

Seat No.	
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ENT - 62

Total No. of Pages : 22

M. Sc. Entrance Examination, 2024
MICROBIOLOGY
Sub. Code: 58717

Day and Date : Monday, 29-07-2024

Total Marks : 100

Time : 2.30 p.m. to 4.00 p.m.

Instructions :

- 1) All questions are compulsory.
- 2) Each question carries 1 mark.
- 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
- 4) Use black ball point pen only for marking the circle. Do not make any stray mark on the OMR Answer Sheet.
- 5) Follow the instructions given on OMR Sheet.
- 6) Rough work shall be done on the sheet provided at the end of question paper.
- 7) Only non programmable calculators are allowed.

1. of lipopolysaccharide act as endotoxin.

A) O side chain

B) R core region

C) Lipid A

D) phospholipid

2. In an autoclave at 10 lbs pressure the corresponding temperature attained is

A) 100°C

B) 110°C

C) 115°C

D) 121°C

3. Inoculating needles are sterilized by
- A) Moist heat B) Disinfectant
- C) Ethylene oxide D) Inceneration
4. can synthesize all essential growth factors.
- A) Auxotrophs B) Autotroph
- C) Heterotroph D) Prototroph
5. is a micronutrient present in some microbial nutrition medium
- A) Co B) Sodium Taurocholate
- C) Agar-Agar D) NaCl
6. is absent in procaryotic cells
- A) Cell membrane
- B) Nuclear membrane
- C) Cell wall
- D) Ribosomes
7. Organic chemical component required for enzyme action is called as
- A) Coenzyme B) Apo enzyme
- C) Holoenzyme D) Conjugate enzyme
8. atoms is present in Cytochromes.
- A) Fe B) Cu
- C) Mg D) Co

9. In fermentation process, agitation of the medium is done by using
A) Impellers
B) Baffles
C) Sparger
D) Antifoam agents
10. Phycology is the study of
A) Bacteria
B) Fungi
C) Virus
D) Algae
11.are anabolic metabolites.
A) acetone
B) butanol
C) ethanol
D) amino acids
12. In glycolysisATP molecules are produced by substrate level phosphorylation.
A) 2
B) 3
C) 4
D) 5
13. 2-keto-3-deoxyoctanoic acid is present in
A) Protein
B) Phospholipid
C) Lipoprotein
D) Lipopolysaccharide
14. Simultaneous transport of two molecules by same carrier in the same direction across the membrane is called.....
A) Symport
B) Antiport
C) Uniport
D) Nonport

15. serves as final electron acceptor in anaerobic respiration.

- | | |
|----------|-----------------------|
| A) O_2 | B) NO_2 |
| C) H_2 | D) Molecular nitrogen |

16. Cytochromes are carriers.

- | | |
|-------------|------------------------|
| A) Electron | B) Proton |
| C) Neutron | D) Proton and Electron |

17. Watson and Crick double helix represents form of DNA.

- | | |
|------|------|
| A) A | B) B |
| C) C | D) Z |

18. mutation changes a codon specific for an amino acid to a codon specific for another functionally equivalent amino acid.

- | | |
|-------------|------------|
| A) Nonsense | B) Silent |
| C) Missense | D) Neutral |

19. 5-Bromo uracil in enol form pair with

- | | |
|------------|-------------|
| A) Adenine | B) Guanine |
| C) Thymine | D) Cytosine |

20. Replacement of purine by pyrimidine is known as

- | | |
|-----------------|---------------|
| A) Transversion | B) Transition |
| C) Insertion | D) Deletion |

21. A plasmid that has no known function other than replication is called

plasmid.

A) Ti

B) Col

C) pBR322

D) Cryptic

22. enzyme is involved in DNA repair synthesis.

A) DNA polymerase-I

B) DNA polymerase-II

C) DNA polymerase-III

D) DNA polymerase-IV

23. Severe anemia develops in Plasmodium disease.

A) vivax

B) malariae

C) falciparum

D) ovale

24. HIV virus belongs tofamily

A) Retrovirus

B) Reo virus

C) Rhinovirus

D) Adeno virus

25. CXcR4 fusin protein occurs in pathogen.

A) HIV

B) T.pallidum

C) Clostridium titani

D) Neisseria gonorrhoeae

26. Vaccine used in prevention of polio is known as vaccine.

- A) Killed polio
- B) Live polio
- C) Sabins
- D) Salks

27. Etravirine used in HIV treatment is inhibitor.

- A) NRTI
- B) Integrase
- C) Nuclease
- D) NNRTI

28. is an example of antibiotic that act on cell membrane.

- A) Penicillin
- B) Polymyxin
- C) Streptomycin
- D) Tetracycline

29. belongs to β -lactam group of antibiotic.

- A) Cephalosporin
- B) Sulphonamides
- C) Polymyxin
- D) Rifamycin

30. belongs to aminoglycoside group of antibiotic.

- A) Penicillin
- B) Polymyxin
- C) Streptomycin
- D) Nalidixic acid

31. is a third generation quinolone antibiotic.

- A) Gemifloxacin
- B) Trovafloxacin
- C) Sparfloxacin
- D) Nalidixic acid

32. Vancomycin agar screen test is used for detection ofresistance strains.

- | | |
|----------------|----------------|
| A) Methicillin | B) Cloxacillin |
| C) Cefoxitin | D) Vancomycin |

33. In the antibiotic sensitivity test standard are used to adjust cell density.

- | | |
|----------|--------------|
| A) Kirby | B) Bauer |
| C) CSLI | D) McFarland |

34. CD4 receptor present on cell.

- | | |
|---------------|-------------------|
| A) Suppressor | B) Killer |
| C) Helper | D) Natural killer |

35. is also called as ADCC cell.

- | | |
|--------------|----------------|
| A) K | B) NK |
| C) Mast cell | D) Neutrophils |

36. cell produces antibody.

- | | |
|------------------|------------------|
| A) Megakaryocyte | B) Myeloid cell |
| C) Plasma cell | D) Lymphoid cell |

37. Memory cell in AMI rich in large number of on its surface.

- | | |
|--------------------|-----------------|
| A) Immunoglobulins | B) Antigens |
| C) Villi | D) Co-receptors |

38. Secondary immune response has phase.

- A) Lag
B) Stationary
C) Negative
D) Death

39. genes responsible for production of light chains.

- A) κ
- B) λ
- C) $\kappa\lambda$
- D) ε

40. IL-4,5,6,13 and IFN- γ causes class switching to antibody.

- A) IgG
B) IgA
C) IgD
D) IgE

41. vaccine is an example of live attenuated vaccine.

- A) Sabins
B) Rabies
C) Typhoid oral
D) Tetanus

42. Water-in-oil emulsion with Mycobacteria is known as adjuvant.

- A) PLG
- B) PLGA
- C) Chitosan
- D) Freund's incomplete adjuvant(FIA)

43. Measles vaccine given at the age of months of life.

- A) 3 B) 6
C) 9 D) 12

44. Inblood group system persons were classified as M,N,MN.

- A) ABO
B) Lewis
C) Bombay
D) Rh

45. In Bombay blood group system..... antigens are absent.

- A) Antigen-A B) Antigen-B
- C) Antigen-H D) Antigen A,B,H

46. Alternate pathway is activated by

- A) Ag-Ab complex B) Bacterial endotoxins
- C) Lectin D) Mannose

47. The initiating component in alternate pathway is

- A) CIS B) C2
- C) C3b D) C4

48. The enzyme helps hybridoma cells to use nucleotide precursors from surrounding medium.

- [illegible]

49. is an example of simple lipid that occurs in prokaryotes as reserve material.

- A) PHB B) Polyisoprenoid
C) Esterified glycerol D) Glycolipid

50.auxiliary enzymes are needed for ω -oxidation of the common unsaturated fatty acids.
- A) Isomerase and Reductase
 - B) Isomerase
 - C) Reductase
 - D) Acetyl-CoA synthetase
51. In PHB degradation..... enzyme involved in conversion of ω -hydroxybutyrate to acetoacetate.
- A) Depolymerase
 - B) Co-A transferase
 - C) Hexokinase
 - D) Dehydrogenase
52. In amino acid deamination reaction L-serine is converted to
- A) Acetic acid
 - B) Citric acid
 - C) Lactic acid
 - D) Pyruvic acid
53. In amino acid decarboxylation reaction amino acid L-glutamate is decarboxylated to acid.
- A) γ -Aminobutyrate
 - B) α -ketoglutarate
 - C) B- Aminobutyrate
 - D) B-ketoglutarate

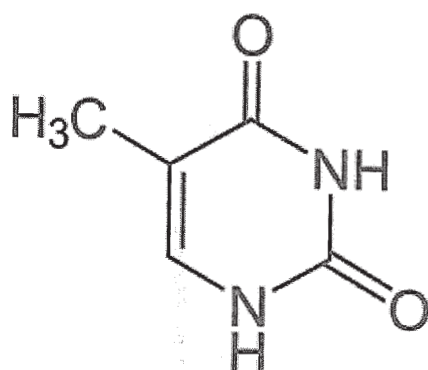
54. In catabolism of purine nucleotides GMP is converted to as final compound.

- A) Palmitic acid B) Keta acid
C) Hypoxanthine D) Uric acid

55. In purine synthesis conversion of nucleoside monophosphate to diphosphate catalyzed by enzyme.

- A) Kinase B) Deaminase
C) Phosphatase D) Transferase

56. Identify the following structure.



- A) Adenine B) Guanine
C) Thymine D) Cytosine

57. In formation of deoxyribotides, ribonucleoside diphosphate reductase reduces natural ribonucleotide to

- A) DTP B) CTP
C) ATP D) ADP

58. In regulation of Glycolysis and gluconeogenesis act as activator for fructose-1,6-bisphosphatase.
- A) CTP B) DTP
- C) ATP D) TTP
59. In catabolite repression the utilization glucose by E.coli leads to a decrease in intracellular concentration of.....
- A) cGMP B) cCTP
- C) cAMP D) cGTP
60. In reductive TCA succinate dehydrogenase for fumarate reduction is replaced by
- A) Malate reductase
- B) Pyruvate synthase
- C) PEP synthetase
- D) Fumarate reductase
61. A transcription factor that enhances gene expression is known as
- A) Operator B) Enhancer
- C) Activator D) Inducer
62. Which of the following amino acid is degraded by ketogenic pathway only.
- A) Glycine B) Lysine
- C) Serine D) Alanine

63. is a example of carbon monoxide oxidizing bacteria.
- A) *Pseudomonas carboxydovorans*
 - B) *Bacillus subtilis*
 - C) *E.coli*
 - D) *Nitrosospora*
64. The allosteric regulators regulate the metabolic pathway based on their ability to
- A) denature the target enzyme
 - B) interfere with the competitive inhibitor
 - C) change the conformation of enzyme
 - D) change the concentration of enzyme
65. is produced in Non-cyclic photophosphorylation
- A) NADH
 - B) NADPH
 - C) ATP
 - D) ATP and NADPH
66. During complete beta oxidation of Palmitic acid there are
- A) 7 cycles to produce 8 Acetyl CoA
 - B) 8 cycles to produce 7 Acetyl CoA
 - C) 7 cycles to produce 7 Acetyl CoA
 - D) 8 cycles to produce 8 Acetyl CoA

67. In zone of root nodule rhizobia occurs in bacteroid forms which actually fix the nitrogen.
- A) Senescent B) Active meristem
C) Infection D) Amyloplasts
68. Ectomycorrhizae that form subterranean reproductive structures known as
- A) Endomycorrhizae B) Ectomycorrhizae
C) Actinirhizae D) Truffles
69. Ruminant bacteria is an example of interaction
- A) Antagonism B) Commensalism
C) Mutualism D) Parasitism
70. is a symbiotic association between a fungus and the roots of vascular plant.
- A) Mycorrhizae B) Actinorhizae
C) Rhizoplane D) Actinoplane
71. As per MPCB standard the treated water intended to discharge on inland surface should have COD less than mg/L.
- A) 250 B) 350
C) 450 D) 550

72. The size of HEPA filters used in clean room is micron.

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

73. is an example of ex-situ bioremediation.

- A) Biosparging B) Bioslurping
C) Biopiling D) Bioventing

74. is the most common gaseous hydrocarbon in petroleum.

- A) Methane B) Ethane
- C) Propane D) Butane

75. is a common solubilising agent for leaching of uranium ores.

- A) Succinic acid B) Acetic acid
- C) Sulfuric acid D) Gluconic acid

76. Thuricide 90 TS is present in form.

- A) powder B) oil
- C) emulsion D) granule

77. fungus is successful in controlling insects.

- A) *Aspergillus flavus*
B) *Aspergillus niger*
C) *Aschersonia aleyrodis*
D) *Rhizopus nigricans*

78. A DNA has base pair tilt of.....

- A) 6^0
- B) 7^0
- C) 12^0
- D) 20^0

79. of the following RNA has unusual base pseudouridine.

- A) IRNA B) mRNA
C) rRNA D) All

80. of the following is purine nucleotide

- A) Adenine B) Thymine
C) Cytosine D) Uracil

81. Jumping genes are also known as

- A) Episomes B) Plasmids
- C) Transposons D) Transfer factor

82. Eastern blotting can be considered as an extension of biochemical techniques of.....

- A) Northern blotting B) Southern blotting
- C) Eastern blotting D) Western blotting

83. The method of DNA amplification that is performed at constant temperature is called.....

- A) Nested PCR
B) Hot-start PCR
C) LAMP assay
D) Microarray

84. Identify the correct sequence steps involved in PCR.
- A) Extraction-denaturation-annealing-extension
 - B) Denaturation-extraction-extension-annealing
 - C) Extension-annealing-denaturation-extraction
 - D) Annealing-extraction-denaturation-extension
85. paper is used in Southern blotting technique.
- A) Methyl cellulose
 - B) Carboxy cellulose
 - C) Amino cellulose
 - D) Nitrocellulose
86. virus cannot withstand freeze-drying
- A) Varicella
 - B) Rabies
 - C) Polio
 - D) CMV
87. The von Magnus phenomenon refers to
- A) Incomplete virus assembly
 - B) Eclipse phase
 - C) Elution
 - D) Abortive infection
88. The important initial response of a human body to viral infection is.....
- A) B cell stimulation
 - B) Antibody production
 - C) T-cell stimulation
 - D) Interferon production

89. Plaque count rises rapidly in period.
- A) Latent period B) Burst period
- C) Plateau period D) Both A and B
90. Hela cell line derived from human cancer is type of cell culture.
- A) Primary B) Secondary
- C) Diploid D) Continuous
91. is a temperate phage of *Salmonella typhimurium*.
- A) mV B) P1
- C) S1 D) P22
92. Adenoviruses are viruses.
- A) Enveloped B) Non-enveloped
- C) Naked D) None of these
93. Kaposi's sarcoma originates in
- A) Blood vessels
- B) Fibrous tissues
- C) Cartilages
- D) Skeletal muscles
94. Superinfection immunity is seen in the case of
- A) MRSA B) ElTor vibrios
- C) Bacteriophage D) E.coli

95. continuous cell line is now permitted to be used for vaccine production.

- A) Vero cell lines B) HeLa
- C) Hep-2 D) KB

96. of the following is used as carrier for Rhizobium inoculents.

- A) Sterile sand B) Bee live
- C) Wheat straw D) Peat powder

97. Rhizosphere effect is more at..... region of root.

- A) Root cap region
- B) Root hair zone
- C) Above root cap region
- D) Above root hair zone

98. Initiation of DNA replication requires

- A) DNA primer B) Plasmid
- C) RNA primer D) Plasmid

99. Vertical transmission of infection means

- A) Transplacental transmission
- B) Transfer of infection from father to mother
- C) Person to Person transfer
- D) Human to animal transfer

100. Obligate anaerobes grow in

- A) Absence of air
- B) Absence of O₂
- C) Presence of CO₂
- D) Presence of CO₂ and O₂

□□□

- Rough Work -

ENT - 62

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ENT - 62

