

ANSWERS

I. Multiple Choice Questions (Type-I)

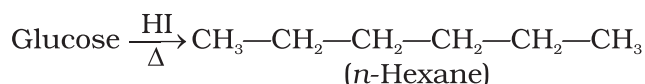
1. (ii) 2. (iv) 3. (iii)
4. (iii), **Hint** : Cyclic hemiacetal forms of monosaccharide which differ only in the configuration of the hydroxyl group at C1 are anomers.
5. (iii), **Hint** : In α -helix, hydrogen bonds are present between $-NH$ group of one amino acid residue to the $>C=O$ group of another amino acid residue.
6. (ii) 7. (ii) 8. (i) 9. (ii) 10. (iii) 11. (i)
12. (iii) 13. (iv) 14. (iv) 15. (i) 16. (iii) 17. (i)
18. (iii) 19. (iii)

II. Multiple Choice Questions (Type-II)

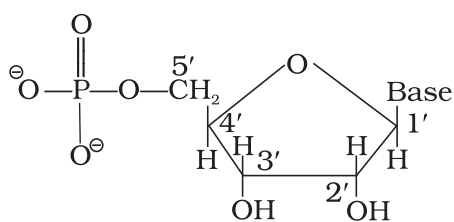
20. (ii), (iv) 21. (i), (iii) 22. (ii), (iv) 23. (ii), (iv)
24. (i), (ii) 25. (i), (iii) 26. (ii), (iv) 27. (i), (ii) 28. (i), (iv)

III. Short Answer Type

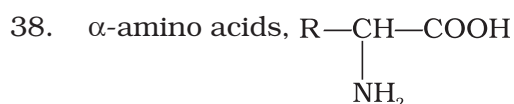
29. Lactose, two monosaccharide units are present. Such oligosaccharides are called disaccharides.
30. On prolonged heating with HI, glucose gives *n*-hexane.



31. Phosphoric acid is linked at 5'-position of sugar moiety of nucleoside to give a nucleotide.



32. Glycosidic linkage.
33. Glucose is converted to gluconic acid by bromine water and to saccharic acid by conc. HNO_3 .
34. Fructose is a ketohexose.
35. 'L' configuration
36. 'D' configuration
37. Sucrose, see page no. 409 of NCERT textbook for the explanation.



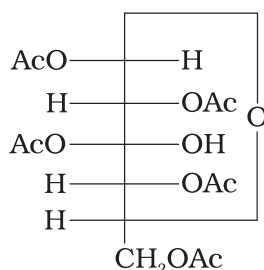
39. In α -helix, a polypeptide chain is stabilised by the formation of hydrogen bonds between $-\text{NH}-$ group of amino acids in one turn with the $>\text{C}=\text{O}$ groups of amino acids belonging to adjacent turn.

40. Oxidoreductase

41. Lactic acid.

42. Glucose gives pentaacetate derivative on acetylation with acetic anhydride. This confirms the presence of five $-\text{OH}$ groups.

43. Glucose pentaacetate (structure A) doesn't have a free $-\text{OH}$ group at C1 and so can't be converted to the open chain form to give $-\text{CHO}$ group and hence doesn't form the oxime.

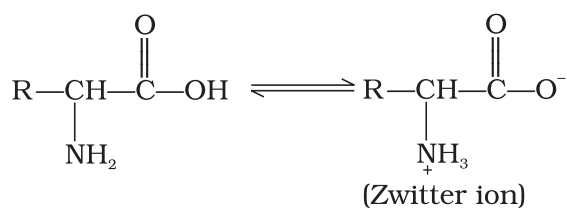


(Structure A)

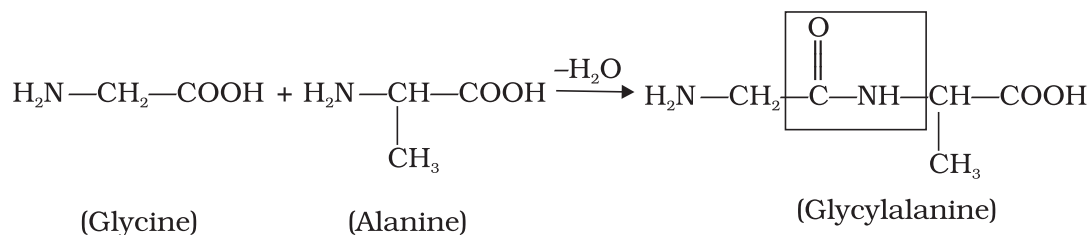
44. Vitamin C is water soluble therefore it is readily excreted in urine and can't be stored in our body.

45. On hydrolysis sucrose (dextrorotatory), gives glucose (dextrorotatory, $+52.5^\circ$) and fructose (laevorotatory, -92.4°). Since laevorotation of fructose is more than the dextrorotation of glucose, the mixture is laevorotatory.

46. In aqueous solution, the carboxyl group loses a proton and amino group accepts a proton to form a zwitter ion.



47. In glycylalanine, carboxyl group of glycine combines with the amino group of alanine.



48. Due to physical or chemical change, hydrogen bonds in proteins are disturbed, globules unfold and helix gets uncoiled therefore protein loses its biological activity. This is called denaturation of proteins.
49. Enzymes, the biocatalysts, reduce the magnitude of activation energy by providing alternative path. In the hydrolysis of sucrose the enzyme sucrase reduces the activation energy from 6.22 kJ mol^{-1} to 2.15 kJ mol^{-1} .
50. Glucose reacts with hydroxylamine to form a monoxime and adds one molecule of hydrogen cyanide to give cyanohydrin so it contains a carbonyl group which can be an aldehyde or a ketone. On mild oxidation with bromine water, glucose gives gluconic acid which is a six carbon carboxylic acid. This indicates that carbonyl group present in glucose is an aldehydic group.
51. See page no. 420 of NCERT textbook.
52. See page no. 409 of NCERT textbook.
53. In starch and glycogen, glycosidic α -linkage is present and in cellulose, glycosidic β -linkage is present between glucose units.
54. Active site of enzymes hold the substrate molecule in a suitable position, so that it can be attacked by the reagent effectively.
55. See the NCERT textbook for Class XII.
56. For answer see page no. 406 of NCERT textbook for Class XII.
57. For answer see page no. 416-417 of NCERT textbook for Class XII.

IV. Matching Type

58. (i) \rightarrow (c), (f) (ii) \rightarrow (g) (iii) \rightarrow (a) (iv) \rightarrow (h) (v) \rightarrow (d), (i)
(vi) \rightarrow (e), (vii) \rightarrow (b)
59. (i) \rightarrow (d) (ii) \rightarrow (c) (iii) \rightarrow (e) (iv) \rightarrow (a) (v) \rightarrow (b)

V. Assertion and Reason Type

60. (iii) 61. (i) 62. (iv) 63. (v) 64. (ii) 65. (ii) 66. (i)

VI. Long Answer Type

67. See NCERT textbook for Class XII.
68. See NCERT textbook for Class XII.
69. **Hint :** Carbohydrate used as storage molecule in plants is starch and in animals, it is glycogen. Cellulose is present in wood or in the fibre of cotton cloth.
70. See NCERT textbook for Class XII.
71. See NCERT textbook for Class XII.