



CHEMISTRY

BOOKS - MTG GUIDE

BIOMOLECULES

Illustration

1. Explain what is meant by the following:

Pyranose structure of glucose?



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2. Enumerate the reactions of glucose which cannot be explained by its open chain structures.



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3. Write the structural difference between starch and cellulose.



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4. Mention the structural feature characterising reducing sugar.



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5. What type of linkage is responsible for the formation of proteins?



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6. Amino acids show amphoteric behaviour.

Why?

Write one difference between α -helix and β -pleated structures of proteins.



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7. Where does the water present in the egg go after boiling the egg?



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8. What is meant by biocatalysts ?



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9. What are vitamins ? Deficiency of which vitamin cause .

(i) Pernicious anaemia?

(ii) Convulsion ?



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1. What are the different types of RNA found in cells of organisms? State the functions of each type.



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2. On oxidation with nitric acid, glucose as well as gluconic acid both yield

A. maleic acid

B. fumaric acid

C. saccharic acid

D. aspartic acid.

Answer: C



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3. Which of the following pairs form the same osazone?

A. Glucose and fructose

B. Glucose and galactose

C. Glucose and arabinose

D. Lactose and maltose

Answer: A



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4. The pentaacetate of glucose does not react with hydroxylamine indicating the

A. presence of - OH group

B. presence of free - CHO group

C. absence of - OH group

D. absence of free - CHO group.

Answer: D



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5. In fructose and glucose the possible optical isomers are

A. 12, 12

B. 8,16

C. 16,8

D. 4, 12

Answer: B



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6. The two monosaccharides of sucrose are held together by a glycosidic linkage between.

A. C_2 of α -glucose and C_1 of β -fructose

B. C_3 of α -glucose and C_1 of β -fructose

C. C_1 of α -glucose and C_2 of β -fructose

D. C_2 of α -glucose and C_5 of β -fructose.

Answer: C



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7. Identify the compound which is insoluble in water and is a branched chain polymer of $\alpha - D$ glucose and in which chain is formed by $C - C_4$ glycosidic linkage whereas branching occurs by $C_1 C_6$ glycosidic linkage.

A. Amylose

B. Amylopectin

C. Glycogen

D. Cellulose .

Answer: B



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8. Which of the following carbohydrates is used in silvering of mirrors?

A. Sucrose

B. Cellulose

C. Starch

D. Glucose

Answer: D



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9. Mutarotation is characteristic feature of

A. epimers

B. enantiomers

C. anomers

D. ringchain isomers.

Answer: C



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10. Which one of the following has maximum laevorotatory nature ?

A. D-glucose

B. D-fructose

C. Sucrose

D. Invert Sugar.

Answer: B



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11. What percentage of $\beta - D - (+)$ glucopyranose is found at equilibrium in the aqueous solution?

A. 0.5

B. = 100 %

C. 0.36

D. 0.64

Answer: D



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12. Ripe grapes mainly contain

A. glucose

B. fructose

C. sucrose

D. maltose.

Answer: A



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13. Select the incorrect statement.

A. Glucose and galactose are epimers at C-

4.

B. Glucose and galactose are epimers at C-

2.

C. Glucose and mannose are epimers at C-2.

D. All of these

Answer: B



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14. Seliwanoff's test is given by

A. glucose

B. fructose

C. galactose

D. mannose.

Answer: B



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15. Which of the following forms different osazones than others?

A. Fructose

B. Glucose

C. Galactose

D. Mannose

Answer: C



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16. Which of the following cannot be oxidized by bromine water?

A. D-arabinose

B. D-glyceraldehyde

C. L-glucose

D. L-fructose

Answer: D



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17. One mole of each of glucose and fructose require x and y moles of periodic acid respectively, for oxidation. Hence, x/y is .

A. $\frac{1}{1}$

B. $\frac{2}{1}$

C. $\frac{5}{4}$

D. $\frac{9}{4}$

Answer: C



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18. When one mole of D-arabinose is oxidized by periodic acid, the product(s) formed is are.

A. 5 moles of HCOOH

B. 4 moles of HCOOH and one mole of
 HCHO

C. 3 moles of HCOOH and 2 moles of HCHO

D. 5 moles of HCHO .

Answer: B



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19. α – *D* Glucose and β -*D*-glucose differ from each other due to difference in one carbon with respect to the

A. size of hemiacetal ring

B. number of OH groups

C. configuration

D. conformation.

Answer: C



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20. Which of the following is formed by $\alpha - D$ glucopyranose unit and $\beta - D$ fructofuranoside unit?

A. Sucrose

B. Maltose

C. Lactose

D. Starch

Answer: A



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21. The term anomers of glucose refers to

- A. isomers of glucose that differ in configurations at carbons one and four (C-1 and C-4)
- B. a mixture of (D)-glucose and (L)-glucose
- C. enantiomers of glucose
- D. isomers of glucose that differ in configuration at carbon one (C-1).

Answer: D



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22. $\alpha - D - (+)$ glucose and $\beta - D - (+)$ glucose are

A. enantiomers

B. conformers

C. epimers

D. anomers.

Answer: D



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23. The two functional groups present in a typical carbohydrate are



Answer: C

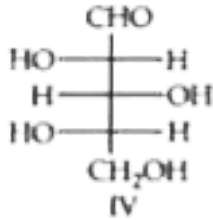
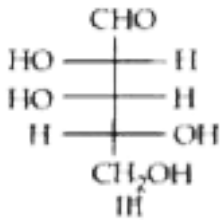
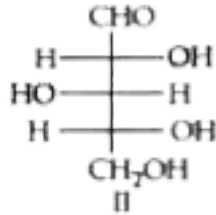
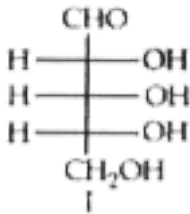


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24. Two aldopentoses 'X' and 'Y' give the same osazone derivative. 'X' is oxidised to an optically active aldaric acid by dilute nitric acid. Ruff degradation of Y' gave a tetrose which was similarly oxidised to an optically active aldaric acid.

Assign the structures of X and Y* from the

following.



A. X= I, Y= IV

B. X = IV, Y=I

C. X = III, Y = II

D. X= II, Y = III

Answer: C



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25. Sucrose is not a reducing sugar since.

A. it is chemically stable

B. it contains no free aldehyde or keto

group adjacent to $>CHOH$ group

C. it is built up of a fructose unit

D. it is optically active.

Answer: B



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26. Glucose reacts with acetyl chloride to form pentaacetyl glucose, it indicates presence of.

- A. five primary alcoholic groups
- B. five secondary alcoholic groups
- C. aldehyde as well as alcoholic group
- D. five -OH groups and has cyclic structure.

Answer: D



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27. The two forms of D-glucopyranose obtained from the solution of D-glucose are called

A. isomer

B. anomer

C. epimer

D. enantiomer.

Answer: B



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28. The specific rotation of α - and β -forms of a monosaccharide are $+29^\circ$ and -17° respectively. When either form is dissolved in water the specific rotation of the equilibrium mixture was found to be $+14^\circ$

A. α -form = 67.4%, β -form = 32.6%

B. α -form = 60%, β -form = 40%

C. α -form = 70 %, β - form = 30%

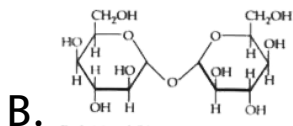
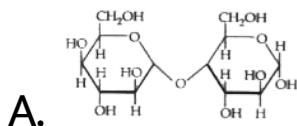
D. α - form = 50%, β -form = 50%

Answer: A



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29. Which of the following will reduce Tollens' reagent?



C. Both (a) and (b)

D. None of these.

Answer: A



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30. A carbohydrate X having molecular weight 180g mol^{-1} has one primary alcoholic group and four secondary alcoholic groups. It reacts with acetic anhydride to form pentaacetate. The molecular weight of pentaacetate formed is

A. 180

B. 210

C. 390

D. 42

Answer: C



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31. Starch can be used as an indicator for the detection of the traces of

A. glucose in aqueous solution

B. proteins in blood

C. iodine in aqueous solution

D. urea in blood.

Answer: C



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32. Glucose is used

A. in manufacture of vitamin C

B. as preservative

C. in the manufacture of alcohol

D. all of the above.

Answer: D



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33. Which of the following compounds is found in abundance in nature?

A. Fructose

B. Glucose

C. Starch

D. Cellulose

Answer: D



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34. A certain compound gives negative test with ninhydrin and positive test with Benedict's solution, the compound is

A. a protein

B. a lipid

C. a monosaccharide

D. an amino acid.

Answer: C



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35. Hydrolysis of sucrose gives

A. two molecules of glucose

B. two molecules of fructose

C. one molecule each of glucose and fructose

D. one molecule each of glucose and mannose.

Answer: C



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36. Which of the following monosaccharides is a pentose?

A. Glucose

B. Fructose

C. Arabinose

D. Galactose

Answer: C



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37. Table sugar is

- A. a disaccharide of D-glucose and D-fructose
- B. a monosaccharide
- C. a disaccharide containing two glucose units
- D. D-glucose.

Answer: A



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38. Biuret test is not given by

A. proteins

B. carbohydrates

C. polypeptide

D. urea.

Answer: B



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39. The change in the optical rotation (with time) of freshly prepared solution of sugar is known as

A. specific rotation

B. inversion

C. rotatory motion

D. mutarotation.

Answer: D



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40. When amylase catalyses the hydrolysis of starch, the final product obtained is chiefly

A. cellobiose

B. glucose

C. maltose

D. sucrose.

Answer: B



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41. Molisch test is given by

A. all carbohydrates

B. sucrose

C. fructose

D. glucose.

Answer: A



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42. Which of the following reagents cannot distinguish between glucose and fructose?

- A. Tollens' reagent
- B. Fehling's solution
- C. Benedict's solution
- D. All of these

Answer: D



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43. In polysaccharides, the linkage connecting monosaccharides is called

- A. glycosidic linkage
- B. nucleoside linkage
- C. glycogen linkage
- D. peptide linkage.

Answer: A



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44. The rapid interconversion of α -D-glucose and β -D-glucose in solution is known as

- A. racemization
- B. asymmetric induction
- C. functional isomerism
- D. mutarotation

Answer: D



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45. What happens when a mineral acid is treated with sugar?

- A. Oxidation
- B. Reduction
- C. Dehydration
- D. Hydrolysis

Answer: D



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46. Which is correct statement?

A. Starch is a polymer of α -glucose.

B. Amylose is a component of cellulose.

C. Proteins are compounds of only one type of amino acids.

D. In cyclic structure of fructose, there are four carbons and one oxygen atom.

Answer: A



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47. Cellulose is a polymer of

A. glucose

B. ribose

C. fructose

D. sucrose.

Answer: A



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48. An organic compound with the formula $C_6H_{12}O_6$ forms a yellow crystalline solid with phenylhydrazine and gives a mixture of sorbitol and mannitol when reduced with sodium. Which among the following could be the compound?

A. Fructose

B. Glucose

C. Mannose

D. Sucrose

Answer: A



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49. The disaccharide present in milk is

A. sucrose

B. maltose

C. lactose

D. cellobiose.

Answer: C



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50. The reagent which forms crystalline osazone derivative when treated with glucose is

A. Fehling's solution

B. phenylhydrazine

C. Benedict's solution

D. hydroxylamine.

Answer: B



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51. Hydrolysis of sucrose is called .

A. hydration

B. saponification

C. esterification

D. inversion.

Answer: D



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52. Iodine test is shown by

A. polypeptides

B. glycogen

C. starch

D. glucose.

Answer: C



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53. It is best to carry out reactions with sugars in neutral or acid medium and not in alkaline medium. This is because in alkaline medium sugars undergoes

- A. racemisation
- B. decomposition
- C. inversion
- D. rearrangement.

Answer: D



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54. In lactose, the reducing part is

A. galactose

B. glucose

C. fructose

D. mannose.

Answer: B



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55. Mutarotation does not occur in

A. sucrose

B. D-glucose

C. L-glucose

D. none of these

Answer: A



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56. Which of the following is false?

- A. Sucrose is a non reducing sugar.
- B. Glucose is oxidised by bromine water.
- C. Glucose rotates plane polarized light in clock-wise direction.
- D. Fructose is oxidised by bromine water.

Answer: D



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57. Sucrose on reaction with conc. sulphuric acid gives

- A. arabinose and SO_2
- B. glucose and fructose
- C. carbon and water
- D. carbon, water and H_2

Answer: C



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58. Glucose $\xrightarrow{\text{HCN}}$ $\xrightarrow{\text{Hydrolysis}}$ $\xrightarrow{H^I/h}$ A is

A. heptanoic acid

B. 2-iodohexane

C. heptane

D. heptanol.

Answer: A



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59. Glucose $\xrightarrow{Br_2 + H_2O}$ Product is

A. glucaric acid

B. gluconic acid

C. hexanoic acid

D. bromohexane.

Answer: B



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60. Which of the following statements is correct?

A. A polymer of α -glucose is readily digested by human beings and not that of β -glucose.

B. A polymer of β -glucose is readily digested by human being and not that of α -glucose.

C. Polymers of both α -and β -glucose are readily digested by human beings.

D. Polymers of both α - and β -glucose are not readily digested by human beings.

Answer: A



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61. Which of the following is not a monosaccharide?

A. Glucose

B. Fructose

C. Cellulose

D. Ribose

Answer: C



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62. Maltose is made up of

A. $\alpha - D -$ glucose

B. D-fructose

C. $\alpha - D$ -Glucose and $\beta - D$ -glucose

D. glucose and fructose.

Answer: A



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63. A pair of diastereomers that differ only in the configuration about a single carbon atom are called

A. tautomers

B. epimers

C. conformers

D. enantiomers.

Answer: B



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64. Diabetes is detected using for testing urine of patients.

- A. Fehling's solution
- B. Tollens' reagent
- C. Benedict's solution
- D. Baeyer's reagent

Answer: C



Proteins And Enzymes

1. Sanger's reagent is used for the identification of

A. N-terminal of a peptide chain

B. C-terminal of a peptide chain

C. side chain of amino acids

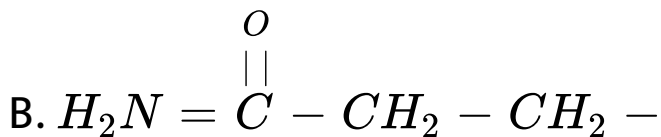
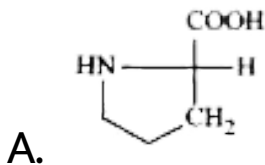
D. number of amino acids in peptide chain.

Answer: A

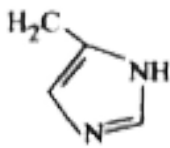


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2. Which of the following is the side chain of an essential amino acid?



D.



Answer: D



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3. Example of denaturation is.

A. Coagulation of egg white on boiling

B. curding of milk by bacteria

C. Both (a) and (b)

D. none of these

Answer: C



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4. Glutathione is a

A. dipeptide

B. polypeptide

C. oligopeptide

D. tripeptide

Answer: D



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5. Thiol group is present in

A. cytosine

B. cystine

C. cysteine

D. methionine.

Answer: C



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6. Select the amino acid that is not essential.

A. Tryptophan

B. Lysine

C. Phenylalanine

D. None of these

Answer: D



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7. Which one of the following biomolecules is insoluble in water?

A. α -Keratin

B. Haemoglobin

C. Ribonuclease

D. Adenine

Answer: A



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8. Hydrolysis of protein give

A. α - amino acids only

B. β - amino acids only

C. γ - amino acids only

D. mixture of all i.e., β and γ - amino acids

Answer: A



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9. Mark the incorrect example.

A. Keratin and myosin - Fibrous proteins

B. Insulin and albumins - Globular proteins

C. Glycylalanine - Dipeptide

D. Enzymes and haemoglobin - Derived proteins.

Answer: D



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10. Which of the following diseases is caused by deficiency of an enzyme?

A. Phenylketone urea

B. Cheilosis

C. Scurvy

D. Xerophthalmia

Answer: A



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11. The secondary structure of a protein refers to .

A. fixed configuration of the polypeptide backbone

B. α -helical backbone

C. hydrophobic interactions

D. sequence of α -amino acids.

Answer: B



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12. Peptides are composed of amino acids joined by amide bonds. Which of the following statements is not correct?

A. Amide groups are more resistant to hydrolysis than are similar ester groups.

B. $p\pi - p\pi$ resonance stabilises the amide bond.

C. Stable conformation of peptides are restricted to those having planar amide

groups.

D. Amide groups do not participate in hydrogen bonding interactions.

Answer: D



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13. Mark the wrong statement about denaturation of proteins.

- A. The primary structure of the protein does not change.
- B. Globular proteins are converted into fibrous proteins.
- C. Fibrous proteins are converted into globular proteins.
- D. The biological activity of the protein is destroyed.

Answer: C



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14. Hair is composed of protein called

A. globulin

B. mucin

C. casein

D. keratin.

Answer: D



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15. Which of the following statements about enzymes are true?

(i) Enzymes lack in nucleophilic groups.

(ii) Enzymes are highly specific both in binding chiral substrates and in catalysing their reactions.

(iii) Enzymes catalyse chemical reactions by lowering the activation energy .

(iv) Pepsin is proteolytic enzyme.

A. (i)

B. (i) and (iv)

C. (i) and (iii)

D. (ii),(iii) and (iv)

Answer: D



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16. In an amino acid, the carboxyl group ionises at $pK_{a_1} = 2.34$ and ammonium ion at $pK_{a_2} = 9.60$. The isoelectric point of the amino acid is at pH

A. 5.97

B. 2.34

C. 9.60

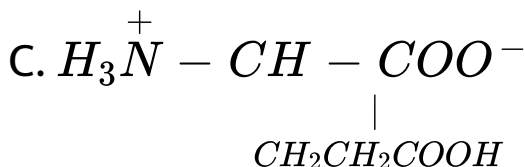
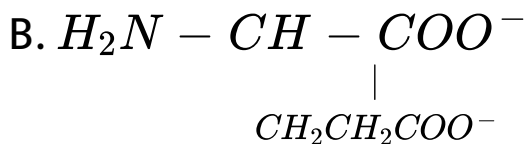
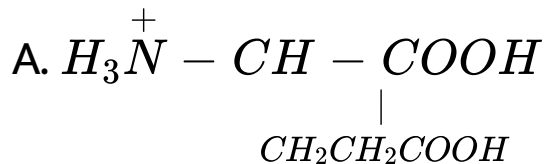
D. 6.97

Answer: A



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17. What form of glutamic acid would you expect to predominate in a strongly base solution?

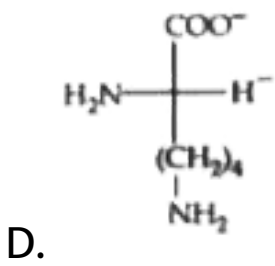
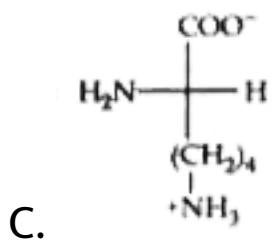
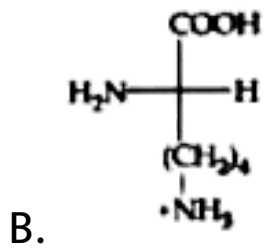
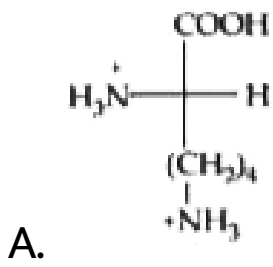


D. All of these are stable .

Answer: B

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18. Which of the following is the major species in a solution of lysine at pH = 3.5?



Answer: A





19. Which one of the following statements about protein structure is correct?

A. Proteins consisting of one polypeptide can have quaternary structure.

B. The formation of a disulphide bond in a protein requires that the two participating cystine residues be

adjacent to each other in the primary sequence of the protein.

C. The stability of quaternary structure in proteins is mainly due to covalent bonds among the subunits.

D. The information required for the correct folding of a protein is contained in the specific sequence of amino acids along the polypeptide chain.

Answer: D

B. Gly-Glu-Cys

C. Cys-Gly-Glu

D. Cys-Glu - Gly

Answer: A



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21. Which amino acid has phenolic OH group as its backbone?

A. glycine

B. leucine

C. serine

D. tyrosine

Answer: D



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22. Polypeptides having, molecular weights above 10,000 are known as

A. amino acids

B. hormones

C. proteins

D. terminal amino acids

Answer: C



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23. Denaturation of proteins leads to loss of its biological activity by

A. formation of amino acids

B. loss of primary structure

C. loss of both primary and secondary structure

D. loss of both secondary and tertiary structure.

Answer: D



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24. On heating with conc. HNO_3 , proteins give yellow colour. This test is called

- A. oxidising test
- B. xanthoproteic test
- C. Hoppe's test
- D. acid-base test.

Answer: B



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25. Secondary structure of protein refers to

A. mainly denatured proteins and structure of prosthetic groups

B. three-dimensional structure, especially the bond between amino acid residues that are distant from each other in the polypeptide chain

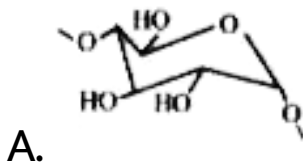
C. linear sequence of amino acid residues in the polypeptide chain

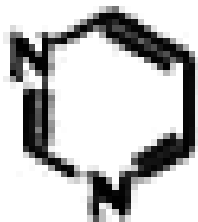
D. regular folding patterns of continuous portions of the polypeptide chain.

Answer: D

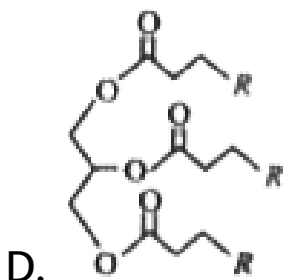
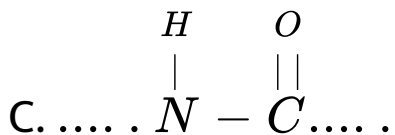
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26. Which of the following chemical unit is certainly found in an enzyme?





B.



Answer: C



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27. Which of the following is a specific test for proteins?

A. Beilstein test

B. Biuret test

C. Benedict's test

D. None of these

Answer: B



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28. In the conversion of sucrose to glucose, the enzyme is

A. zymase

B. lipase

C. invertase

D. diastase.

Answer: C



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29. The function of enzymes in the living system is to

- A. transport oxygen
- B. provide immunity
- C. catalyse biochemical reactions
- D. provide energy.

Answer: C



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30. Which of the following enzymes is not useful in the digestion of proteins?

A. Chymotrypsin

B. Pepsin

C. Trypsin

D. Lipase

Answer: D



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31. Enzymes are essential as biocatalysts. They function in

A. aqueous medium, temperature

$$= 30 - 35^{\circ} C, pH = 7$$

B. organic medium

C. aqueous medium under extreme pH conditions

D. none of these.

Answer: A

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32. The prosthetic group present in glycoproteins is

- A. nucleic acid
- B. phosphoric acid
- C. lipid
- D. carbohydrate.

Answer: D

 [View Text Solution](#)

33. What is the monomer of a polypeptide?

A. Amino acid

B. Glucose

C. Nucleoside

D. Nucleotide

Answer: A



View Text Solution

34. Which amino acid is achiral?

A. Alanine

B. Valine

C. Histidine

D. None of these

Answer: D



View Text Solution

35. Lack of essential amino acids in the diet leads to the disease

- A. night blindness
- B. pernicious anaemia
- C. kwashiorkor
- D. sickel cell anaemia.

Answer: C



View Text Solution

36. Violet colour is obtained when dilute $CuSO_4$, is added in an alkaline solution of protein. This test is known as

- A. Biuret test
- B. xanthoproteic test
- C. Hopkin's-Cole test
- D. Millon's test.

Answer: A



View Text Solution

37. Helical structure of protein is stabilised by

- A. peptide bond
- B. hydrogen bond
- C. van der Waal's force
- D. dipole association

Answer: B



View Text Solution

38. Enzymes are made up of

A. edible proteins

B. proteins with specific structure

C. nitrogen containing carbohydrates

D. carbohydrates.

Answer: A



View Text Solution

39. Which of the following is not an amino acid?

A. Glycine

B. Alanine

C. Histidine

D. Benzidine

Answer: D



View Text Solution

40. The pH value of the solution in which a particular amino acid does not migrate under the influence of an electric field is called the

- A. eutectic point
- B. yielding point
- C. neutralisation point
- D. isoelectric point.

Answer: D



View Text Solution

41. Enzymes take part in a reaction and

- A. decrease the rate of a chemical reaction

B. increase the rate of a chemical reaction

C. both (a) and (b)

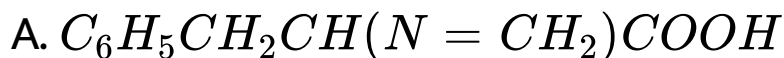
D. none of the above.

Answer: B



View Text Solution

42. Which compound can exist in a dipolar (zwitter ion) structure?





Answer: B

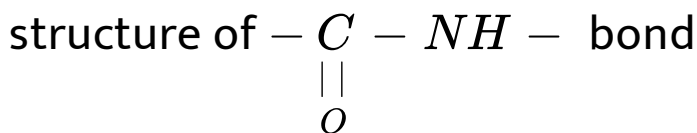


View Text Solution

43. Which compound can exist in a dipolar (zwitter ion) structure?

A. C-N bond length in proteins is longer than usual bond length of C-N bond.

B. Spectroscopic analysis shows planar



C. C-N bond length in proteins is smaller than usual bond length of C-N bond.

D. None of these.

Answer: A



View Text Solution

44. Last product of protein digestion is

A. polypeptides

B. DNA

C. amino acids

D. peptones.

Answer: C



View Text Solution

45. At the isoelectric point, amino acids are present as



Answer: D



View Text Solution

46. The non-protein portion of a protein is called

- A. functional group
- B. characteristic group
- C. prosthetic group
- D. cnolic group.

Answer: D



View Text Solution

47. Proteins are condensation polymers of

- A. α - amino acids
- B. β - amino acids
- C. α - hydroxy acids
- D. β - hydroxy acids.

Answer: A



View Text Solution

48. The sequence in which the α -amino acids are linked to one another in a protein molecule is called its

- A. primary structure
- B. secondary structure
- C. tertiary structure
- D. quaternary structure.

Answer: A



View Text Solution

49. Dialysis can be used to separate

A. glucose and fructose

B. protein and starch

C. glucose and protein

D. glucose and NaCl

Answer: C



View Text Solution

50. The enzyme pepsin hydrolyses

A. proteins to amino acids

B. fats to fatty acids

C. glucose to ethyl alcohol

D. polysaccharides to monosaccharides.

Answer: A



View Text Solution

51. Enzymes

- A. have optimum activity at body temperature
- B. consist of nucleic acids
- C. carbohydrates
- D. have all these properties.

Answer: A



View Text Solution

52. Which one of the following is not a protein?

A. Wool

B. Nails

C. Hair

D. DNA

Answer: D



View Text Solution

53. Enzymes belong to which class of compounds?

A. Polysaccharides

B. Polypeptides

C. Polynitro heterocyclic compounds

D. Hydrocarbons

Answer: B



View Text Solution

54. The main structural feature of proteins is

- A. ester linkage
- B. ether linkage
- C. peptide linkage
- D. all of these.

Answer: C



View Text Solution

55. The number of amino acids found in proteins that a human body can synthesize is

A. 20

B. 10

C. 5

D. 14

Answer: B



View Text Solution

56. Which of the following statements is not correct?

A. The tertiary structure of proteins is three dimensional.

B. In globular proteins, nearly all the hydrophobic groups are hidden inside and the polar groups are present on the surface resulting into a spheroidal shape.

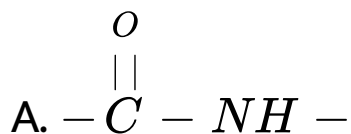
C. Only hydrogen bonds are involved in the tertiary structure of proteins.

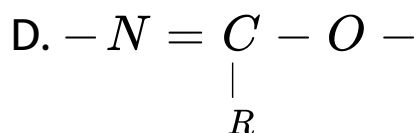
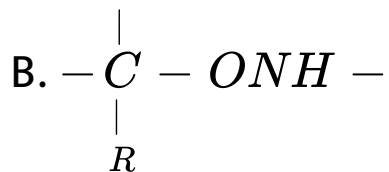
D. Globular proteins are soluble in water.

Answer: C

 [View Text Solution](#)

57. Which of the following represents a peptide bond?





Answer: A



[View Text Solution](#)

Hormones And Vitamins

1. Adrenaline and ephedrine contain

A. 1° amino group

B. 2° amino group

C. 3° amino group

D. quaternary amino group

Answer: B



View Text Solution

2. The hormone thyroxine

A. is secreted by pancreas

B. is secreted by thyroid

C. deceases blood sugar

D. does not stimulate metabolism.

Answer: B



View Text Solution

3. Vitamin B_6 is know as .

A. pyridoxine

B. thaimine

C. tocopherol

D. riboflavin

Answer: A



View Text Solution

4. Match Column I with Column II and select the correct option.

Column I	Column II
I. Anti beri-beri factor	A. Vitamin C
II. Pancreas	B. Glycerides
III. Palm oil	C. Vitamin B ₁
IV. L(+)-Ascorbic acid	D. Insulin

A. $I - C, II - D, III - B, IV - A$

B. $I - C, II - D, III - A, IV - B$

C. $I - A, II - B, III - D, IV - C$

D. $I - C, II - B, III - C, IV - D$

Answer: A



View Text Solution

5. The chemical name of vitamin B, is.

A. ascorbic acid

B. riboflavin

C. pyridoxine

D. thiamine.

Answer: D



View Text Solution

6. The vitamin which is water soluble and antioxidant is .

A. vitamin E

B. vitamin D

C. vitamin C

D. vitamin B.

Answer: C



View Text Solution

7. A metal which can form complex with insulin is

A. copper

B. iron

C. zinc

D. cobalt

Answer: C



View Text Solution

8. Hyperglycemia implies

A. high blood-sugar level

B. low blood-sugar level

C. high concentration of salt in blood

D. low concentration of salt in blood.

Answer: A



View Text Solution

9. Which of the following is a fat soluble vitamin?

A. Vitamin A

B. Riboflavin

C. Pyridoxine

D. Thiamine

Answer: A



View Text Solution

10. Match Column I (name of vitamins) with Column II (deficiency disease) and select the correct option.

Column I

- I. Ascorbic acid
- II. Retinol
- III. Riboflavin
- IV. Thiamine

Column II

- A. Beri-beri
- B. Cracked lips
- C. Scurvy
- D. Night blindness

A. $I - B, II - A, III - C, IV - D$

B. $I - A, II - B, III - C, IV - D$

C. $I - D, II - C, III - B, IV - D$

D. $I - C, II - D, III - B, IV - A$

Answer: D



View Text Solution

11. Two vitamins absorbed from intestine along with fats are

A. A,D

B. A,B

C. A,C

D. D,B

Answer: A



View Text Solution

12. Which is fight and flight organ?

A. Adrenal

B. Thyroid

C. Pituitary

D. Kidney

Answer: A



View Text Solution

13. Vitamin A is called

A. ascorbic acid

B. retinol

C. calciferol

D. tocopherol.

Answer: B



View Text Solution

14. Which one of the following is a non-steroidal hormone?

A. Estradiol

B. Prostaglandin

C. Estrone

D. Progesterone

Answer: B



[View Text Solution](#)

15. Two sample of DNA, A and B have melting points 340 K , and 360 K respectively . This is because .

A. B has more GC content than A

B. A has more GC content than B

C. B has more AT content than A

D. both have same AT content .

Answer: A



View Text Solution

16. Adenoisne is an example of a.

A. nucleotide

B. nucleoside

C. purine base

D. pyrimidine base

Answer: B



View Text Solution

17. Nucleotides and nucleoside mainly differ from each other in

A. presence of phosphate units

B. presence of base units

C. presence of nucleic acids

D. none of above

Answer: A



View Text Solution

18. The main point of difference between DNA and RNA is

A. presence of thymine in DNA and RNA .

B. presence of deoxyribose and thymine in DNA , ribose and uracil in RNA .

C. presence of ribose and thymine in DNA, deoxyribose and uracil in RNA .

D. presence of deoxyribose in DNA and ribose is RNA.

Answer: B



View Text Solution

19. Which one of the following statement about the structure of double - helical DNA is incorrect ?

A. Within the double helix there are 10 base pairs per turn of the helix.

B. The forces that stabilize the DNA double helix are hydrogen bonds between complementary bases .

C. Separation of the two strands of the double helix requires untwisting of the

helix.

D. The molar amount of adenine plus thymine equals the molar amount of guanine plus cytosine .

Answer: D



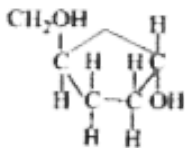
View Text Solution

20. Which of the following statement is not correct ?

A. A nucleoside in an N - glycoside of heterocyclic base

B. Nucleotides are phosphoesters of nucleosides .

C. The structure of ribose sugar is



D. A nucleotide has the following typical



Answer: C



[View Text Solution](#)

21. Which substance is not present in nucleic acids ?

A. cytosine

B. Adenine

C. Thymine

D. Guanidine

Answer: D



[View Text Solution](#)

22. The double helical structure of DNA was proposed by

A. Waston and Crick

B. Meicher

C. Emil Fischere

D. Khorana

Answer: A



View Text Solution

23. Match items in Column I with those in Column II and select the correct option.

Column I	Column II
I. Pepsin	A. Genetic material
II. Nucleic acid	B. Digestive enzyme
III. Ascorbic acid	C. Antibiotic
IV. Testosterone	D. Sex hormone
	E. Vitamin

A. $I - B, II - A, III - C, IV - E$

B. $I - B, II - A, III - E, IV - D$

C. $I - A, II - B, III, IV - D$

D. $I - C, II - B, III - A, IV - D$

Answer: B



[View Text Solution](#)

24. In both DNA and RNA , heterocyclic base and phosphate ester linkages are at.

A. C - 5' and C-2 respectively of the sugar molecule

B. C-2' and C-5' respectively of the sugar molecule

C. C -1' and C-5' respectively of the sugar molecule

D. C -5' and C -1' respectively of the sugar molecule .

Answer: C



View Text Solution

25. The pyrimidine bases present in DNA are

- A. cytosine and adenine
- B. cytosine and guanine
- C. cytosine and thymine

D. cytosine and uracil .

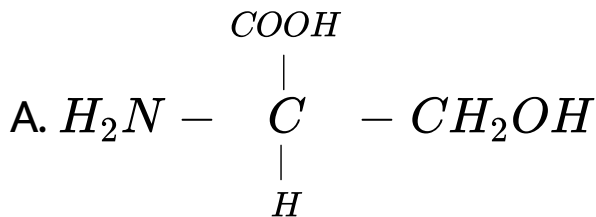
Answer: C

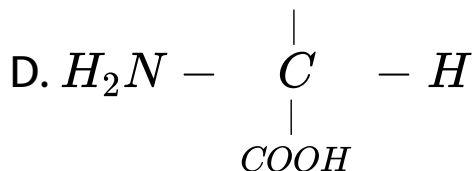
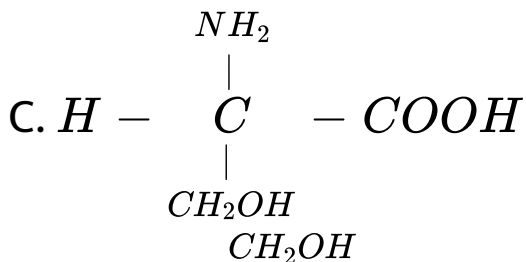
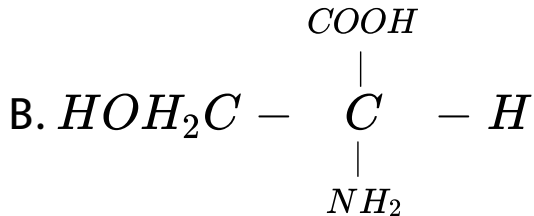


[View Text Solution](#)

Check Your Neet Vitals

1. Among the following L-serine is





Answer: C



View Text Solution

2. Which of the following statements about "Denaturation" of proteins are correct?

(i) Denaturation of proteins causes loss of secondary and tertiary structures of the protein.

(ii) Denaturation leads to the conversion of double strands of DNA into single strand.

(iii) Denaturation affects primary structure which gets distorted.

A. (i) and (iii)

B. (ii) and (iii)

C. (i) and (ii)

D. (i),(ii) and (iii)

Answer: C



View Text Solution

3. An electric current is passed through an aqueous solution (buffered at $\text{pH} = 6.0$) of alanine ($\text{pI} = 6.0$) and arginine ($\text{pI} = 10.2$). The two amino acids can be separated because

A. alanine migrates to anode, and arginine to cathode

B. alanine migrates to cathode, and arginine to anode

C. alanine does not migrate, while arginine migrates to cathode

D. alanine does not migrate, while arginine migrates to anode.

Answer: C



View Text Solution

4. Which one of the following statements is not true regarding (+)-lactose?

A. (+)-Lactose, $C_{12}H_{22}O_{11}$ contains 8 -OH groups.

B. On hydrolysis (+)-lactose gives equal amount of D (+)-glucose and D(+)-galactosc.

C. (+)-Lactose is a B-glycoside formed by the union of a molecule of D(+)-glucose

and a molecule of D(+)-galactose.

D. (+)-Lactose is a reducing sugar and does not exhibit mutarotation.

Answer: D



View Text Solution

5. The backbone of RNA molecule is a linear chain consisting of the alternating units of

A. D-ribose and a phosphate

B. a heterocyclic base and D-ribose

C. D-ribose, a heterocyclic base and a phosphate

D. a heterocyclic base, D-ribose and a phosphate.

Answer: D



View Text Solution

6. Which of the vitamins A, B, C, D, E, K are water soluble?

A. Vitamin-A, B, C

B. Vitamin-B complex, C

C. Vitamin-D, E

D. Vitamin-A, D, E, K

Answer: B



View Text Solution

7. Which of the following is correct statement?

A. Starch is a polymer of α -D-glucose.

B. Amylose is a component of cellulose.

C. Proteins are composed of only one type of amino acid.

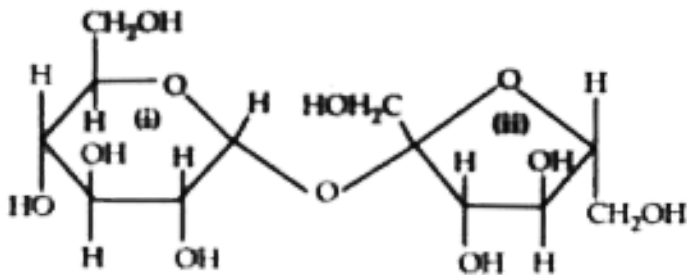
D. In cyclic structure of fructose, there are four carbons and one oxygen atom.

Answer: A



View Text Solution

8. The correct statement about the following disaccharide is.



A. Ring (i) is pyranose with α -glycosidic linkage.

B. Ring (i) is furanose with α -glycosidic linkage.

C. Ring (ii) is furanose with α -glycosidic linkage.

D. Ring (ii) is pyranose with β -glycosidic linkage.

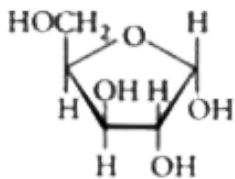
Answer: A



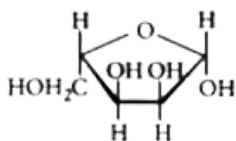
View Text Solution

9. Which of the following represents the anomer of the compound shown?

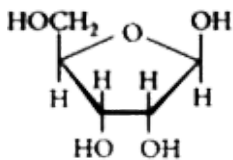
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A.



B.



C.

D. None of these

Answer: C



View Text Solution

10. Which of the following is not an α -amino acid?

A. Cysteine

B. Proline

C. Trypsin

D. Serine

Answer: C



View Text Solution

11. Which of the following statements are incorrect?

I. Albumin is a simple protein.

II. Amino acid alanine contains an acidic side chain.

III. Insulin is a hormone.

IV. Muscles contain the protein keratin.

A. I,II

B. III, IV

C. I,III

D. II,IV

Answer: D



View Text Solution

12. $\alpha + D - (+)$ glucose and $\beta + D - (+)$ glucose are .

- A. enantiomers
- B. geometrical isomers
- C. epimers
- D. anomers.

Answer: D



View Text Solution

13. Glucose and galactose are.

A. anomers

B. C_2 - epimers

C. C_3 - epimers

D. C_4 - epimers.

Answer: D



[View Text Solution](#)

14. Match the enzymes given in column I with their catalytic reaction given in column II and select the correct answer.

Column-I (Enzymes)	Column-II (Reactions)
P. Invertase	1. Decomposition of urea into NH_3 and CO_2
Q. Maltase	2. Conversion of glucose into ethyl alcohol
R. Pepsin	3. Hydrolysis of maltose into glucose
S. Urease	4. Hydrolysis of cane sugar
T. Zymase	5. Hydrolysis of proteins into peptides

A. P-4, Q-3, R-5, S-1, T-2

B. P-2, Q-5, R-4, S-3, T-1

C. P-4, Q-3, R-1, S-2, T-5

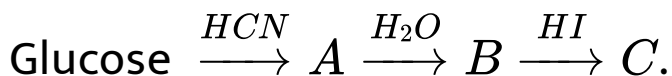
D. P-5, Q-1, R-3, S-4, T-2

Answer: A



View Text Solution

15. Identify the product 'C' in the following series of reactions.



A. Heptanoic acid

B. Hexanoic acid

C. α -Methyl caproic acid

D. None of these

Answer: A



View Text Solution

16. An organic compound with the formula $C_6H_{12}O_6$ forms a yellow crystalline solid with phenylhydrazine and gives a mixture of sorbitol and mannitol when reduced with

sodium. Which among the following could be the compound?

A. Fructose

B. Glucose

C. Mannose

D. Sucrose

Answer: A



View Text Solution

17. Which of the following is not a function of proteins?

A. Nail formation

B. Skin formation

C. Muscle formation

D. Providing energy for metabolism

Answer: D



View Text Solution

18. α -D-glucose and β -D-glucose have a specific rotation of $+112^\circ$ and $+19^\circ$ respectively. In aqueous solution the rotation becomes $+52^\circ$. This is known as

A. racemisation

B. mutarotation

C. inversion

D. enolisation

Answer: B



View Text Solution

19. (+)-Glucose and (-)-fructose can be differentiated by

- A. Tollens' reagent
- B. Benedict's solution
- C. bromine water
- D. none of these

Answer: C



View Text Solution

20. The primary structure of a protein refers to

A. whether the protein is fibrous or globular

B. the amino acid sequence in the polypeptide

C. the orientation of the amino acid side chains in space

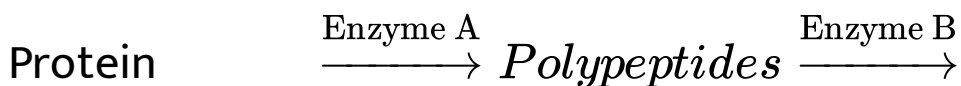
D. the presence or absence of an α -helix.

Answer: B



[View Text Solution](#)

21. During the process of digestion, the proteins present in food material are hydrolysed to amino acids in the following two stages:



Amino acids.

A and B are respectively.



[View Text Solution](#)

22. Mark the wrong statement about enzymes.

A. Enzymes are biological catalysts.

B. Each enzyme can catalyse a number of similar reactions.

C. Enzymes are very efficient catalysts.

D. Enzymes are needed only in very small amounts for their action.

Answer: B



View Text Solution

23. The mutarotation of glucose is characterised by.

A. a change from an aldehyde to ketone structure

B. a change of specific rotation from a (+) to a (-) value

C. the presence of an intramolecular bridge structure

D. the irreversible change from α -D to the β -D form.

Answer: C



View Text Solution

24. If the sequence of bases in one strand of DNA is ATGACTGTC then, the sequence of bases in its complementary strand is

A. TACTGACAG

B. TUCTUGUCCUG

C. GUAGTUAUG

D. None of these.

Answer: A



View Text Solution

25. An organic compound consumes 4 moles of periodic acid to form following compounds per mole of the starting compound:

HCHO, 3HCOOH and CHOCOOH.

The organic compound is

- A. glucose
- B. fructose
- C. gluconic acid
- D. sorbitol.

Answer: C



View Text Solution

1. Which one of the following does not exhibit the phenomenon of mutarotation?

A. (+) Sucrose

B. (+) Lactose

C. (+) Maltose

D. (-) Fructose

Answer: A



View Text Solution

2. Fructose reduce Tollens' reagent due to

A. asymmetric carbons

B. primary alcoholic group

C. secondary alcoholic group

D. enolisation of fructose followed by conversion to aldehyde by base.

Answer: D



View Text Solution

3. Which one of the following statements is not true regarding (+) lactose?

A. On hydrolysis (+) lactose gives equal amount of D (+) glucose and D(+) galactose.

B. (+) Lactose is a β -glucoside formed by the union of a molecule of D(+) glucose and a molecule of D(+) galactose.

C. (+) Lactose is a reducing sugar and does not exhibit mutarotation.

D. (+) Lactose, $C_{12}H_{22}O_{11}$ contains 8-OH groups.

Answer: C



View Text Solution

4. Which of the following is not a fat soluble vitamin?

A. Vitamin B complex

B. Vitamin D

C. Vitamin E

D. Vitamin A

Answer: A



View Text Solution

5. Which of the statements about "Denaturation" given below are correct?

(1) Denaturation of proteins causes loss of secondary and tertiary structures of the protein.

(2) Denaturation leads to the conversion of double strand of DNA into single strand.

(3) Denaturation affects primary structure which gets distorted .

A. (2) and (3)

B. (1) and (3)

C. (1) and (2)

D. (1), (2) and (3)

Answer: C



View Text Solution

6. Which one of the following statements is incorrect about enzyme catalysis?

A. Enzymes are mostly proteinous in nature.

B. Enzyme action is specific.

C. Enzymes are denatured by ultraviolet rays and at high temperature.

D. Enzymes are least reactive at optimum temperature.

Answer: D



View Text Solution

7. Deficiency of vitamin B_1 , causes the disease

A. convulsions

B. beri-beri

C. cheilosis

D. sterility

Answer: B



[View Text Solution](#)

8. Which one of the following sets of monosaccharides forms sucrose?

A. α -D-galactopyranose and α -D-glucopyranose

B. α -D-glucopyranose and β -D-fructofuranose

C. β -D-glucopyranose and α -D-fructofuranose

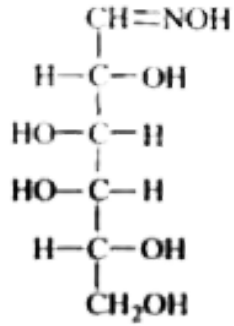
D. α -D-glucopyranose and β -D-fructopyranose

Answer: B

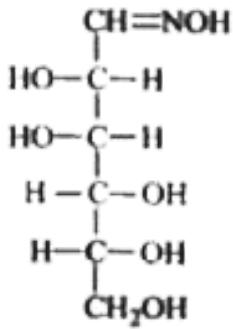


[View Text Solution](#)

9. $D(+)$ - glucose reacts with hydroxylamine and yields an oxime. The structure of the oxime would be .

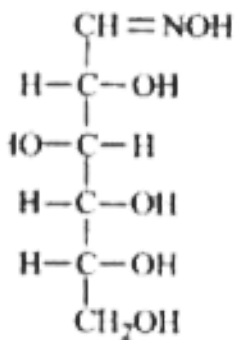


A.



B.

C. 



D.

Answer: D



View Text Solution

10. Which of the following hormones is produced under the conditions of stress which stimulate glycogenolysis in the liver of human beings?

A. Thyroxin

B. Insulin

C. Adrenaline

D. Estradiol

Answer: C



View Text Solution

11. The correct statement regarding RNA and DNA, respectively is

A. the sugar component in RNA is a arabinose and the sugar component in DNA is ribose

- B. the sugar component in RNA is 2'-deoxyribose and the sugar component in DNA is arabinose
- C. the sugar component in RNA is arabinose and the sugar component in DNA is 2'-deoxyribose
- D. the sugar component in RNA is ribose and the sugar component in DNA is 2'-deoxyribose.

Answer: D



[View Text Solution](#)

12. In a protein molecule various amino acids are linked together by

- A. peptide bond
- B. dative bond
- C. α -glycosidic bond
- D. β -glycosidic bond.

Answer: A



 [View Text Solution](#)

13. Which one given below is a non-reducing sugar?

A. Glucose

B. Sucrose

C. Maltose

D. Lactose

Answer: B



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14. The central dogma of molecular genetics states that the genetic information flows from

A. Amino acids → Proteins → DNA

B. DNA → Carbohydrates → Proteins

C. DNA → RNA → Proteins

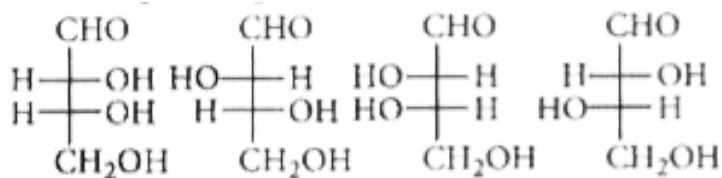
D. DNA → RNA → Carbohydrates.

Answer: C



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15. The correct corresponding order of names of four aldoses with configuration given below.



respectively, is

A. L-erythrose, L-threose, L-erythrose, D-threose

B. D-threose, D-erythrose, L-threose, L-erythrose

C. L-erythrose, L-threose, D-erythrose, D-threose

D. D-erythrose, D-threose, L-erythrose, L-threose.

Answer: D



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16. Which of the following statements is not correct?

A. Ovalbumin is a simple food reserve in egg-white.

B. Blood proteins thrombin and fibrinogen are involved in blood clotting

C. Denaturation makes the proteins more active.

D. Insulin maintains sugar level in the blood of a human body.

Answer: C



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17. The difference between amylose and amylopectin is

A. amylopectin have $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\alpha$ - linkage .

B. amylose have $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\beta$ linkage .

C. amylopectin have $1 \rightarrow 4\alpha$ linkage and $1 \rightarrow 6\beta$ - linkage

D. amylose is made up of glucose and galactose

Answer: A



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18. Which of the following compounds can form a zwitter ion?

A. Aniline

B. Acetanilide

C. Benzoic acid

D. Glycine

Answer: D



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19. The non-essential amino acid among the following is

A. lysine

B. valine

C. leucine

D. alanine

Answer: D



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