CHEMISTRY

BOOKS - PREMIERS PUBLISHERS

BIOMOLECULES

Evaluation Textbook Questions Answers Choose The Correct Answer

1. Which one of the following rotates the plane polarized light towards left?

A. D (+) Glucose

B. L(+) Glucose

C. DFnuctose

D. D (+) Galactose

Answer: C

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

A. Glucose

B. Sucrose

C. maltose

D. Lactose

Answer: B

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4. Glucose(HCN) Product (hydrolysis) Product (HI +Heat) A, the compound A is:

A. Heptanoic acid

B. 2-Iodohexane

C. Heptane

D. Heptanol

Answer: A

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5. Assertion: A solution of sucrose in water is dextrorotatory. But on hydrolysis in the presence of little hydrochloric acid, it becomes evorotatory.

Reason: Sucrose hydrolysis gives unequal amounts of glucose and fructose. As a result of this change in sign of rotation is observed

A. If both accretion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

Answer: A

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

A. Aminoacids Protein DNA

B. DNA Carbohydrates Proteins

C. DNA RNA Proteins

D. DNA RNA Carbohydrates

Answer: C

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7. In a protein, various amino acids liked together In a protein, by:

A. Peptide bond

B. Dative bond

C. α - Glycosidic bond

D. β-Glycosidic bond

Answer: A

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8. Among the following the achiral amino acid is:

A. 2-ethylalanine

B. 2-methylglycine

C. 2-hydroxymethylserine

D. Tryptophan

Answer: C

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9. The correct statement regarding RNA and DNA respectively is:

A. the sugar component in RNA is an arabinos and the sugar component in DNA is ribose.

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

C. the sugar component in RNA is an 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

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10. In aqueous solution of amino acids mostly exists in:

A. $NH_2 - CH(R) - COOH$

B. $NH_2 - CH(R) - COO^-$

C. $H_3N^+ - CH(R) - COOH$

D. $H_3N^+ - CH(R) - COO^-$

Answer: D

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11. Which one of the following is not produced by body?

A. DNA

B. Enzymnes

C. Harmones

D. Vitamins

Answer: D

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12. The nunmber of sp^2 and sp^3 hybridised carbon in fructose are respectively:

A. 1 and 4

B. 4 and 2

C. 5 and 1

D. 1 and 5

Answer: D

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13. Vitamin B2 is also known as:

A. Riboflavin

B. Thiamine

C. Nicotinamide

D. Pyridoxine

Answer: A

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14. The pyrimidine bases present in DNA are:

A. Cytosine and Adenine

B. Cytosine and Guanine

C. Cytosine and Thiamine

D. Cytosine and Uracil

Answer: C

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15. The secondary structure ofa protein refers to:

A. fixed configuration of the polypeptid backbone

B. hydrophobic interaction

C. sequence of a-amino acids

D. α -helical backbone

Answer: D

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16. Which of the following vitamins is water soluble?

A. Vitamin E

B. Vitamin K

C. Vitamin A

D. Vitamin B

Answer: B

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17. Complete hydrolysis of cellulose gives:

A. L-Glucose

B. D-Fructose

C. D-Ribose

D. D-Glucose

Answer: D

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18. Which of the following statement is 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 protein more active

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

Answer: C

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19. Glucose is an aldose. Which one of the following reactions is not expected with glucose?

A. It does not form oxime

B. It does not react with Grignard reagent

C. It does not form osazones

D. It does not reduce tollens reagent

Answer: B

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20. If one strand of the DNA has the sequence ATGCTTGA', then the sequence of complementary strand would be:

A. TACGAACT

B. TCCGAACT

C. TACGTACT

D. TACGRAGT

Answer: A

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21. Insulin, a hormone chemically is:

A. Fat

B. Steroid

C. Protein

D. Carbohydrates

Answer: C

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22. α-D (+) Glucose and β-D (+) glucose are:

A. Epimers

B. Anomers

C. Enantiomers

D. Conformational isomers

Answer: B

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23. Which of the following are epimers:

A. D(+)-Glucose and D(+)-Galactose

B. D(+)-Glucose and D(+)-Mannose

C. Neither (a) nor (b)

D. Both (a) and (b)

Answer: B

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24. Which of the following amino acids are achiral?

A. Alanine

B. Leucine

C. Proline

D. Glycine

Answer: D

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Evaluation Textbook Questions Answers Answer The Following Questions

1. What type of linkages hold together monomers of DNA?

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2. Give the differences between primary and secondary structure of proteins.

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3. Name the Vitamins whose deficiency cause

(i) rickets (ii) scurvy

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4. Write the Zwitter ion structure of alanine.

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5. Give any three difference between DNA and RNA.

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6. Write a short note on peptide bond.

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7. Give two difference between hormones and vitamins.

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8. Write a note on denaturation of proteins.

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9. What are reducing and non-reducing sugars?

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10. Why carbohydrates are generally optically active?

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11. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

Starch

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12. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

fructose

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13. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

sucrose

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14. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

lactose

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15. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

maltose

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16. How are vitamins classified?

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17. What are harmones? Give examples.

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18. Give an account of classification of hormones.

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19. Write the structure of all possible dipeptides which can be obtained form glycine and alanine.

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20. Define enzymes.

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21. Write the structure of α-D (+) glucophyranose.

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22. What are different types of RNA which are found in cell ?

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23. Write a note on formation of α- helix.

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24. What are the functions of lipids in living organism?

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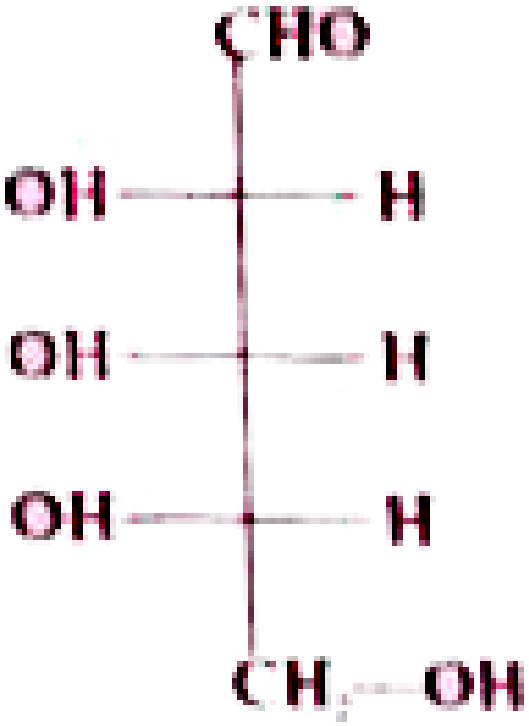
25. Is the following sugar, D - sugar or L- sugar?



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Other Important Questions Answers Choose The Correct Answer

1. Glucose does not react with:

A. Br_2 / H_2O

B. NH_2OH

C. $(CH_3CO_2)O$

D. $NaHSO_3$

Answer: D

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2. The letter 'D' in D - glucose signifies:

A. Configuration at all chiral carbons

B. Dextro rotatory

C. That it is a monosaccharide

D. Configuration at the penultimate chiral carbon.

Answer: D

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3. The term anomer of glucose refers to:

A. isomers of glucose that differ in configuration at carbon 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 C-1.

Answer: D

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4. The helical structure of proteins is stabilised by:

A. dipeptide bonds

B. hydrogen bonds

C. ether bonds

D. peptide bonds

Answer: B

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5. The vitamins absorbed from intestine along with fats are:

A. A, D

B. A, B

C. A, C

D. D, B

Answer: A

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6. The human body does not produce:

A. enzymes

B. DNA

C. vitamins

D. hormones

Answer: C

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7. Adenosine is an example of

A. nucleotide

B. nucleoside

C. purine base

D. pyramidine base

Answer: B

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8. Which of the following statements is not true about glucose?

A. It is an aldohexase.

B. On heating with HI it forms n - hexane

C. It is present in furanose formn

D. It does not give 2-4 DNP test.

Answer: C

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9. Which of the following reactions of glucose can be explained only by its cyclic structure'?

A. Glucose forms penta acetate

B. Glucose reacts with hydroxyl amine to form an oxime.

C. Pentaacetate of glucose does not react with hydroxyl amine.

D. Glucose is oxidised by nitric acid to gluconic acid.

Answer: C

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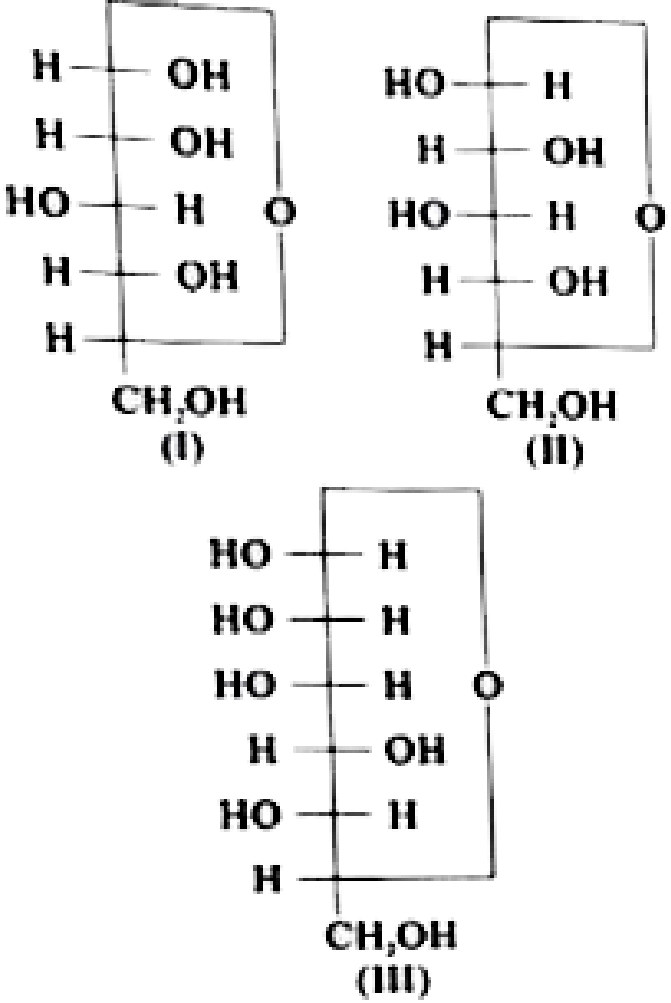
10. Three cyclic structure of monosaccharides are given below, which are anomers?



A. I and II

B. II and III

C. I and III

D. III is anomer of I and II

Answer: A

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11. Each polypeptide in a protein has amino acids linked with each other in a specific sequence.

This sequence of amino acids is said to be:

A. primary structure of proteins

B. secondary structure of proteins

C. tertiary structure of proteins

D. quaternary structure of proteins

Answer: A

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12. RNA and DNA contains four bases each which of the following bases is not present in RNA.

A. Adenine

B. Uracil

C. Thymine

D. Cytosine

Answer: C

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13. In fibrous proteins, polypeptide chains are held together by:

(i) Vander waals forces

(ii) disulphide linkages

(iii) electrostatic forces of attraction

(iv) hydrogen bonds

A. I and II

B. II and IV

C. III and IV

D. IV only

Answer: B

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14. Which of the following does not exhibit the phenomenon of muta rotation?

A. (-) Fructose

B. (+) sucrose

C. (+) Lactose

D. (+) Maltose

Answer: B

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15. Which 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 amounts of D(+) glucose and D(+) galactose.

C. (+) Lactose is a β - 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

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16. The vitamin which is neither soluble in water nor in fat is:

A. biotin

B. phylloquinone

C. thiamine

D. ergocalciferol

Answer: A

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17. Which of the following is not a fat soluble vitamins?

A. Vitamin B complex

B. Vitamin D

C. VitaminE

D. Vitamin A

Answer: A

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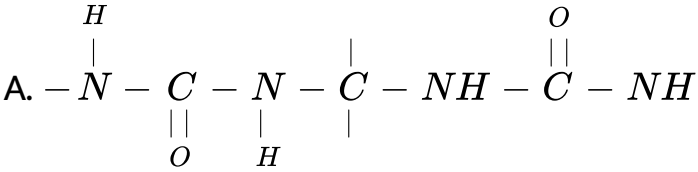
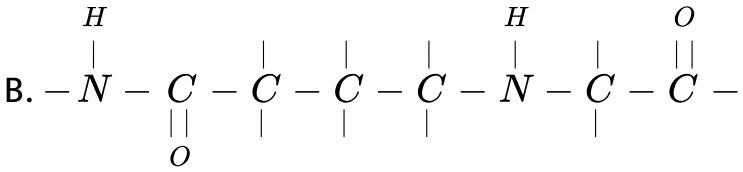
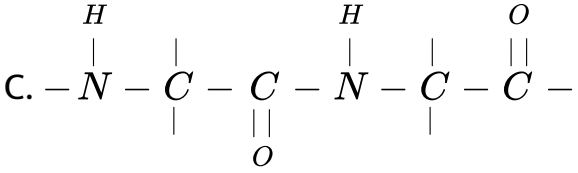
18. Which of the following structure represent the peptide chain?

A. 

B. 

C. 

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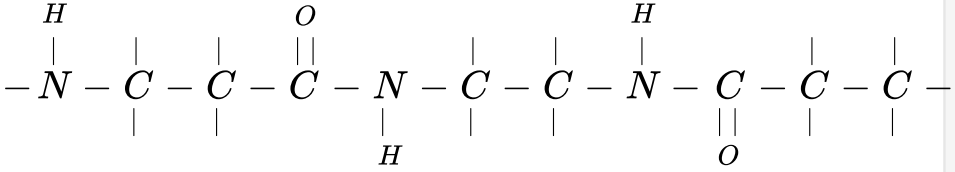

Answer: C

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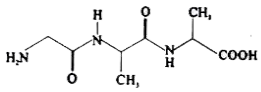
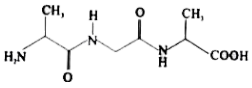
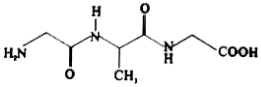
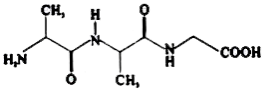
19. The tripeptide is written as glycine - alanine - glycine. The correct structure of the tripeptide is:

A. 

B. 

C. 

D. 

Answer: C

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20. The hormone which controls the processes of Ans:(a) burning of fats, proteins and carbohydrates and liberates energy in the body is:

A. thyroxine

B. adrenaline

C. insulin

D. cortisone

Answer: C

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21. The secondary structure of protein refers to:

A. fixed configuration of polypeptide back bone.

B. α - helical back bone

C. hydrophobic interactions

D. sequence of amino acids

Answer: B

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22. Which of the following statements about "denaturation" given below are correct?

(i) denaturation of proteins causes loss of secondary and tertiary structure of proteins.

(ii) denaturation leads to the conversion of double strand DNA to a single strand.

(iii) denaturation affects the primary structure which gets distorted.

A. (i) and (iii)

B. (ii) and (iii)

C. (i) and (ii)

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

Answer: C

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23. The pyramidine bases present in DNA are:

A. Cytosine and adenine

B. Cytosine and guanine

C. Cytosine and thymine

D. Cytosine and uracil

Answer: C

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24. Nitrogen base that is found in RNA but not in DNA is:

A. uracil

B. thymine

C. cytosine

D. adenine

Answer: A

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25. RNA and DNA are chiral molecules, then chirality is due to:

A. D -sugar component

B. L- sugar component

C. Chiral bases

D. Chiral phosphate ester unit

Answer: A

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26. In DNA, the complimentary bases are:

A. Adenine and guanine, thymine and cytosine

B. Uracil and adenine, cytosine and guanine

C. Adenine and thymine, guanine and cytosine

D. adenine and thymine, guanine and uracil

Answer: C

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27. Assertion: Fructose does not contain an aldehyde group but still reduces Tollen's reagent.

Reason:In presence of base, fructose undergoes rearrangement to form glucose and mannose.

A. Both assertion and reason are correct and the reason is a correct explanation of assertion.

B. Both assertion and reason are correct but reason is not a correct explanation of assertion.

C. Assertion is true but reason is false.

D. Both assertion and reason are false.

Answer: A

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28. Assertion:Glycosides are hydrolysed in acidic conditions.

Reason:Glycosides are acetals.

A. Both assertion and reason are correct and the reason is a correct explanation of assertion.

B. Both assertion and reason are correct but reason is not a corect explanation of assertion.

C. Assertion is true but reason is false.

D. Both assertion and reason are false.

Answer: A

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29. The two forms of D - glucopyranose are called:

A. Enantiomers

B. Anomers

C. Epimers

D. Diastereomers

Answer: B

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Other Important Questions Answers Answer The Following Questions

1. What are monosaccharides?

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2. Classify the following as monosaccharides and disaccharides:

Ribose 2-deoxy ribose, maltose, galactose, fructose, and lactose.

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3. What are the products of hydrolysis of

(i) sucrose (ii) lactose.

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4. How do you explain the presence of all six (6) 4 c) 2 2 carbon atoms in glucose in a straight chain?

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5. The letter 'D' or 'L before the name of a stereo isomer indicates the correlation of configuration of that particular stereo isomers. This refers to their relationship with one of the isomers of glyceraldehyde. Predict whether the compound is has D or L configuration.

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6. How do you explain the presence of five-OH groups in a glucose molecule?

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7. Why does compound (A) given below does not form an oxime?

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8. How do you explain the presence of an aldehyde group in glucose molecule?

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9. How do you distinguish 1° and 2° alcoholic groups present in glucose? Explains with reactions

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10. Write the reactions of D glucose which can't be explained by its open chain structure.

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11. Write the cyclic structure of glucose.

View Text Solution

12. What is the structure feature characterising reducing sugars?

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13. Fructose contains a keto group but it still reduces Tollen's reagent. Explain.

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14. Explain the term glycosidic linkage with an example.

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15. What happens when D - glucose is treated with the following reagents (i) HI (ii) Bromine water (iii) HNO_3

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16. Glucose and fructose give the same osazone. Give reason.

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17. Name two components of starch. How do they differ from each other structurany ?

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18. Name the reaction which proves the presence of carbonyl group in fructose.

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19. Explain the reaction which indicates the presence of a carbonyl group in fructose.

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20. Oxidation of fructose with nitric acid gives glycolic acid and tartaric acid. What information that this reaction gives to establish the structure of fructose.

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21. Explain why sucrose is called 'invert' sugar.

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22. Write the open chain structure of D(+) fructose and indicate the asymmetnc a carbon atoms present in it.

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23. Briefly discuss the cyclic structure of fructose.

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24. Explain why sucrose is called a non reducing sugar.

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25. Based on its cyclic structure, explain why lactose is a reducing sugar.

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26. Maltose is a reducing sugar. Explain.

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27. Mention the uses of cellulose.

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28. Briefly explain the structure of cellulose.

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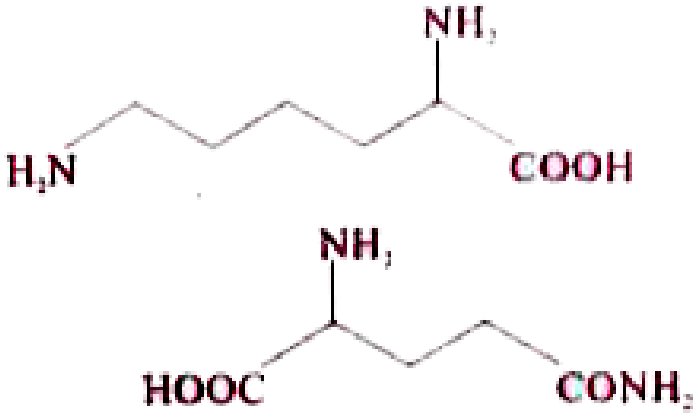
29. Following two amino acids lysine and glutamine dipeptide linkage. What are the two possible dipeptides ?



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30. Give the important uses of carbohydrates.

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31. What is glycogen? How is it different from starch ?

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32. What is the basic structural difference between starch and cellulose?

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33. What are essential and non essential amino acids? Give two examples of each type.

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34. Give examples.for fibrous and globular proteins.

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35. What is isoelectic point? Explain with a suitable examples.

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36. What is peptide bond?

View Text Solution

37. How are epimers difler from anomers?

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38. Differentiate between globular and fibrous proteins.

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39. Describe primary structure

View Text Solution

40. Describen secondary structure

View Text Solution

41. Describe tertiary structure

View Text Solution

42. Describe quaternary structure of proteins.

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43. What are the common types of secondary attraction structure of protein?

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44. What types of bonding helps in stabilising α -helix structure of proteins?

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45. What is the effect of denaturation on the structure of proteins ?

View Text Solution

46. Mention the causes for the denaturation of proteins.

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47. Mention the importance of protein.

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48. What are enzymes? What is the most important reason for their specific action?

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49. Name the enzyme that converts carbonic acid to CO_2 and H_2O

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50. Name the enzyme that converts hydrolysis of sorcose to frutose and glucose.

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51. Name the enzyme that converts hydrolysis of lactose to glucose and galactose.

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52. Explain the mechanism of enzyme action.

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53. What are lipids? How are they classified?

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54. How are vitamins dassified?

View Text Solution

55. What are coenzymes and prothetic group?

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56. What are nucleic acids? Mention their two important functions?

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57. Write the structure of nucleic acids.

View Text Solution

58. Write down the structure of sugar present in DNA.

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59. Wltat purine and pyramidine bases are present in DNA and RNA?

View Text Solution

60. What is a nucleoside?

View Text Solution

61. What is a nucleotide?

View Text Solution

62. What type of linkage holds together the monomers of DNA?

View Text Solution

63. The two strands in DNA are not identical but complimentary explain.

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64. M ention the functional difference DNA and RNA.

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65. What is DNA finger printing? Explain.

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66. When RNA is hydrolysed, there is not relationship among the quantities of different bases obtained. What does it suggest about the structure of RNA?

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