

presence of

- a) six carbon atoms linked in straight chain
- b) secondary alcoholic group in glucose
- c) aldehyde group in glucose
- d) primary alcoholic group in glucose

- When one mole of lactose is hydrolyzed, the hydrolysate contains.
- 1.0 mol Glucose + 2.0 mole Galactose
 - 1.0 mol Galactose + 1.0 mole Glucose
 - 2.0 mol Glucose
 - 1.0 mol Glucose + 1.0 mole Fructose
- Which among the following is a product of hydrolysis of one mole raffinose ?
- 2 moles of Glucose
 - 2 moles Glucose + 1 mole Fructose + 1 mole Galactose
 - 1 mole Fructose + 2 moles Glucose
 - 1 mole Glucose + 1 mole Fructose + 1 mole Galactose
- Which among the following reagents is used to obtain gluconic acid from glucose ?
- Acetic anhydride
 - Acetyl chloride
 - Bromine water
 - dil. Nitric acid
- Which among the following reagents is used for conversion of glucose to glucosime ?
- Dilute Nitric acid
 - Br_2 water
 - Hydroxylamine
 - HCN
- Identify the number of oxygen atoms present in saccharic acid.
- 6
 - 8
 - 4
 - 12
- How many moles of acetic acid are obtained in the reaction when one mole glucose is treated with excess acetic anhydride ?
- 3 moles
 - 5 moles
 - 2 moles
 - 4 moles
- What is the quantity of glucose obtained when 68.4 g of sucrose is hydrolyzed in laboratory under ideal conditions ? (Molar mass of sucrose = 342 g mol^{-1})
- 68.4 g
 - 198.0 g
 - 36.0 g
 - 180 g
- Which among the following compounds is obtained when glucose reacts with hydrogen cyanide ?
- Gluconic acid
 - Saccharic acid
 - Glucose cyanohydrin
 - n - Hexane
- What is the product obtained when Br_2 water reacts with glucose ?
- Gluconic acid
 - 1, 6-Dibromoglucose
 - Saccharic acid
 - Bromohexane
- Which reagent among the following is used to confirm presence of aldehydic carbonyl group in glucose ?
- Dilute nitric acid
 - Hydroxylamine
 - Bromine water
 - Acetic anhydride
- Which among the following sugars does not reduce Tollen's reagent ?
- Ribose
 - Lactose
 - Maltose
 - Sucrose
- Which among the following is a natural biopolymer of monosaccharides ?
- Isoprene
 - Neoprene
 - Glycogen
 - Silk
- On hydrolysis sucrose gives
- 2 moles of galactose
 - 2 moles of fructose
 - 2 moles of glucose
 - equimolar mixture of glucose and fructose
- Which among the following observations suggests that glucose also exists in cyclic form?
- Hydroxylamine with glucose to form glucose oxime.
 - Acetylation of glucose obtains glucose pentaacetate.
 - Glucose does not undergo condensation with 2, 4-dinitrophenylhydrazine.
 - Prolonged heating of glucose with HI yields n-hexane.

38. Which of the following statements is NOT true about saccharic acid ?

- a) It can be obtained from gluconic acid
- b) It contains one carboxyl group and four hydroxyl groups
- c) It can be obtained from glucose
- d) It contains two carboxyl groups

39. Which of the following reagents is used to detect presence of five hydroxyl groups in a glucose molecule ?

- a) Acetic anhydride
- b) Dilute nitric acid
- c) Br_2 water
- d) Hydroxyl amine

40. Which among the following reagents is used to confirm the presence of carbonyl group in glucose ?

- a) dilute HNO_3
- b) hot HI
- c) Br_2 water
- d) NH_2OH

41. Which of the following molecules reduces Fehling's solution ?

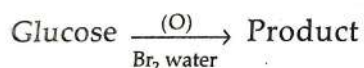
- a) Erythrose
- b) Acetone
- c) Sucrose
- d) Butan - 2 - one

[MHT-CET 2021]

42. Identify ketose sugar from the following.

- a) Glucose
- b) Threose
- c) Fructose
- d) Ribose

43. Identify the product obtained in the following conversion.



- a) Gluconic acid
- b) n-Hexane
- c) Saccharic acid
- d) Glucose Cyanohydrin

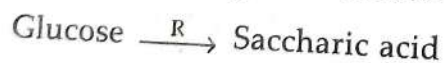
44. Formation of gluconic acid from glucose by oxidation using Br_2 water shows that

- a) the six carbon atoms of glucose are in a straight chain.
- b) the presence of aldehyde group in glucose.
- c) glucose contains one primary alcoholic group.
- d) glucose contains five hydroxyl groups.

45. Which among the following compounds is NOT oligosaccharide ?

- a) Maltose
- b) Ribose
- c) Stachyose
- d) Raffinose

46. Identify the reagent R used in following conversion.



- a) NH_2OH
- b) dil. HNO_3
- c) KCN
- d) HI/Δ

47. Which among the following statements is true about threose ?

- a) It is aldehydic sugar.
- b) It is a disaccharide.
- c) It is a keto sugar
- d) It is a pentose sugar.

48. Which from following statements is NOT true about maltose ?

- a) It is reducing sugar
- b) It is milk sugar
- c) It is disaccharide
- d) It contains α -1, 4 - glycosidic bond.

49. Identify the product obtained when glucose is treated with hydroxylamine.

- a) Gluconic acid
- b) Glucose cyanohydrin
- c) Glucose oxime
- d) n-Hexane

Which from following molecules produces 1 mole each of glucose, fructose and galactose when 1 mole of that molecule is hydrolyzed ?

- a) Raffinose b) Stachyose c) Lactose d) Sucrose

Which carbon atoms of glucose in Fischer projection formula, numbered from 1 to 6, are not chiral carbons ?

- a) 3 and 5 b) 1 and 6 c) 1 and 2 d) 2 and 4

Which of the following reagents is used to confirm that glucose contains one carbonyl group ?

- a) Bromine water b) Dilute nitric acid
c) Hydrogen cyanide d) Acetic anhydride

Which among the following carbohydrate molecules yields highest number of monosaccharide units when one mole of it is hydrolyzed ?

- a) Stachyose b) Sucrose c) Lactose d) Raffinose

Proteins and Enzymes

[MHT-CET 2015]

83. Which of the following proteins is globular ?

- a) Collagen b) Albumin c) Myosin d) Fibroin

[MHT-CET 2019]

84. β -pleated sheets of polypeptide chains are present in

- a) Secondary structure b) Tertiary structure
c) Primary structure d) Quaternary structure

85. Which of the following molecules forms a zwitter ion ?

- a) $\text{H}_2\text{NCH}_2\text{COOH}$ b) $\text{CH}_3\text{COC}_2\text{H}_5$ c) $\text{CH}_3\text{COOCH}_3$ d) $\text{CH}_3\text{CH}_2\text{COOH}$

86. The enzyme which converts maltose to glucose is

- a) maltase b) lysine c) insulin d) zymase

[MHT-CET 2020]

87. How many optical isomers are possible for a compound having 3 asymmetric carbon atoms ?

- a) 9 b) 3 c) 8 d) 6

88. What is molecular formula of glyceraldehyde ?

- a) $\text{C}_3\text{O}_3\text{H}_8$ b) $\text{C}_2\text{O}_2\text{H}_2$ c) $\text{C}_4\text{O}_3\text{H}_6$ d) $\text{C}_3\text{O}_3\text{H}_6$

89. How many optical isomers are possible for a compound having four asymmetric carbon atoms ?

- a) 16 b) 8 c) 4 d) 12

90. Which among the following is a globular protein ?

- a) Collagen b) Fibroin c) Insulin d) Myosin

91. Which among the following types of linkages is present in cellulose ?

- a) $1 \rightarrow 6 \beta$ glycosidic linkages b) $1 \rightarrow 4 \alpha$ glycosidic linkages
c) $1 \rightarrow 4 \beta$ glycosidic linkages d) $1 \rightarrow 6 \alpha$ glycosidic linkages

- What is the number of chiral carbon atoms in glyceraldehyde ?
 a) Zero b) Two c) One d) Three
- What change is observed in glucose when it is heated with hydrogen iodide for prolonged time ?
 a) last carbon is oxidized to $-\text{COOH}$
 b) $-\text{CHO}$ reduces to $-\text{CH}_2\text{OH}$
 c) All carbon atoms are reduced completely to form hydrocarbon.
 d) $-\text{CHO}$ changes to oxime group.
- Which among the following reagents is used to convert $-\text{CHO}$ group of glucose to $-\text{COOH}$ group ?
 a) dil. HNO_3 b) $\text{Na}-\text{Hg}/\text{H}_2\text{O}$ c) NH_2OH d) Br_2 water
- What is the sum total of masses of products obtained when 17.1 g of sucrose is hydrolyzed in acidic medium ? (Molar mass of sucrose = 340 g mol^{-1})
 a) 38.5 g b) 18.0 g c) 32 g d) 35.8 g

Nucleic acids

[MHT-CET 2007]

108. Zwitter ion is formed by
 a) aniline b) acetanilide c) benzoic acid d) glycine

[MHT-CET 2016]

109. Which of the following amino acids is basic in nature ?
 a) Valine b) Tyrosine c) Arginine d) Leucine

[MHT-CET 2017]

110. The amino acid which is basic in nature is
 a) Histidine b) Tyrosine c) Proline d) Valine

[MHT-CET 2018]

111. Which carbon atom of deoxy ribose sugar in DNA does NOT contain $-\text{C}-\text{OH}$ bond ?
 a) C_5 b) C_3 c) C_2 d) C_1

[MHT-CET 2019]

112. Which of the following is NOT present in DNA ?
 a) Adenine b) Uracil c) Guanine d) Thymine
113. The compound containing two hetero cyclic rings is
 a) Uracil b) Thymine c) Guanine d) Cytosine

[MHT-CET 2020]

114. Which from following pairs of symbol and nature of amino acids is NOT correct ?
 a) Glu - Acidic b) Asp - Neutral c) Leu - Neutral d) His - Basic