Seat No.	

ENT-03

Total No. of Pages : 18

M.Sc. Entrance Examination, May - 2025
MICROBIOLOGY
Subject Code : 58717

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Day and Date : Thursday, 15-05-2025 **Total Marks : 100**

Time : 1.00 p.m. to 2.30 p.m.

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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) Follow the instructions given on OMR sheet.
5) Rough work shall be done on the sheet provided at the end of question paper.

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1. The rod shaped bacteria are called as .....

A) Cocci B) Bacillus

C) Spiral D) Coccobacillary

2. A chemical that kills the microorganism is called .....

A)Microbiostasis B) Macrobiostasis

C) Sporocidous D) Microbicidal

3. Gascous sterilization is carried out by .....

A) Chlorine B) Ethylene oxide

C) Chloroform D) Copper Nitrate

4. ..... are organisms that utilize light as source of energy and CO2 as a principal Carbon Source.

A) Chemoautotrophs B) Photoautotrophs

C) Photoheterotrophs D) Chemoheterotrophs

5. Nucleolus is present in .....

A) Bacteria B) Viruses

C) Yeasts D) Protozoa

6. ..... are unicellular non-photosynthetic organism.

A) Nostoc B) Cyanobacteria

C) Protozoa D) Algae

7. Lithrotrophic bacteria are those which utilizes .....an electron donor.

A) Reduced organic compounds

B) reduced inorganic compounds

C) H_2O

D) All of the above

8. ..... are the group of bacteria that don't have cell wall

A) Mycoplasma B) Archaebacteria

C) Mycobacteria D) Nocardia

9. Phenyl acetic acid is used as a precursor in the production of .....

A) Penicillin G B) Penicillin V

C) Acetic acid D) Vitamin B12

10. Mycology is the study of .....

A) Bacteria B) Fungi

C) Virus D) Algae

11. In ..... phase of growth cell size is maximum.

A) lag B) log

C) stationary D) death

12. Fats & oils are .....

A) Complex lipids B) Derived lipids

C) Simple lipids D) Membrane lipids

13. When a single molecule of acetyl COA enters in TCA cycle total..... ATP molecules getformed.

A) 10 B)12

C) 14 D) 16

14. Zymogen is a .....

A) Active form of enzyme

B) Complex formed between enzyme and substrate

C) Inactive form of an enzyme activated by cleavage

D) The unfolded form of the enzyme

15. Heavy metals at milligram concentration act as ..... .

A) Inhibitors B) Coenzymes

C) Cofactors D) Apoenzymes

16. On hydrolysis ATP gives ..... Kcal/mole of energy.

A) -5.7 B) -7.3

C) -7.5 D) -14.8

17. The first digit in the enzyme commission number stands for ..... number

A) Superclass B) Serial

C) Subclass D) Class

18. A split gene starts and ends with .....

A) Muton B) Exon

C) Cistron D) Intron

19. ..... mutation affects two or more properties of an organism.

A) Missense B) Silent

C) Pleotrophic D) Neutral

20. ..... are most powerful known chemical mutagens.

A) Acridine dyes B) Alkylating agents

C) Base analogues D) Nitrous acid

21. Pribnow box is rich in ..... sequence.

A) AC B) GC

C) AG D) TA

22. No. of chromosome present in a prokaryotic cell is .....

A) 1 B) 2

C) 3 D) 4

23 In ..... disease haemoglobin is converted to hemozoin.

A) Syphilis B) Gonorrhoea

C) Tetanus D) Malaria

24. Reiter and Nichols strain are used in diagnosis of ..... disease by Wasserman's test.

A) AIDS B) Gonorrhea

C) Polio D) Syphilis

25. ..... vaccine used for prevention of Meningococcal meningitidis.

A) ACW134Y B) ACW135Y

C) ACW136Y D) ACW137Y

26. Tetanospasmin produced by Clostridium titani blocks .....

A) Neurotransmitters B) Ganglioside

C) Sensory nerves D) Payers patches

27. Bacteria that are unable to synthesize their own metabolites and depend on preformed organic compounds are called .....

A) Phototrophs B) Chemotrophs

C) Autotrophs D) Heterotrophs

28. Which of the following organism has sterols in their cytoplasmic membrane.

A) Clostridium B) Chlamydiae

C) Mycoplasma D) Neisseria

29. .....of the following is an enrichment media.

A) Nutrient broth B) Tetrathionate broth

C) Stuart medium D) Thayer-Martin medium

30. ..... of the following is responsible for transfer of drug resistance in bacteria.

A) Colicinogenic factor B) Resistance transfer factor

C) F factor D) Non of the above

31. ..... is known as paradoxical carrier.

A) A carrier of less than six months

B) A carrier who acquires the pathogen from another carrier

C) A carrier who has never suffered from the disease caused by the pathogen

D) A carrierwho acquires the pathogen from a patient.

32. The term prosodemic disease refers to .....

A) Outbreak of disease in bird population

B) A disease constantly present at a high incidence

C) A disease which causes a smouldering epidemic

D) A disease affecting large numbers of people and wide geographic area

33. Premunition refers to .....

A) Co-infection with closely related species

B) Superinfection with another organism

C) Re-infection when original infection is still active.

D) Resistance to re-infection

34. Which among the following is most immunogenic

A) Lipids B) Polysaccharides

C) Monosaccharides D) Proteins

35. ..... act as replicative polymerase in E.coli.

A) DNA polymerase I B) DNA polymerase II

C) DNA polymerase III D) DNA polymerase IV

36. Bacteriophage M13 contains ..... as its genetic material

A) ssRNA B) dsRNA

C) SSDNA D)dsDNA

37. Viral replication within cells is inhibited by .....

A) IL-4 B) IL-1

C) IFNα D) TFNα

38. Hematopoietic stem cells are pluripotent, which means that they are .....

A) Capable of developing in to any blood cells

B) Antigen-specific cells

C) Committed to produce cells of a single lineage

D) Not self-renewing

39. Class of immunoglobulin that can get transported across epithelial cell is .....

A) IgG B) IgE

C) IgA D) IgM

40. Chemotherapeutic index is calculated by .....formula.

A) $\frac{\text{L.D.50}}{\text{C.D.50}}$ B) $\frac{\text{C.D.50}}{\text{L.D.50}}$

C) $\frac{\text{L.K.50}}{\text{C.K.50}}$ D) $\frac{\text{C.K.50}}{\text{L.K.50}}$

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

A) Penicillin B) Polymyxin

C) Streptomycin D) Tetracycline

42. .....belongs to ?-lactam group of antibiotic.

A) Cephalosporin B) Sulphonamides

C) Polymyxin D) Rifamycin

43. Transpeptidation reaction of peptidoglycan is blocked by ..... antibiotic.

A) Penicillin B) Polymyxin

C) Streptomycin D) Tetracycline

44. ..... is a third generation quinolone antibiotic.

A) Gemifloxacin B) Trovafloxacin

C) Sparfloxacin D) Nalidixic acid

45. Streptomycin binds to ..... protein of 30S subunit of ribosome.

A) P10 B) Q10

C) R10 D) T10

46. In the antibiotic sensitivity test.....standard are used to adjust cell densitivity.

A) Kirby B) Bauer

C) CSLI D) McFarland

47. CD4 receptor present on ..... cell.

A) Suppressor B) Killer

C) Helper D) Natural killer

48. Cassette chromosome present in Staphylococcus aureus is responsible for ..... resistance.

A) Methicillin B) Streptomycin

C) Tetracycline D) Piperacillin

49. ..... cell produces antibody.

A) Megakaryocyte B) Myeloid cell

C) B cell D) Lymphoid cell

50. ..... auxiliary enzymes are needed for β-oxidation of the common unsaturated fatty acids.

A) Isomerase and Reductase B) Isomerase

C) Reductase D) Acetyl-CoA synthetase

51. ..... is an example of lipid containing isoprene units.

A) Glycerol B) Sterols

C) PHB D) Lipid A

52. In oxidation of aliphatic hydrocarbon in yeast and Corynebacterium the hydrocarbon is hydroxylated by oxygen which is activated by .....

A) Cytochrome P450 B) Monooxygenase

C) Dehydrogenase D) Acetyl esterase

53. In oxidative deamination reaction of amino acid, Alanine is deaminated to ..... compound.

A) Lactic acid B) Pyruvic acid

C) Unsaturated acid D) Fumaric acid

54. In amino acid decarboxylation reaction amino acid Ornithine is decarboxylated to ..... compound.

A) Putrescine B) α-ketoglutarate

C) β- Aminobutyrate D) β-ketoglutarate

55. In the synthesis of purine ..... act as a precursor molecule.

A) Arginine B) Glutamine

C) Cysteine D) Methionine

56. In purine synthesis ..... serve as a source of ribose phosphate moiety.

A) PRP B) ARP

C) PRPP D) ARPP

57. Which one of the following is the correct order of function of the enzymes of ? oxidation?

A) 3.hydroxyacetyl CoA hydrolase 1,3-Hydroxyaetyl-CoA dehydrogenase Acyl-CoA dehydrogenase-- Thiolase

B) 3.hydroxyacetyl CoA hydrolase Acyl-CoA dehydrogenase Thiolase 1,3-Hydroxyaetyl-CoA dehydrogenase

C) Acyl-CoA dehydrogenase dehydrogenase 3-hydroxyacetyl CoA hydrolase Thiolase 1,3-Hydroxyaetyl-CoA

D) Acyl-CoA dehydrogenase-3-hydroxyacetyl CoA hydrolase Thiolase 1,3-Hydroxyaetyl-CoA dehydrogenase

58. 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

59. Saturated fatty acids are degraded by the stepwise reactions of ? oxidation, producing acetyl-CoA. Under aerobic conditions, ATP molecules would be produced as a consequence of removal of each acetyl-CoA?

A) 2 B) 3

C) 4 D) 6

60. In amino acid decarboxylation reaction amino acid L-glutamate is decarboxylated to-acid.

A) λ-Aminobutyrate B) α-ketoglutarate

C) β- Aminobutyrate D) β-ketoglutarate

61. In regulation of Glycolysis and gluconeogenesis ..... act as inhibitor for hexo kinase.

A) Acetyl Co-A B) Fructose-6-phosphate

C) Glu-6-phosphate D) Fructose 2,6-bisphosphate.

62. ..... act as precursor metabolite for production of glutamate.

A) Oxaloacetate B)) α-ketoglutarate

C) Phosphoenol pyruvate D) 3-Phosphoglycerate

63. A nucleotide consists of .....

A) Sugar + phosphate

B) Sugar+base

C) Base + phosphate

D) Sugar+base + phosphate

64. ..... act as precursor metabolite for production of Serine.

A) Oxaloacetate B) α-ketoglutarate

C) Phosphoenol pyruvate D) 3-Phosphoglycerate

65. In Lac operon, when lactose levels are high and glucose levels are low, ... of the following happens.

A) CAMP levels decrease, triggering binding of CAP to RNA polymerase

B) cAMP activates CAP, which binds to the Lac promoter

C) CAMP activates CAP, which binds to the Lac repressor protein

D) CAP binds to the ribosome to prevent translation

66. In catabolism of purine nucleotides GMP is converted to Guanosine by ..... enzyme.

A) Adenylate deaminase B) Xanthine oxidase

C) Adenosine deaminase D) 5' Nucleotidase

67. Bacteria are usually present in marine environment.

A. Barophilic B. Basophilic

C. Neutrophilic D. Acidophilic

68. Nitrogen fixation is the conversion of .....

A. N2 to N B. N2 to NH3

C. N2 to NO3- D. N2 to urea

69. ..... of the following comes under the category of positive association?

A. Neutralism B. parasitism

C. commensalism D. Ammensalism

70. One virus species preventing. Multiplication of a second virus is called .....

A) mutation B) Supervision

C) Viral interference D) Permutation

71. Interferon is chemically ..... in nature

A) Protein B) Lipid

C) Polysaccharide D)All of the above

72. Dengue fever is transmitted by..... mosquito.

A) Anopheles B) Culex

C) Mansoni D) Aedes

73. Cogenital rubella infection is diagnosed by detection of ..... antibodies,

A) IgG B) IgA

C) Serum IgA D) IgM

74. All of the following are asexual spores of fungi except .....

A) Arthrospores B) Ascospores

C) Blastospores D) Chlamydospores

75. ..... of the following stain used for staining cryptococcus.

A) Negative India ink B) Giemsa

C) Albert D) Gram

76. In Assay Of Alcohol As Per IP, ... Gas Is Used As Carrier Gas In Gas Chromatography.

A) Oxygen B) Hydrogen

C) Nitrogen D) Sulphur.

77. The toxicity of bioinsecticide towards plants is detected in test.

A) carcinogenicity B) acute toxicity

C) phytotoxicity D) teratogenicity

78. Ames test is used for checking .....

A) Pathogenecity of an organism

B) Mutagenecity of a chemical

C) Stability of substance

D) None of the above

79. Deoxyribose in a nucleotide is a ..... .

A) Primary alcohol B) Secondary alcohol

C) Tertiary alcohol D) Phenol

80. ..... of the following process requires energy

A) Transformation B) Ligation

C) Restriction digestion D) Hybridization

81. The conjugation between F+ and F- bacteria leads to .....

A) 2 F+Bacteria B) 2 F-Bacteria

C) 2F+and one F- Bacteria D) None

82. .....is used as technique for DNA analysis.

A) Northern blotting B) Southern blotting

C) Eastern blotting D) Western blotting

83. Reverse transcriptase is also called as .....

A) DNA-dependent RNA polymerase

B) RNA-dependent DNA polymerase

C) DNA-dependent DNA polymerase

D) RNA-dependent RNA polymerase

84. In.....PCR second set of specific primers are used.

A) Nested PCR B) Hot-start PCR

C) High fidelity PCR D) Arbitary primed PCR

85. Eukaryotic genes may not function properly when cloned in to bacteria due to.....

A) Destruction by native endonucleases

B) Restriction endonuclease

C) alkaline phosphatase

D) Inability to excise introns

86. Prions are molecules.

A) infectious single stranded RNA

B) non infectious single stranded RNA

C) infectious proteins

D) non infectious proteins

87. Viruses are inactivated by .....

A) Chlorination B) Acidic pH

C) Organic iodine compound D) Ionising radiation

88. Pock- forming viruses belong to ..... group of viruses.

A) Influenza B) Vaccinia

C) Yellow fever D) Paramyxo

89. The smallest known infectious agent consisting of small circular RNA molecule is called as .....

A) Prions B) Virus

C) Viroid D) Bacteria

90. In agarose gel electrophoresis .....

A) DNA migrates towards negative electrode

B) Ethidium bromide can be used to visualize the DNA

C) Supercoiled plasmids migrates slower than nicked counterparts

D) Larger molecules migrates faster than smaller molecules

91. ..... is an example of probiotic organism.

A) B.subtilis B) B. bifidum

C) B.polymyxa D) B. licheniformis

92. ..... species of bacteria causes food infection.

A) Clostridium B) Salmonella

C) Staphylococcus D) EPEC

93. ..... is a viral parasite that causes food infection.

A) Giardia B) Salmonella

C) Hepatitis-A D) Entamoeba

94. Phage typing is not useful for .....

A) Tracing the carrier during epidemic

B) Identification of bacteria

C) Differentiating classical V.cholera from the El Tor type

D) Pathogenecity testing

95. Ribotyping is a method that can identify and classify bacteria based upon differences in .....

A) IRNA B) DNA

C) cDNA D) rRNA

96. ..... of the following causes mad cow disease

A) Rickettsia B) Prions

C) Chlamydia D) Actinomycetes

97. Tetanus toxoid is mainly produced from ..... toxin.

a) tetanolysin b) tetanospasmin

c) tetanoglobin d) tetanoalbumin

98. ..... organ is included under gut associated lymphoid tissue.

A) Thymus B) Peyer's patches

C) Tonsils D) Breast lymph nodes

99. ..... of the following is an example of chemolithoautotroph.

A) Sulpher oxidizing bacteria B) Hydrogen bacteria

C) Nitrifying bacteria D) All of the above

100. Plasmids do-of the following

A) Direct synthesis of conjugation Pili

B) Provide resistance to certain antibiotics

C) Induce the formation of tumors in plants

D) All of the above

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