ABHINAV ACADEMY

UDUPI

CET25C10 BIOMOLECULES

Class 12 - Chemistry

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 75**

1. The carrier of hereditary character is. **[1]**

   a) Lipids b) Cytochromes

   c) Nucleotides d) Nucleosides

2. In the ring structure of glucose, the anomeric carbon is: **[1]**

   a) C-4 b) C-3

   c) C-1 d) C-2

3. DNA fingerprinting is used **[1]**

   a) to determine paternity of an individual b) in forensic laboratories

   c) all of these d) to identify racial groups

4. The vitamins are generally stored in the body in the **[1]**

   a) abdomen b) muscles

   c) liver and adipose tissue d) pancreas

5. An example of globular protein is **[1]**

   a) Collagen b) Primary proteose

   c) Histones d) Albumin

6. Peptide linkage is present in: **[1]**

   a) Carbohydrates b) Proteins

   c) Vitamins d) Rubber

7. A vitamin which plays a vital role in the clotting of blood is: **[1]**

   a) Vitamin K b) Vitamin D

   c) Vitamin B d) Vitamin A

8. The helix structure of proteins is stabilized by: **[1]**

   a) disulphide bond b) peptide bond

   c) van der Waals forces d) hydrogen bond

9. Which of the following vitamins is water soluble? **[1]**

   a) Vitamin D b) Vitamin C

   c) Vitamin A d) Vitamin E

10. Proteins are found to have two different types of secondary structures namely α-helix and β-pleated sheet structure, α-helix structure of protein is stabilized by **[1]**

a) peptide bonds
b) van der Waals forces
c) dipole-dipole interactions
d) hydrogen bonds

11. On hydrolysis, which of the following carbohydrates gives only glucose? **[1]**

a) Lactose
b) Sucrose
c) Starch
d) Fructose

12. The monomeric unis of starch is / are : **[1]**

a) Mannose
b) Glucose and Fructose
c) Glucose
d) Fructose

13. Nucleic acids are polymers of: **[1]**

a) D-ribose
b) nucleosides
c) amino acids
d) nucleotides

14. Night blindness is caused by the deficiency of **[1]**

a) Vitamin D
b) Vitamin B
c) Vitamin C
d) Vitamin A

15. Two nucleic acid chains are wound about each other and held together by hydrogen bonds between pairs of bases, this is called **[1]**

a) Secondary structure of DNA
b) Primary structure of DNA
c) Secondary structure of RNA
d) Primary structure of RNA

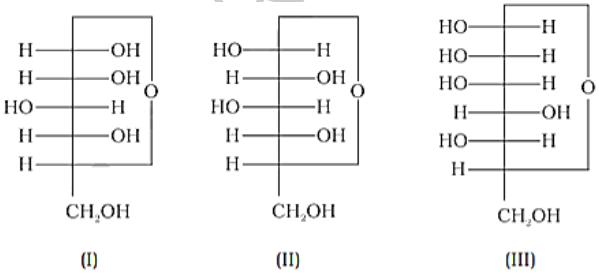
16. Hydrolysis of proteins in the presence of enzymes produces: **[1]**

a) Amino acids
b) Dicarboxylic acids
c) Hydroxy acids
d) Aromatic acids

17. Fat soluble vitamins are stored in **[1]**

a) Eyes
b) Stomach
c) Adipose and liver
d) Pancreas

18. Three cyclic structures of monosaccharides are given below which of these are anomers. **[1]**



a) III is anomer of I and II
b) I and II
c) II and III
d) I and III

19. The most appropriate structure for knowing about the sequence of nucleotides in the DNA chain is **[1]**

a) tertiary structure
b) quaternary structure
c) secondary structure
d) primary structure

20. The action of nitrous acid on ethylamine gives mainly: **[1]**

a) ethyl alcohol
b) ethyl nitrite
c) nitroethane
d) ethane

21. The sugar constituent of DNA is **[1]**

a) D – ribose
b) D – 2 – deoxy ribose
c) D – glucose
d) D – lactose

22. Which of the following is a disaccharide? **[1]**

a) Glucose
b) Cellulose
c) Lactose
d) Starch

23. β-pleated sheet structure in proteins refers to **[1]**

a) tertiary structure
b) primary structure
c) quaternary structure
d) secondary structure

24. Which parts of amino acids molecules are linked through hydrogen bonds in the secondary structure of proteins? **[1]**

a) $-\overset{\overset{O}{\|}}{C}-$ and -NH- groups
b) COOH group
c) NH_2 group
d) None of these

25. One or more of the following vitamin is insoluble in water **[1]**

a) all of these
b) vitamin D
c) vitamin K
d) vitamin E

26. Glucose and fructose are: **[1]**

a) enantiomers of each other.
b) anomers of each other.
c) isomers of each other.
d) Homologous of each other.

27. The deficiency of which of the following vitamins causes Scurvy? **[1]**

a) Vitamin A
b) Vitamin B_6
c) Vitamin B_{12}
d) Vitamin C

28. Nucleic acids are the polymers of **[1]**

a) sugars
b) bases
c) nucleosides
d) nucleotides

29. Which of the following bases is not present in DNA? **[1]**

a) Adenine
b) Cytosine
c) Uracil
d) Thymine

30. Which of the following B group vitamins can be stored in our body? **[1]**

a)
b)

Vitamin B_2 Vitamin B_1

c) Vitamin B_6 d) Vitamin B_{12}

31. Amino acids are: **[1]**

a) Neutral b) Acidic

c) Basic d) Amphoteric

32. Curdling of milk which is caused due to **[1]**

a) formation of lactic acid by the bacteria present in milk and resulting denaturation b) fall in temperature

c) increase in pH d) disturbance in primary structure of milk proteins

33. Deficiency of which of the following vitamins causes Pernicious anaemia? **[1]**

a) Vitamin B_2 b) Vitamin B_1

c) Vitamin B_{12} d) Vitamin B_6

34. Nucleotides are joined together by **[1]**

a) peptide linkage b) disulphide linkage

c) glycosidic linkage d) phosphodiester linkage

35. An α-helix is a structural feature of: **[1]**

a) Starch b) Polypeptides

c) Nucleotides d) Sucrose

36. Cheilosis is caused by deficiency of **[1]**

a) Vitamin B_6 b) Vitamin B_2

c) Vitamin C d) Vitamin B_{12}

37. ____ are joined together by phosphodiester linkage between 5′ and 3′ carbon atoms of the pentose sugar. **[1]**

a) Nucleosides b) Nucleic acids

c) Proteins d) Nucleotides

38. Which one is the complementary base of cytosine in one strand to that in other strand of DNA? **[1]**

a) Uracil b) Thymine

c) Guanine d) Adenine

39. The deficiency of which of the following vitamins causes **Rickets**? **[1]**

a) Vitamin B b) Vitamin A

c) Vitamin D d) Vitamin C

40. RNA guides the biosynthesis of **[1]**

a) Cellulose b) Fats

c) Starch d) Proteins

41. Water soluble vitamins must be supplied regularly in diet because **[1]**

a) they cannot be provided by synthetic means.
b) they are not widely available.
c) they are readily excreted in urine and cannot be stored (except vitamin B_{12}) in our body.
d) they get used up very fast in body.

42. Adenosine is **[1]**

a) Nucleic acid
b) Nucleoside
c) Base
d) Nucleotide

43. Proteins are polymers of **[1]**

a) Monosaccharides
b) Amino acids
c) Nucleic acids
d) Amines

44. Hydrolysis of sucrose is called **[1]**

a) esterification
b) saponification
c) inversion
d) hydration

45. On hydrolysis, which of the following carbohydrates gives only glucose ? **[1]**

a) Galactose
b) Maltose
c) Lactose
d) Sucrose

46. Protein is a **[1]**

a) Addition polymer
b) Copolymer
c) Homopolymer
d) Condensation polymer

47. Commercially glucose is obtained by **[1]**

a) hydrolysis of sucrose
b) boiling sucrose with dilute HCl or H_2SO_4 in alcoholic solution
c) hydrolysis of starch by boiling it with dilute H_2SO_4 at 393 K under pressure.
d) crushing ripe grapes

48. The vitamin that cannot be stored in our body is **[1]**

a) vitamin E
b) vitamin C
c) vitamin K
d) vitamin D

49. शॉक थेरेपी का मॉडल किस पर लागू किया गया? **[1]**

a) पूँजीवादी देशों पर
b) साम्यवादी देशों पर
c) भिन्न-राष्ट्रों पर
d) धुरी-राष्ट्रों पर

50. When a nucleoside is linked to phosphoric acid which of the following may be obtained? **[1]**

a) Ribonucleic acid
b) Nucleotide
c) An amino acid
d) Deoxyribonucleic acid

51. Which of the following reactions of glucose can be explained only by its cyclic structure? **[1]**

a) Glucose is oxidised by nitric acid to
b) Pentaacetate of glucose does not react with

gluconic acid.

b) hydroxylamine.

c) Glucose reacts with hydroxylamine to form an oxime.

d) Glucose forms pentaacetate.

52. On hydrolysis, which of the following carbohydrates gives glucose and galactose? **[1]**

a) Maltose

b) Lactose

c) Sucrose

d) Cellulose

53. On hydrolysis, which of the following carbohydrates gives glucose and fructose? **[1]**

a) Starch

b) Maltose

c) Lactose

d) Sucrose

54. The major component of starch is: **[1]**

a) amylopectin

b) water

c) amylose

d) glucose

55. Which of the following statements is not true about glucose? **[1]**

a) On heating with HI it forms n-hexane.

b) It gives 2, 4 DNP test.

c) It is an aldohexose.

d) It is present in pyranose form.

56. The general formula for carbohydrate is: **[1]**

a) $C_x(H_2O)_x$

b) $C_{x-1}(H_2O)_{2y}$

c) $C_{x+1}(H_2O)_y$

d) $C_{2x}(H_2O)_y$

57. Dinucleotide is obtained by joining two nucleotides together by a phosphodiester linkage. Between which carbon atoms of pentose sugars of nucleotides are these linkages present? **[1]**

a) 5′ and 3′

b) 3′ and 3′

c) 1′ and 5′

d) 5′ and 5′

58. Amino acid is. **[1]**

a) $H_2N.CH_2.COOH$

b) $Cl - CH_2. COOH$

c) $HO. CH_2COOH$

d) CH_3COONH_4

59. The glycosidic linkage involved in linking the glucose units in amylase part of starch is: **[1]**

a) $C_1 - C_4$ β linkage

b) $C_1 - C_6$ β linkage

c) $C_1 - C_4$ α linkage

d) $C_1 - C_6$ α linkage

60. Progesterone is responsible for **[1]**

a) preparing the uterus for implantation of fertilised egg.

b) development of secondary female characteristics.

c) controlling menstrual cycle.

d) development of secondary male characteristics.

61. The biological polymer is **[1]**

a) Stearic acid

b) Nucleic acid

c) Palmitic acid

d) Formic acid

62. The most appropriate base pair in a double helix of DNA is **[1]**

a) A – T

b) A – C

c) C – T

d) T – G

63. Building unit of a protein is **[1]**

a) β – Aminoacid

b) λ – Aminoacid

c) γ– Aminoacid

d) α– Aminoacid

64. DNA fingerprinting means the **[1]**

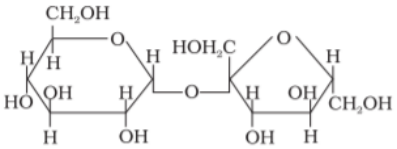
a) sequencing the nucleotides in DNA

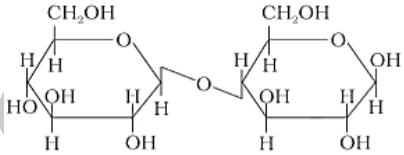
b) sequencing the bases present in double helix

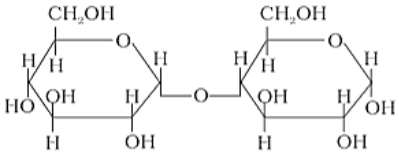
c) information regarding the unique sequence of bases on DNA for a person

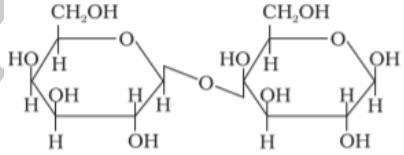
d) information reagrding the unique imprints on the fingertip for a person

65. In disaccharides, if the reducing groups of monosaccharides i.e. aldehydic or ketonic groups are bonded, these are non-reducing sugars. Which of the following disaccharide is a non-reducing sugar? **[1]**

a) 

b) 

c) 

d) 

66. α–D(+) glucose and β–D(+) glucose are **[1]**

a) Anomers

b) Enantiomers

c) Optical isomers

d) Geometrical isomers

67. Which of the following acids is a vitamin? **[1]**

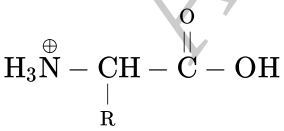
a) Adipic acid

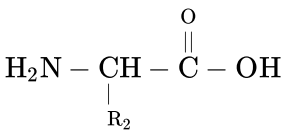
b) Aspartic acid

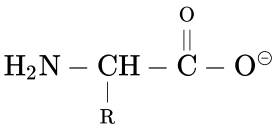
c) Saccharic acid

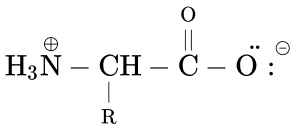
d) Ascorbic acid

68. Zwitter ion is represented as: **[1]**

a) 

b) 

c) 

d) 

69. Which of the following is a fibrous protein? **[1]**

a) Glycoprotein

b) Keratin

c) Proteoses

d) Prolamine

70. Glucose is: **[1]**

a) Aldopentose b) Ketopentose

c) Aldohexose d) Ketohexose

71. Which one of the following is not a globular protein? **[1]**

a) Insulin b) Enzyme

c) Haemoglobin d) Myosin

72. Which one is not the essential amino acid in the ones given below? **[1]**

a) Valine b) Proline

c) Leucine d) Arginine

73. When D-glucose reacts with HI, it forms **[1]**

a) Iodohexane b) Saccharic acid

c) Gluconic acid d) n-hexane

74. Certain vitamins cannot be stored in the body because **[1]**

a) they are readily excreted in urine b) they are used up very fast in the body

c) they are insoluble in water d) they are soluble in fat

75. Maltose is made of: **[1]**

a) $\propto$ -D-glucose b) $\propto$ - D-glucose and β - D -glucose

c) Glucose and fructose d) D-fructose