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O.M.R. Serial No. | | | | | | | | |

प्रश्नपुस्तिका क्रमांक
Question Booklet No.

प्रश्नपुस्तिका सीरीज
Question Booklet Series
A

M.Sc (Biotechnology) First Semester, Examination, February/March-2022
MBT-1002
General Biochemistry

Time : 1:30 Hours **Maximum Marks-100**

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

निर्देश : –

1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही– सही भरें, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
2. **इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमे से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने है। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET)में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वांइट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा निर्धारित प्रश्नों से अधिक प्रश्नों के उत्तर दिये जाते हैं तो उसके द्वारा हल किये गये प्रथमतः यथा निर्दिष्ट प्रश्नोत्तरों का ही मूल्यांकन किया जायेगा।**
3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
5. ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी प्रश्नपुस्तिका बुकलेट एवं ओ०एम०आर० शीट पृथक–पृथक उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
7. निगेटिव मार्किंग नहीं है।

महत्वपूर्ण : – **प्रश्नपुस्तिका खोलने पर प्रथमतः जॉच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभॉति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।**

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1. Synthesis of prostaglandinsis is inhibited by:

   (A) Aspirin

   (B) Arsenic

   (C) Fluoride

   (D) Cyanide

2. HDL is synthesized and secreted form:

   (A) Pancreas

   (B) Liver

   (C) Kidney

   (D) Muscle

3. Which of the following phospholipids is localized to a greater extent in the outer leaflet of the membrane lipid bilayer?

   (A) Choline phosphoglycerides

   (B) Ethanolamine phosphoglycerides

   (C) Inositol phosphoglycerides

   (D) Serine phosphoglycerides

4. The degradative processes are categorized under the heading of:

   (A) Anabolism

   (B) Catabolism

   (C) Metabolism

   (D) None of the above

5. The exchange of material takes place:

   (A) Only by diffusion

   (B) Only by active transport

   (C) Only by pinocytosis

   (D) All of these

6. The surface tension in intestinal lumen between fat droplets and aqueous medium is decreased by:

(A) Bile Salts

(B) Bile acids

(C) Conc. H_2SO_4

(D) Acetic acid

7. The most active site of protein synthesis is the:

(A) Nucleus

(B) Ribosome

(C) Mitochondrion

(D) Cell sap

8. A lipid bilayer is permeable to:

(A) Urea

(B) Fructose

(C) Glucose

(D) Potassium

9. The following substances are cell inclusions except:

(A) Melanin

(B) Glycogen

(C) Lipids

(D) Centrosome

10. Genetic information of nuclear DNA is transmitted to the site of protein synthesis by:

(A) rRNA

(B) mRNA

(C) tRNA

(D) Polysomes

11. The general formula of polysaccharides is:

(A) $(C_6H_{10}O_5)n$

(B) $(C_6H_{12}O_5)n$

(C) $(C_6H_{10}O_6)n$

(D) $(C_6H_{12}O_6)n$

12. The pentose sugar present mainly in the heart muscle is:

(A) Lyxose

(B) Ribose

(C) Arabinose

(D) Xylose

13. The number of isomers of glucose is:

(A) 2

(B) 4

(C) 8

(D) 16

14. Isomers differing as a result of variations in configuration of the –OH and –H on carbon atoms 2,3 and 4 of glucose are known as:

(A) Epimers

(B) Anomers

(C) Optical isomers

(D) Steroisomers

15. In glucose the orientation of the –H and –OH groups around the carbon atom 5 adjacent to the terminal primary alcohol carbon determines:

(A) D or L series

(B) Dextro or levorotatory

(C) α and β anomers

(D) Epimers

16. A sugar alcohol is:

(A) Mannitol

(B) Trehalose

(C) Xylulose

(D) Arabinose

17. Invert sugar is:

(A) Lactose

(B) Sucrose

(C) Hydrolytic products of sucrose

(D) Fructose

18. A dissaccharide formed by 1,1- glycosidic linkage between their monosaccharide units is:

(A) Lactose

(B) Maltose

(C) Trehalose

(D) Sucrose

19. The homopolysaccharide used for intravenous infusion as plasma substitute is:

(A) Agar

(B) Inulin

(C) Pectin

(D) Starch

20. The polysaccharide used in assessing the glomerular filtration rate (GFR) is:

(A) Glycogen

(B) Agar

(C) Inulin

(D) Hyaluronic acid

21. Which of the following is a heteroglycan?

(A) Dextrins

(B) Agar

(C) Inulin

(D) Chitin

22. The glycosaminoglycan which does not contain uronic acid is:

(A) Dermatan sulphate

(B) Chondroitin sulphate

(C) Keratan sulphate

(D) Heparan sulphate

23. Repeating units of hyaluronic acid are:

(A) N-acetyl glucosamine and D-glucuronic acid (B) N-acetyl galactosamine and D-glucuronic acid

(B) N-acetyl glucosamine and galactose

(C) N-acetyl galactosamine and L-iduronic acid

(D) None of these

24. A positive Benedict's test is not given by:

(A) Sucrose

(B) Lactose

(C) Maltose

(D) Glucose

25. An L-isomer of monosaccharide formed in human body is:

(A) L-fructose

(B) L-Erythrose

(C) L-Xylose

(D) L-Xylulose

26. Tautomerisation is:

(A) Shift of hydrogen

(B) Shift of carbon

(C) Shift of both

(D) None of these

27. Honey contains the hydrolytic product of:

(A) Lactose

(B) Maltose

(C) Inulin

(D) Starch

28. N-acetylneuraminic acid is an example of:

(A) Sialic acid

(B) Mucic acid

(C) Glucuronic acid

(D) Hippuric acid

29. The component of cartilage and cornea is:

(A) Keratosulphate

(B) Chondroitin sulphate

(C) Cadmium sulphate

(D) Antimony sulphate

30. Cerebrosides consist of mostly of this sugar:

(A) Glucose

(B) Fructose

(C) Galactose

(D) Arabinose

31. The normal resting state of humans, most of the blood glucose burnt as "fuel" is consumed by:

(A) Liver

(B) Brain

(C) Kidneys

(D) Adipose tissue

32. Glycogen is present in all body tissues except:

(A) Liver

(B) Brain

(C) Kidney

(D) Stomach

33. At neutral pH, a mixture of amino acids in solution would be predominantly:

(A) Dipolar ions

(B) Nonpolar molecules

(C) Positive and monovalent

(D) Hydrophobic

34. Since the pK values for aspartic acid are 2.0, 3.9 and 10.0, it follows that the isoelectric (pH) is:

(A) 3.0

(B) 3.9

(C) 5.9

(D) 6.0

35. Amino acid with side chain containing basic groups is:

(A) 2-Amino 5-guanidovaleric acid

(B) 2-pyrrolidine carboxylic acid

(C) 2-Amino 3-mercaptopropanoic acid

(D) 2-Amino propanoic acid

36. A ketogenic amino acid is:

(A) Valine

(B) Cysteine

(C) Leucine

(D) Threonine

37. Biuret reaction is specific for:

(A) -CONH-linkages

(B) -CSNH2 group

(C) -(NH) NH2 group

(D) All of these

38. The most of the ultraviolet absorption of proteins above 240 nm is due to their content of:

(A) Tryptophan

(B) Aspartate

(C) Glutamate

(D) Alanine

39. An example of metalloprotein is:

(A) Casein

(B) Ceruloplasmin

(C) Gelatin

(D) Salmine

40. An example of phosphoprotein present in egg yolk is:

(A) Ovoalbumin

(B) Ovoglobulin

(C) Ovovitellin

(D) Avidin

41. The amino acid form which synthesis of the protein of hair keratin takes place is:

(A) Alanine

(B) Methionine

(C) Proline

(D) Hydroxyproline

42. Each turn of α-helix contains the amino acid residues (number):

(A) 3.6

(B) 3.0

(C) 4.2

(D) 4.5

43. The a-helix of proteins is:

(A) A pleated structure

(B) Made periodic by disulphide bridges

(C) A non-periodic structure

(D) Stabilised by hydrogen bonds between NH and CO groups of the main chain:

44. Both α- helix and β-pleated sheet conformation of proteins were proposed by:

(A) Watson and Crick

(B) Pauling and Corey

(C) Waugh and King

(D) Y.S. Rao

45. In a protein molecule the disulphide bond is not broken by:

(A) Reduction

(B) Oxidation

(C) Denaturation

(D) X-ray diffraction

46. Denaturation of proteins results in:

(A) Disruption of primary structure

(B) Breakdown of peptide bonds

(C) Destruction of hydrogen bonds

(D) Irreversible changes in the molecule

47. The limiting amino acid of rice is:

(A) Lysine

(B) Tryptophan

(C) Phenylalanine

(D) Tyrosine

48. A trace element deficient in the milk is:

(A) Magnesium

(B) Copper

(C) Zinc

(D) Chloride

49. A water soluble vitamin deficient in egg is:

(A) Thiamin

(B) Ribofalvin

(C) Ascrobic acid

(D) Cobalamin

50. Aromatic amino acids can be detected by:

(A) Sakaguchi reaction

(B) Millon-Nasse reaction

(C) Hopkins-Cole reaction

(D) Xanthoproteic reaction

51. Edman's reagent contains:

(A) Phenylisothiocyanate

(B) 1-Fluoro-2, 4-dinitrobenzene

(C) Dansyl Chloride

(D) tBOC azide

52. All of the following statements about aspartate are true except:

(A) It is non-essential amino acid

(B) It is a dicarboxylic amino acid

(C) It can be synthesized from pyruvate and glutamate

(D) It can be converted into asparagine

53. Non-Protein amino acids are:

(A) Ornithine

(B) β-alanine

(C) Υ-amino butyric acid

(D) All of these

54. A lipid containing alcoholic amine residue is:

(A) Phosphatidic acid

(B) Ganglioside

(C) Glucocerebroside

(D) Sphingomyelin

55. A fatty acid which is not synthesized in the body and has to be supplied in the diet is:

(A) Palmitic acid

(B) Lauric acid

(C) Linolenic acid

(D) Plamitoleic acid

56. The number of double bonds in arachidonic acid is:

(A) 1

(B) 2

(C) 4

(D) 6

57. The importance of phospholipids as constituent of cell membrane is because they possess

(A) Fatty acids

(B) Both polar and nonpolar groups

(C) Glycerol

(D) Phosphoric acid

58. Phospholipid acting as surfactant is:

(A) Cephalin

(B) Phosphatidyl inositol

(C) Lecithin

(D) Phosphatidyl serine

59. Deterioration of food (rancidity) is due to presence of:

(A) Cholesterol

(B) Vitamin E

(C) Peroxidation of lipids

(D) Phenolic compounds

60. Molecular formula of cholesterol is:

(A) $C_{27}H_{45}OH$

(B) $C_{29}H_{47}OH$

(C) $C_{29}H_{46}OH$

(D) $C_{23}H_{41}OH$

61. Dietary fibre denotes:

(A) Undigested proteins

(B) Plant cell components that cannot be digested by own enzymes

(C) All plant cell wall components

(D) All non-digestible water insoluble polysaccharide

62. Atherosclerosis and coronary heart diseases are associated with the diet:

(A) High in total fat and saturated fat

(B) Low in protein

(C) High in protein

(D) High in carbohydrate

63. The end products of saponification:

(A) Glycerol

(B) Acid

(C) Soap

(D) Both (A) and (C)

64. Triglycerides are:

(A) Heavier than water

(B) Major constituents of membranes

(C) Non-polar

(D) Hydrophilic

65. The major lipid in chylomicrons is:

(A) Triglycerides

(B) Phospholipids

(C) Cholesterol

(D) Free fatty acids

66. The major storage form of lipids is:

(A) Esterified cholesterol

(B) Glycerophospholipids

(C) Triglycerides

(D) Sphingolipids

67. Cholesterol is transported from liver to extrahepatic tissues by:

(A) Chylomicrons

(B) VLDL

(C) HDL

(D) LDL

68. Thromboxanes cause:

(A) Vasodilation

(B) Bronchoconstriction

(C) Platelet aggregation

(D) All of these

69. Lysolecithin is formed form lecithin by removal of:

(A) Fatty acid from position 1

(B) Fatty acid from position 2

(C) Phosphorylcholine

(D) Choline

70. Salivary lipase hydrolyses the ester bond at:

(A) Position 1 of triglycerides

(B) Position 2 of triglycerides

(C) Position 3 of triglycerides

(D) All of these

71. Sphingomyelins:

(A) Phospholipids

(B) Nitrolipids

(C) Alcohols

(D) None of these

72. Leukotrienes cause:

(A) Increase in capillary permeability

(B) Aggregation of platelets

(C) Bronchodilatation

(D) None of these

73. The cyclic ring present in all the steroids:

(A) Cyclopentano perhydrophenanthrene

(B) Nitropentano

(C) Both (A) and (B)

(D) None of these

74. Function of Vitamin A:

(A) Healing epithelial tissues

(B) Protein synthesis regulation

(C) Cell growth

(D) All of these

75. Vitamin K is found in:

(A) Green leafy plants

(B) Meat

(C) Fish

(D) Milk

76. Vitamin synthesized by bacterial in the intestine is:

(A) A

(B) C

(C) D

(D) K

77. The most important natural antioxidant is:

(A) Vitamin D

(B) Vitamin E

(C) Vitamin B_{12}

(D) Vitamin K

78. In human body highest concentration of ascorbic acid is found in:

(A) Liver

(B) Adrenal cortex

(C) Adrenal medulla

(D) Spleen

79. Sterilised milk lacks in:

(A) Vitamin A

(B) Vitamin D

(C) Vitamin C

(D) Thiamin

80. The vitamin which does not contain a ring in the structure is:

(A) Pantothenic acid

(B) Vitamin D

(C) Riboflavin

(D) Thiamin

81. Vitamin B6 deficiency may occur during therapy with:

(A) Isoniazid

(B) Terramycin

(C) Sulpha drugs

(D) Aspirin

82. Consumption of raw eggs can cause deficiency of:

(A) Biotin

(B) Pantothenic acid

(C) Riboflavin

(D) Thiamin

83. Folic acid or folate consists of the:

(A) Base pteridine, p-amino benzoic acid and asparate

(B) Base Purine, p-amino benzoic acid and glutamate

(C) Base pteridine, p-amino benzoic acid and glutamate

(D) Base purine, p-hydroxy benzoic acid and glutamate

84. Calcium is excreted by:

(A) Kidney

(B) Kidney and intestine

(C) Kidney and liver

(D) Kidney and pancreas

85. Daily requirement of iron for normal adult male is about:

(A) 5 mg

(B) 10 mg

(C) 15 mg

(D) 20 mg

86. The richest source of copper is:

(A) Liver

(B) Milk

(C) Legumes

(D) Green leafy vegetables

87. A nonspecific intracellular antioxidant is:

(A) Chromium

(B) Magnesium

(C) Selenium

(D) Nickel

88. Excess intake of cobalt for longer periods leads to:

(A) Polycythemia

(B) Megaloblastic anemia

(C) pernicious anemia

(D) Microcytic anemia

89. Iodine is stored in:

(A) Thyroid gland as thyroglobulin

(B) Liver

(C) Intestine

(D) Skin

90. Fluorosis occurs due to:

(A) Drinking water containing less than 0.2 ppm of fluorine

(B) Drinking water containing high calcium

(C) Drinking water containing greater than 1.2 ppm of fluorine

(D) Drinking water containing heavy metals

91. Superoxide radicals can be detoxified by:

(A) Cytochrome c

(B) Superoxide dismutase

(C) Both (A) and (B)

(D) None of these

92. The major calcium salt in bones is:

(A) Calcium carbonate

(B) Calcium chloride

(C) Calcium hydroxide

(D) Calcium phosphate

93. Sodium is involved in the active uptake of:

(A) D-Glucose

(B) D-Galactose

(C) L-Amino acids

(D) All of these

94. In the insulin molecule, the number of interchain disulphide brides is:

(A) 1

(B) 2

(C) 3

(D) 4

95. Phospholipase C is activated by:

(A) Gs proteins

(B) Gi proteins

(C) Gq proteins

(D) G12 proteins

96. Genetic code is:

(A) Collection of codon

(B) Collection of amino acids

(C) Collection of purine nucleotide

(D) Collection of pyrimidine nucleotide

97. Cyclic AMP cab be formed from:

(A) AMP

(B) ADP

(C) ATP

(D) All of these

98. Nuclear DNA is present in combination with:

(A) Histones

(B) None-histones

(C) Both (A) and (B)

(D) None of these

99. Ribozymes are:

(A) Enzymes present in ribosomes

(B) Enzymes which combine the ribosomal subunits

(C) Enzymes which dissociate

(D) Enzymes made up of RNA

100. Melting temperature of DNA is increased by its:

(A) A and T content

(B) G and C content

(C) Sugar content

(D) Phosphate content

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Rough Work / रफ कार्य

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2. **This Question Booklet contains 100 questions, out of which only 75 Question are to be Answered by the examinee. Every question has 4 options and only one of them is correct. The answer which seems correct to you, darken that option number in your Answer Booklet (O.M.R ANSWER SHEET) completely with black or blue ball point pen. If any examinee will mark more than one answer of a particular question, then the first most option will be considered valid.**
3. Every question has same marks. Every question you attempt correctly, marks will be given according to that.
4. Every answer should be marked only on Answer Booklet **(O.M.R ANSWER SHEET).**Answer marked anywhere else other than the determined place will not be considered valid.
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