitol agar

98. Grey, orange,brown,red or black colored spots on the leaf caused by pathogenic fungi .....

A) Alternaria B) Nostoc

C) Ganoderma D) Fomes

99. ..... is the most dominant group of microorganism in soil.

A) Algae B) Actinomycetes

C) Bacteria D) Fungi

100. Isolation of ..... can be done on Congo red yeast extract mannitol agar.

A) Azolla B) Rhizobium

C) Blue Green Algae D) Frankia

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