CHEMISTRY

BOOKS - S DINESH & CO CHEMISTRY (HINGLISH)

BIOMOLECULES

Example

1. If one strand of a DNA has the sequence - ATCGTCCA - what is the sequence of the complementary strand ?

Watch Video Solution

2. What will be the sequence of bases on on m-RNA molecule synthesised on the following strand of DNA ?

-TATCTACCTGGA-

Watch Video Solution

Board Examinations

1. Glucose or sucrose are soluble in water but cyclohexane or bezene (simple six membered ring compounds) are insoluble in water. Explain.

Watch Video Solution

2. What are the expected products of hydrolysis of lactose ?

Watch Video Solution

3. How do you explain the absence of aldehyde group in the pentaacetate of D-glucose ?

Watch Video Solution

4. The melting points and solubility in water of amino acids are generally higher than that of the corresponding halo acids. Explain.

Watch Video Solution

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

Watch Video Solution

6. Why cannot vitamin C be stored in our body ?

Watch Video Solution

7. What products would be formed when a nucleotide from DNA containing thymine is hydrolysed?

Watch Video Solution

8. When RNA is hydrolysed, there is no relationship among the quantities of different bases obtained. What does this fact suggest about the structure of RNA?

Watch Video Solution

N C E R T Exercise

1. What are monosaccharides?

Watch Video Solution

2. What are reducing sugars ?

Watch Video Solution

3. Write two major functions of carbohydrates in plants.

Watch Video Solution

4. Classify the following into monosaccharides and disaccharides: Ribose, $2-$ deoxyribose, maltose,galactose, fructose,and lactose.

Watch Video Solution

5. What do you understand by the term glycosidic linkage?

Watch Video Solution

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

Watch Video Solution

7. What are the hydrolysis products of (i) sucrose and (ii) lactose?

Watch Video Solution

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

Watch Video Solution

9. What happenes when $D-$ glucose is treated with the following reagents?

(i). HI

(ii).Bromine water

(iii). HNO_3

Watch Video Solution

10. Enumerate the reactions of D-Glucose which cannot be explained by its open-chain structure.

Watch Video Solution

11. What are essential and non-essential amino acids ?

Watch Video Solution

12. Defines the following as related to proteins:

(i)Peptide linkage,(ii)Primary structure

(iii)Denaturation

Watch Video Solution

13. What are the common types of secondary structures fo proteins?

Watch Video Solution

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

Watch Video Solution

15. Differentiate between globular and fibrous proteins.

Watch Video Solution

16. How do you explain the amphoteric behaviour of amino acids?

Watch Video Solution

17. What are enzymes ?

Watch Video Solution

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

Watch Video Solution

19. How are vitamins classified? Name the vitamin responsible for the coagulation of blood.

Watch Video Solution

20. Why are vitamin A and vitamin C essential for us? Give their important sources.

Watch Video Solution

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

Watch Video Solution

22. What is the difference between a nucleoside and nucleotide ?

Watch Video Solution

23. The two strands of DNA are not identical, but are complementary'. Explain this statement.

Watch Video Solution

24. Write the important structral and functional differences between DNA and RNA.

Watch Video Solution

25. What are the different types of RNA found in the cell?

Watch Video Solution

Short Answer Type Questions

1. Name the sugar present in milk. How many monosaccharide units are present in it? What are such oligosaccharides called?

Watch Video Solution

2. How do you explain the presence of all the six carbon atoms in glucose in a straight chain?

Watch Video Solution

3. In nucleoside, a base is attached at 1' position of sugar moiety. Nucleotide is formed by linking of phosphoric acid unit to the sugar unit of nucleoside. At which position of sugar unit is the phosphoric acid linked in a nucleoside to give a nucleotide?

Watch Video Solution

4. Name the linkage connecting monosaccharide units in polysaccharides.

Watch Video Solution

5. Under what conditions glucose is converted to gluconic acid and saccharic acid?

Watch Video Solution

6. Monosaccharides contain carbonyl group hence are classified, as aldose or ketose. The number of carbon atoms present in the monosaccharide molecule are also considered for classification. In which class of monosaccharide will you place fructose?

Watch Video Solution

7. Letters 'D' or 'L' before the name of a stereoisomer of a compound indicate the correlation of configuration of that particular stereoisomer. This refers to their relation with one of the isomers of glyceraldehyde. Predict whether the given compound has 'D' or 'L' configuration.

Watch Video Solution

8. Aldopentoses named as ribose and 2-deoxyribose are found in nucleic acids. What is their relative configutation?

Watch Video Solution

9. Which sugar is called invert sugar? Why is it called so?

Watch Video Solution

10. Amino acids can be classified as $\alpha -$, $\beta -$, $\gamma -$, δ-and so depending upon the relative position of amino group with respect to carboxyl group. Which type of amino acids form polypeptide chain in proteins?

Watch Video Solution

11. $\alpha -$ helix is a secondary structure of proteins formed by twisting of polypeptide chain into right handed screw like structure. Which type of interactions are responsible for making the α-helix structure stable?

Watch Video Solution

12. Some enzymes are named after the reaction, where they are used. What name is given to the class of enzymes which catalyse the oxidation of one substrate with simultaneous reduction of another substrate?

Watch Video Solution

13. During curdling of milk, what happens to sugar present in it?

Watch Video Solution

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

Watch Video Solution

15. Why does compound (A) not form an oxime ?

Watch Video Solution

16. Why must vitamin C be supplied regularly in diet?

Watch Video Solution

17. Sucrose is dextrorotatory but the mixture obtained after hydrolysis is laevorotatory. Explain.

Watch Video Solution

18. Amino acids behave like salts rather than simple amines or carboxylic acids. Explain.

Watch Video Solution

19. Show the presence of prptide linkage in the structures of glycine and alanine.

Watch Video Solution

20. Protein found in a biological system with a unique three-dimensional structure and biological activity is called a native protein. When a protein

in its native form, is subjected to a physical change like change in temperature or a chemical change like, change in pH, denaturation of protein takes place. Explain the cause.

Watch Video Solution

21. Activation energy for the acid catalysed hydrolysis of sucrose is $6.22kJmol^{-1}$, while the activation energy is only $2.15kJmol^{-1}$ when hydrolysis is catalysed by the enzyme sucrase. Explain.

Watch Video Solution

22. How do you explain the presence of an aldehydic group in a glucose molecule?

Watch Video Solution

23. Which moieties of nucleosides are involved in the formation of phosphodiester linkage present in dinucleotides? What does the word diester in the name of linkage indicate? Which acid is involved in the formation of this linkage?

Watch Video Solution

24. What are glycosidic linkages ? In which type of biomolecules, are they present ?

Watch Video Solution

25. Which monosaccharide units are present in strach, cellulose and glucose and which linkage link these units?

Watch Video Solution

26. How do enzymes help a substrate to be attacked by the reagent effectively?

Watch Video Solution

27. Descrive the term D- and L-configuration used for amino acids with exmaples.

Watch Video Solution

28. How will you distinguish 1° and 2° hydroxyl groups present in glucose? Explain the reactions.

Watch Video Solution

29. Coagulation of egg white on boiling is an example of denaturation of protein. Explain it in terms of structural changes.

Watch Video Solution

30. Write the reactions of D-glucose which can't be explained by its open chain structure. How can cyclic structure of glucose explain these reactions?

Watch Video Solution

31. On the basis of which evidences D-glucose was assigned the given structure ?

Watch Video Solution

32. Carbohydrates are essential for life in both plants and animals. Name the carbohydrates that are used as storage molecules in plants and animals, also name the carbohydrate which is present in wood or in the fibre of cotton cloth.

Watch Video Solution

33. Explain the terms primary and secondary structures of proteins. What is the difference between α-helix and β-pleated sheet structure of proteins?

Watch Video Solution

34. Write the structures of fragments produced on complete hydrolysis of DNA. How are they linked in DNA molecule? Draw a diagram to show pairing of nucleotide bases in double helix of DNA.

Watch Video Solution

Additional Important Questions

1. D-glucose is an aldohexose ? Why does it react with HCN but not with $NaHSO_3$?

Watch Video Solution

2. How will you show that D-glucose is a reducing sugar ?

Watch Video Solution

3. How will you convert glucose into fructose ?

View Text Solution

4. How will you convert fructose into glucose ?

View Text Solution

5. (a) Name the type of linkages responsible for the formation of primary and secondary structures of proteins.

(b) On electrolysis in acidic solution, α-amino acids migrate towards cathode while in alkaline medium, they migrate towards anode. Explain.

(c) What are essential and non-essential amino acids ? Give two examples of each

Watch Video Solution

6. A tripeptide on complete hydrolysis gives glycine, alanine, and phenylanine,using three-letter symbols write down the possible sequences of the tripeptide.

Watch Video Solution

7. What is isoelectric point amino acid ? How does it help in the sepration of amino acids ?

Watch Video Solution

8. Name three vitamins which are water soluble and three which are soluble in fat.

Watch Video Solution

9. Name the diseases caused due to the deficiency of vitamin B_{12} and Vitamin C.

Watch Video Solution

10. What type of substance is phenyl alanine hydroxylase ? What is its importance for us ?

Watch Video Solution

11. Why are carbohydrates generally optically active ?

Watch Video Solution

12. What are the constituents of sucrose ?

Watch Video Solution

13. Name two classes of nitrogen containing bases present in nucleic acids.

Watch Video Solution

14. What are polysacharides ? Name one polysaccharide and mention its importance.

Watch Video Solution

15. Name two different type of RNA molecules found in the cells of organisms.

Watch Video Solution

16. State one use of enzyme streptokinase in medicines.

Watch Video Solution

Questions From Board Examinations

1. Sketch the Zwitterion form of α-amino acetic acid.

Watch Video Solution

2. Differentiate between primary and secondary structures of proteins.

Watch Video Solution

3. Why is cellulose not a source of nourishment to the human body ?

Watch Video Solution

4. Write the major classes in which carbohydrates are classified based upon hydrolysis.

Watch Video Solution

5. Write the following about protein synthesis

(i) Name the location where protein synthesis occurs.

(ii) How do 64 codons code for only $20 - \alpha$ amino acids ?

(iii) Which of the two bases of codon are most important for coding ?

Watch Video Solution

6. What the denaturation of proteins ?

Watch Video Solution

7. Define muta rotation.

Watch Video Solution

8. Name the purines of the vitamins A, B_6 and E and the diseases caused due to their deficiency in the body.

Watch Video Solution

9. Name the purines present in DNA.

Watch Video Solution

10. What are reducing sugars ?

Watch Video Solution

11. Given one example of fat soluble vitamin.

Watch Video Solution

12. Name any two good sources of vitamin A.

Watch Video Solution

13. What type of linkage holds together the monomers in DNA ?

Watch Video Solution

14. What type of bonding helps in stabilising the α-helix structure of proteins ?

Watch Video Solution

15. Write a disease caused due to deficiency of vitamin C and name one source of vitamin C.

Watch Video Solution

16. What are disaccharides ? Given an example.

Watch Video Solution

17. Name two water soluble vitamins, their sources and diseases caused due to their deficiency in diet.

Watch Video Solution

18. Name the four bases present in DNA. Which one of these is not present in RNA ?

Watch Video Solution

19. Name two fat soluble vitamins, their sources and the diseases caused due to their deficiency.

Watch Video Solution

20. What is structural feature which characterises a reducing sugar ?

Watch Video Solution

21. What is the structural difference between a nucleoside and nucleotide ?

Watch Video Solution

22. What are essential and non-essential amino acids ? Give one example of each type.

Watch Video Solution

23. Write two sources of vitamin A.

Watch Video Solution

24. Name two carbohydrates which act as bio-fuels.

Watch Video Solution

25. What is the difference in the structures of $\alpha - D(+)$ glucose and $\beta - D(+)$ glucose ?

Watch Video Solution

26. What are the hydrolysis products of sucrose ?

Watch Video Solution

27. What happens when D-glucose is treated with (a) HI in the presence of red phosphorus (b) Conc. HNO_3 ?

Watch Video Solution

28. Differentiate between Keratin and insulin.

Watch Video Solution

29. Write the zwitterion structure for glycine.

Watch Video Solution

30. What is meant of inversion of sugar ?

Watch Video Solution

31. Name the vitamin whose deficiency causes (i) Night blindness (ii) Poor coagulation of blood.

Watch Video Solution

32. What are the ultimate products of the digestion of proteins ?

Watch Video Solution

33. Given reason for the following :

(i) Glucose does not give 2, 4 D.N.P. test or Schiff's reagent test.

(ii) Amino acids have high melting points and are water soluble.

Watch Video Solution

34. What is meant by secondary structure of proteins ?

Watch Video Solution

35. Explain what is meant by the following :

(i) peptide linkage

(ii) pyranose structure of glucose.

Watch Video Solution

36. Write the main structural difference between DNA and RNA. Of the four bases, common to both DNA and RNA.

Watch Video Solution

37. What is the essential difference between α - and - β - forms of glucose ?

A. Isomers of D(+) glucose and L(-) glucose respectively

B. Diastereomers of glucose

C. These two forms of glucose known as anomers

D. Isomers which differ at C2 position

Answer: C

Watch Video Solution

38. Mention three such properties of glucose and disease caused by vitamin B_6.

Watch Video Solution

39. What are vitamins ? Name the source and disease caused by vitamin B_6.

Watch Video Solution

40. What is meant by

(i) peptide linkage

(ii) biocatalysts ?

Watch Video Solution

41. Write structure of the product when glucose is oxidised with conc. Nitric acid.

Watch Video Solution

42. What is meant by pyranose ring of glucose ?

Watch Video Solution

43. Write full forms of DNA and RNA ?

Watch Video Solution

44. What is glycogen ? How is it different from starch ? How is starch structurally different from cellulose ?

Watch Video Solution

45. (i) Given one structural difference between amylose and amylopectin.

(ii) Name the protein and its shape present in oxygen carrier in hyman body.

(iii) Name two fat storing tissues in human body.

Watch Video Solution

46. Name the disease caused by the deficiency of vitamin C.

Watch Video Solution

47. What are the hydrolysis products of sucrose ?

Watch Video Solution

48. Write the name of the linkage of joining two α-amino acids ?

Watch Video Solution

49. What are the three types of RNA molecules which perform different functions ?

Watch Video Solution

50. (a) What type of bonding helps in stabilising α-helix structure of proteins ?

(b) What is the structural difference between nucleoside and mucleotide ?

Watch Video Solution

51. What are enzymes ? Give two example with uses.

Watch Video Solution

52. Given one example each for a disaccharide and a polysaccharide.

Watch Video Solution

53. What do RNA and DNA represent ?

Watch Video Solution

54. What is Glycogen ? How does it differ from starch ?

Watch Video Solution

55. (i) Which of the following biomolecules is insoluble in water ? Justify.

Insulin, Haemoglobin, Keratin.

(ii) Draw the Haworth structure for α-D-Glucopyranose.

(iii) Write chemical reaction to show that glucose contains aldehyde as carbonyl group.

Watch Video Solution

56. (i) Deficicency of which vitamin causes night-blindness ?

(ii) Name the base that is found in nuvleotide of RNA only.

(iii) Glucose on reaction with HI gives n-hexane. What does it suggest about the strcuture of glucose ?

Watch Video Solution

57. What are carbohydrates ? How are they classified ? Give example of each class.

Watch Video Solution

58. What are coenzymes ? Give example.

Watch Video Solution

59. Differentiate between globular and fibrous proteins.

Watch Video Solution

Watch Video Solution

60. Write chemical name and source of vitamin C.

Watch Video Solution

61. Classify vitamins A,B,C and D depending upon their solubility in water and fat.

Watch Video Solution

62. How are carbohydrates classified ?

Watch Video Solution

63. Write the names of two water soluble vitamins.

Watch Video Solution

64. (i) Which one of the following is a disaccharide : Starch, Maltose, Fructose, Glucose ?

(ii) What is the difference between fibrous proteins and globular proteins ?

(iii) Write the name of vitamin whose deficiency causes bone deformities in children.

Watch Video Solution

65. (i) Write the product obtained when D-glucose reacts with HCN.

(ii) What type of bonding stabilizes the α-helix structure of proteins ?

(iii) Write the name of the disease caused by the deficiency of vitamin B_{12} .

Watch Video Solution

66. (i) What is the difference between acidic amino acids and basic amino acids ?

(ii) Write the name of the linkage joining two nucleotides.

Watch Video Solution

67. (i) Write the product obtained when D-glucose reacts with NH_2OH.

(ii) α-Amino acids show amphoteric behaviour. Why ?

(iii) Why cannot vitamin C be stored in our body ?

Watch Video Solution

68. (i) Which one of the following is a polysaccharide : Starch, Maltose, Fructose, Glucose ?

(ii) What is the difference between native protein and denatured protein ?

(iii) Write the name of the vitamin responsible for the coagulation of blood.

Watch Video Solution

69. (i) Write one reaction of D-Glucose which cannot be explained by its open chain structure.

(ii) What type of linkage is present in Nucleic acids ?

(iii) Give one example each for water-soluble vitamins and fat-soluble vitamins ?

Watch Video Solution

70. (i) Write the namews of two monosaccharides obtained on hydrolyssi of lactose sugar.

(ii) What is the difference between a nucleoside and nucleotide ?

Watch Video Solution

71. (i) Draw the pyranose structure of glucose

(ii) What type of linkage is present in proteins ?

Watch Video Solution

72. What is the difference between α-glucose and β-glucose ? Write their cyclic structures.

Watch Video Solution

73. What are carbohydrates ? Given important functions of carbohydrates.

Watch Video Solution

74. (i) Which vitamin deficiency causes rickets ?

(ii) Name the base that is found in the nucleotide of RNA only.

(iii) Glucose on reaction with acetic acid gives glucose pentaacetate. What does it suggest about the structure of glucose ?

Watch Video Solution

75. (a) What are α-amino acids ? How are they related to proteins ?

(b) What is the difference between and nucleotide ?

Watch Video Solution

76. Name two vitamins and their deficiency diseases.

Watch Video Solution

77. (a) Write the product when D-glucose reacts with conc. HNO_3.

(b) Amino acids show amphoteric behaviour. Why ?

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

Watch Video Solution

78. (a) Name the branched chain component of starch.

(b) Ribose in RNA and deoxyribose in DNA differ in the strucute around which carbon atom ?

(c) How many peptide linkages are present in a tripeptide ?

Watch Video Solution

79. Deficiency of which vitamin causes scurvy ?

Watch Video Solution

Higher Order Thinking Skills Hots Questions

1. Ketones do not reduce Tollen's reagent. Why is fructose a reducing sugar ?

Watch Video Solution

2. Both glucose and fructose are reducing sugars but sucrose is non reducing in nature. Why?

Watch Video Solution

3. D-glucose and D-fructose have different structures. Why do they form the same product on reacting with excess of phenyl hydrazine ?

Watch Video Solution

4. Cellulose in the form of plants is a food for cattles and sheeps but not for humman beings. Explain.

Watch Video Solution

5. Answer the following :

(a) Out of socrose and maltose, which is a reducing sugar ?

(b) Can denaturation of egg proteins be reversed ?

(c) To which class of biomolecules, pectins belong ?

(d) Name the monomer units of starch.

(e) NAme three products which can be obtained from cellulose.

(f) Classify the following into globular and fibrous proteins : insulin, haemoglobin, fibroin, collagen, albumin, myosin.

Watch Video Solution

6. Except for vitamin B_{12}, all other vitamins group B should supplied regularly in diet. Why ?

Watch Video Solution

7. An optically active compound having molecular formula $C_6H_{12}O_6$ is found in two isomeric forms [A] and [B] in nature. When [A] and [B] are dissolved in water, they show the following equilibrium.

$$\begin{array}{lccccc} & [A] & \Longleftrightarrow & \text{equilibrium mixture} & \Longleftrightarrow & B \\ [\alpha]_D = & 111^\circ & & 52.2^\circ & & 19.2^\circ \end{array}$$

(i) What are such isomers called ?

(ii) Can they be called enantiomers ? Justify your answer.

(iii) Draw the cyclic structure of anomer [A].

Watch Video Solution

8. (a) Despite having an aldehydic group, glucose does not give 2, 4-DNP test. What does it indicate ?

(b) Draw Haworth structure of $\alpha - D(+)$ glucopyranose

(c) What is the significance of D and (+) here ?

Watch Video Solution

9. In the given structure of the carbonhydrate, which of the following are used while naming it ?

(a) Pentose (b) Hexo (c) Aldose

(d) Ketose (e) Pyranose (f) Furano

Watch Video Solution

10. The substituents R_1 and R_2 for nine peptides are listed are listed in the table given below. How many of these peptides are positively charged at $pH = 7.0$?

$$H_3\overset{\oplus}{N} - \underset{H}{CH} - CO - NH - \underset{R_1}{CH} - CO - NH - \underset{R_2}{CH} - CO - NH - \underset{H}{CH}$$

Watch Video Solution

11. The given monosaccharide can exist as aldohexose in its D-configuration. What is the total number of stereoisomers which can exist in pyranose form ?

View Text Solution

12. A tetrapeptide has $-COOH$ group on alanine. This produces glycine (Gly), valine (Val), phenyl alanine (Phe) and alanine (Ala), on complete

hydrolysis. For this tetrapeptide, the number of possible sequences (primary structures) with $-NH_2$ group attached to a chiral centre is :

Watch Video Solution

13. Enlist the total number of distinct naturally occurring amino acids obtained by complete acidic hydrolysis of the peptide shown below is :

View Text Solution

N C E R T Exeplar Problems

1. Glycogen is a branched chain polymer of $\alpha - D$ glucose units in which chain is formed by $Cl - C4$ glycosidic linkage where as branching occurs by the formation of $C1 - C6$ glycosidic linkage. Structure of glycogen is similar to .... .

A. Amylose

B. Amylopectin

C. Cellulose

D. Glucose.

Answer: B

Watch Video Solution

2. Which of the following polymer is stored in the liver of animals ?

A. Amylose

B. Cellulose

C. Amylopectin

D. Glycogen.

Answer: D

Watch Video Solution

3. Sucrose (cane sugar) is a disaccharide. One molecule of sucrose on hydrolysis gives..... .

A. 2 molecuyles of glucose

B. 2 molecules of glucose + 1 molecule of fructose

C. 1 molecules of glucose + 1 molecule of fructose

D. 2 molecules of fructose

Answer: C

Watch Video Solution

4. Which of the following pairs represents anomers ?

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

5. Proteins are found to have two different types of secondary structures viz α-helix and β-pleated sheet structure. α-helix structure of protein is stabilised by

A. Peptide bonds

B. van der Waal's forces

C. Hydrogen bonds

D. Dipole-dipole interactions.

Answer: C

Watch Video Solution

6. In disaccharides, if reducing groups of monosaccharides i.e. aldehydic or ketonic groups are bonded, these are non-reducing sugars. Which of the following disaccharides is a non-reducing sugar ?

A. 

B. 

C. 

D. 

Answer: B

Watch Video Solution

7. Which of the following acids is a vitamin?

A. Aspartic acid

B. Ascorbic acid

C. Adipic acid

D. Saccharic acid.

Answer: B

Watch Video Solution

8. Dinucleotide is obtained by joining two nucleotides together by phosphodiester linkage. Between which carbon atoms of pentose sugars of nucleotides are these linkages present ?

A. 5' and 3'

B. 1' and 5'

C. 5' and 5'

D. 3' and 3'

Answer: A

Watch Video Solution

9. Nucleic acids are the polymers of

A. Nucleosides

B. Nucleotides

C. Bases

D. Sugars.

Answer: B

Watch Video Solution

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

A. It is an aldohexose

B. On heating with HI, it forms n-hexane

C. It is present in fauranose form

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

Answer: C

Watch Video Solution

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

Watch Video Solution

12. DNA and RNA contain four bases each. Which of the following bases in not present in RNA?

A. Adenine

B. Uracil

C. Thymine

D. Cytosine.

Answer: C

Watch Video Solution

13. Which of the following B group vitamins can be stored in our body?

A. Vitamin B_1

B. Vitamin B_2

C. Vitamin B_6

D. Vitamin B_{12}

Answer: D

Watch Video Solution

14. Which of the following bases is not present in DNA?

A. Adenine

B. Thymine

C. Cytosine

D. Uracil

Answer: D

Watch Video Solution

15. Three cyclic strtures of monosaccharides are given below. Which of these are anomers ?

A. I and II

B. II and III

C. I and III

D. III is anomer of I and II.

Answer: A

Watch Video Solution

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

A. Glucose forms pentaacetate

B. Glucose reacts with hydroxylamine to form an oxime

C. Pentaacetate of glucose does not react with hydroxylamine

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

Answer: C

Watch Video Solution

17. Optical rotations of some compounds along with their structures are given below. Which of them have D-configuration ?

A. I, II, III

B. II, III

C. I, II

D. III

Answer: A

Watch Video Solution

18. Structure of a disaccharide formed by glucose and fructose is given below. Identify anomeric carbon atoms in monosaccharide units.

A. 'a' carbon of glucose and 'a' carbon of fructose.

B. 'a' carbon of glucose and 'e' carbon of fructose.

C. 'a' carbon of glucose and 'b' carbon of fructose.

D. 'f' carbon of glucose and 'f' carbon of fructose.

Answer: C

Watch Video Solution

19. Three structures are given below in which two glucose units are linked. Which of these linkages between glucose units are between C_1 and C_4 and which linkages are between C_1 and C_6 ?

A. (A) is between C_1 and C_4 , (B) and (C) are between C_1 and C_6

B. (A) and (B) are between C_1 and C_4 , (C) is between C_1 and C_6

C. (A) and (C) are between C_1 and C_4 , (B) is between C_1 and C_6

D. (A) and (C) are between C_1 and C_6 , (B) is between C_1 and C_4.

Answer: C

Watch Video Solution

20. Carbohydrates are classified on the basis of their bahaviour on hydrolysis and also as reducing or non-reducing sugar. Sucrose is a ..... .

A. monosaccharide

B. disaccharide

C. reducing sugar

D. non-reducing sugar

Answer: B::D

Watch Video Solution

21. Proteins can be classified into two types on the basis of their molecular shape, i.e., fibrous proteins and globular proteins. Examples of

globular proteins are

A. Insulin

B. Keratin

C. Albumin

D. Myosin

Answer: A::C

Watch Video Solution

22. Which of the following carbohydrates are branched polymer of glucose?

A. Amylose

B. Amylopectin

C. Cellulose

D. Glycogen.

Answer: B::D

Watch Video Solution

23. Amino acids are classified as acidic, basic or neutral depending upon the relative number of amino and carboxyl groups in their molecule. Which of the following are acidic?

A. $(CH_3)_2CH - \underset{\underset{NH_2}{|}}{C} H - COOH$

B. $HOOC - CH_2 - CH_2 - \underset{\underset{NH_2}{|}}{C} H - COOH$

C. $H_2N - CH_2 - CH_2 - CH_2 - COOH$

D. $HOOC - CH_2 - \underset{\underset{NH_2}{|}}{C} H - COOH$

Answer: B::D

Watch Video Solution

24. Lysine, $H_2N-(CH_2)_4-\underset{\underset{NH_2}{|}}{CH}-COOH$ is..... .

A. α-Amino acid

B. Basic amino acid

C. Amino acid synthesised in body

D. β-Amino acid

Answer: A::B

Watch Video Solution

25. Which of the following monosaccharides are present as five membered cyclic structure (furanose structure)?

A. Ribose

B. Glucose

C. Fructose

D. Galactose

Answer: A::C

Watch Video Solution

26. In fibrous proteins, polypeptide chains are held together by..... .

A. van der Waal's forces

B. disulphide linkage

C. electrostatic forces of attraction

D. hydrogen bonds

Answer: B::D

Watch Video Solution

27. Which of the following are purine bases?

A. Guanine

B. Adenine

C. Thymine

D. Uracil

Answer: A::B

Watch Video Solution

28. Which of the following terms are correct about enzyme?

A. Proteins

B. Dinucleotides

C. Nucleic acids

D. Biocatalysts

Answer: A::D

Watch Video Solution

29. Match the vitamins given in Column I with the deficiency disease they cause given in Column II.

$Column I$ (Vitamins)	$Column II$ (Diseases)
A. Vitamin A	1. Pernicious anaemia
B. Vitamin B_1	2. Increased blood clotting time
C. Vitamin B_{12}	3. Xerophthalmia
D. Vitamin C	4. Rickets
E. Vitamin D	5. Muscular weakness
F. Vitamin E	6. Night blindness
G. Vitamin K	7. Beri-beri
	8. Bleeding gums
	9. Osteomalacia

Watch Video Solution

30. Match the following enzymes given in Column I with the reactions they catalyse given in Column II.

$Column I$ (Enzymes)	$Column II$ (Reactions)
A. Invertase	1. Decomposition of urea into NH_3 and CO_2
B. Maltase	2. Conversion of glucose into enthyl alcohol
C. Pepsin	3. Hydrolysis of maltose into glucose
D. Urease	4. Hydrolysis of cane sugar
E. Zymase	5. Hydrolysis of proteins into peptides

Watch Video Solution

31. Assertion (A) $D(+)-$ Glucose is dextrorotatory in nature.

Reason (R) 'D' represents its dextrorotatory nature.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: C

Watch Video Solution

32. Assertion (A) Vitamin D can be stored in our body.

Reason (R) Vitamin D is fat soluble vitamin.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: A

Watch Video Solution

33. Assertion (A) β-glycosidic linkage is present in maltose.

Reason (R) Maltose is composed of two glucose units in which C-1 of one glucose unit is linked to C-4 of another glucose unit.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: D

Watch Video Solution

34. Assertion (A) All naturally occurring α-aminoacids except glycine are optically active.

Reason (R) Most naturally occurring amino acids have L-configuration.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion and reason both are correct statements but reason does not explain assertion.

Answer: D

Watch Video Solution

35. Assertion (A) Deoxyribose, $C_5H_{10}O_4$ is not a carbohydrate.

Reason (R) Carbohydrates are hydrates of carbon so compounds which follow $C_x(H_2O)_y$ formula are carbohydrates.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: B

Watch Video Solution

36. Assertion (A) Glycine must be taken through diet.

Reason (R) It is an essential amino acid.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: B

Watch Video Solution

37. Assertion (A) In presence of enzyme, substrate molecule can be attacked by the reagent effectively.

Reason (R) Active sites of enzymes hold the substrate molecule in a suitable position.

A. Assertion and reason both are correct statements and reason explains the assertion.

B. Both assertion and reason are wrong statements.

C. Assertion is correct statement and reason is wrong statement.

D. Assertion is wrong statement and reason is correct statement.

Answer: A

Watch Video Solution

Assignment

1. Define nucleic acid.

Watch Video Solution

2. What is glycogen ?

Watch Video Solution

3. What the denaturation of proteins ?

Watch Video Solution

4. State the difference between

(i) $alpah$-helix and β-pleated structures of proteins

(ii) primary and secondary structures of proteins

(iii) enzymes and conzymes

Watch Video Solution

5. Differentitate between :

(i) primary and secondary structures of proteins

(ii) genes and genetic code.

Watch Video Solution

6. Give four industrial applications of enzymes along with the names.

Watch Video Solution

7. (a) Which bonds in the back bone of a peptide can rotate freely and which cannot ? Given reason.

(b) Write one difference between parallel and antiparallel β-pleated sheets. Given one example of parallel β-pleated sheets.

Watch Video Solution

8. (a) Give four biological functions of proteins.

(b) Name two diseases which are caused by the deficiency of vitamins.

Watch Video Solution

9. (a) Name the enzyme present in the saliva of human beings ?

(b) Deficiency of which vitamin causes beric-beric ?

Watch Video Solution

10. (a) What are vitamins ? Given the important source of vitamin A.

(b) What are tetrasaccharides ? Give one example.

(c) What is peptide linkage ? Given two functions of proteins.

Watch Video Solution

11. Write two functions of carbohydrates and proteins in the living beings.

Watch Video Solution

12. (a) What are nucleic acids and enzymes ?

(b) Write the chemical name of vitamin D.

Watch Video Solution

13. What are nucleic acids ? Explain the terms (i) Replication and (ii) Transcription.

Watch Video Solution

14. Write the major classes in which carbohydrates are classified based upon hydrolysis.

Watch Video Solution

15. Explain muta rotation taking D-glucose as the example.

Watch Video Solution

16. How does replication of long DNA molecules occur ? Explain the process.

Watch Video Solution

17. Write the main structural difference between DNA and RNA. Of the four bases, common to both DNA and RNA.

Watch Video Solution

18. (a) Write the chemical equarions for the reactions of glucose with :

(i) acetic anhydride

(ii) ammonical silver nitrate solution

(b) Draw simple projections of D-glucose and L-glucose

(c) What do you understable by replication by DNA ? How does DNA A differ from RNA structurally ?

Watch Video Solution

19. (a) Draw the pyranose ring structure of $\alpha - D$- fructose

(b) Explain denaturation of proteins.

Watch Video Solution

20. (a) Define muta rotation

(b) What is a gene ?

Watch Video Solution

21. Differentiate between globular and fibrous proteins.

Watch Video Solution

22. Name the diseases caused to the lack of vitamin : A, B_6 and E. Also mention the source of these vitamins.

Watch Video Solution

23. What are reducing and non-reducing sugars ? What is the structural feature characterising reducing sugars ? What is an invert sugar ?

Watch Video Solution

24. (a) Write Zwitterion structure of glycine.

(b) What is dematuration of proteins ?

Watch Video Solution

25. What are the essential and non-essential amino acids?Give two examples of each type.

Watch Video Solution

26. What are proteins ? How are they classified ? Give two functions of proteins.

Watch Video Solution

27. (a) What type of linkage is responsible for the primary structure of proteins ?

(b) Name the location where protein syntheis occurs in the body.

Watch Video Solution

28. Answer the following questions :

(i) Name any two good sources of vitamin A.

(ii) What are nucleotides ?

(iii) Given one example of fat soluble vitamins.

(iv) How are carbohydrates classified ?

Watch Video Solution

29. Write two differences between reducing and non-reducing sugars.

Watch Video Solution

30. (a) Write the pyranose ring structure of α-D-glucose.

(b) What are enzymes ?

(c) Explain inversion of cane sugar.

Watch Video Solution

31. Define the following as related to proteins.

(i) peptide linkage

(ii) Denaturation.

Watch Video Solution

32. What are disaccharides ? Give an example.

Watch Video Solution

33. Describe the following

(i) Glycosidic linkage

(ii) Peptide linkage.

Watch Video Solution

34. List any four vitamins. Mention the chief sources and functions of any two of them.

Watch Video Solution

35. (a) Discuss dehydration of primary, secondary and tertiary alcohols.

(b) In the halogen acids, HI is more reactive with alcohol than HBr and HCl. Explain.

Watch Video Solution

36. Describe the following

(i) Glycosidic linkage

(ii) Peptide linkage.

Watch Video Solution

37. Name two water soluble vitamins, their sources and diseases caused due to their deficiency in diet.

Watch Video Solution

38. Name the four bases present in DNA. Which one of these is not present in RNA ?

Watch Video Solution

39. Name two fat soluble vitamins, their sources and the diseases caused due to their deficiency.

Watch Video Solution

40. What is an invert sugar ?

Watch Video Solution

41. What is structural feature which characterises a reducing sugar ?

Watch Video Solution

42. What is the structural difference between a nucleoside and nucleotide ?

Watch Video Solution

43. The two strands of DNA are not identical, but are complementary'. Explain this statement.

Watch Video Solution

44. What are essential and non-essential amino acids ? Give one example of each type.

Watch Video Solution

45. Write two sources of vitamin A.

Watch Video Solution

46. Name two carbohydrates which act as bio-fuels.

Watch Video Solution

47. Explain the following terms :

(i) Invert sugar

(ii) Polypeptides.

Watch Video Solution

48. Name the products of hydrolysis of sucrose. Why is sucrose not a reducing sugar ?

Watch Video Solution

49. What happens when D-glucose is treated with

(i) HI (ii) HNO_3 (Conc.) ?

Watch Video Solution

50. Explain what is meant by the following :

(i) peptide linkage

(ii) pyranose structure of glucose.

Watch Video Solution

51. Write the main structural difference between DNA and RNA. Of the four bases, common to both DNA and RNA.

Watch Video Solution

52. What is the essential difference between α - and - β - forms of glucose ?

Watch Video Solution

53. Describe what do you understand by the primary and secondary structures of proteins.

Watch Video Solution

54. Enumerate the reactions of D-Glucose which cannot be explained by its open-chain structure.

Watch Video Solution

55. What are vitamins ? Name the source and disease caused by vitamin B_6.

Watch Video Solution

56. What is meant by secondary structure of proteins ?

Watch Video Solution

57. Write structure of the product when glucose is oxidised with conc. Nitric acid.

Watch Video Solution

58. What is meant by pyranose ring of glucose ?

Watch Video Solution

59. What is glycogen ? How is it different from starch ? How is starch structurally different from cellulose ?

Watch Video Solution

60. (i) Given one structural difference between amylose and amylopectin.

(ii) Name the protein and its shape present in oxygen carrier in human body.

(iii) Name two fat storing tissues in human body.

Watch Video Solution

61. Name the disease caused by the deficiency of vitamin C.

Watch Video Solution

62. Enlist fat soluble and water soluble vitamins.

Watch Video Solution

63. Differentiate between DNA and RNA.

Watch Video Solution

64. Name the products of hydrolysis of sucrose. Why is sucrose not a reducing sugar ?

Watch Video Solution

65. Write the name of the linkage of joining two α-amino acids ?

Watch Video Solution

66. What are the three types of RNA molecules which perform different functions ?

Watch Video Solution

67. Write chemical name and source of vitamin C.

Watch Video Solution

68. (i) What is denaturation of proteins ?

(ii) What is meant by inversion of sugars ?

(iii) What is muta rotains ?

Watch Video Solution

69. How are carbohydrates classified ?

Watch Video Solution

70. Write the names of two water soluble vitamins.

Watch Video Solution

71. (i) Differentiate between fibrous proteins and globular proteins.

(ii) Deficiency of which vitamin causes defoemity in children ?

Watch Video Solution

72. (i) Write the product obtained when D-glucose reacts with NH_2OH.

(ii) α-Amino acids show amphoteric behaviour. Why ?

(iii) Why cannot vitamin C be stored in our body ?

Watch Video Solution

73. (i) What is the difference between native protein and denatired protein ?

(ii) Write the name of the vitamin that causes coagulation of blood.

Watch Video Solution

74. How do α and β-D-glucose differ ? Write their pyranose structures.

Watch Video Solution

75. (i) What type of linkage is present in nucleic aocds ?

(ii) Given one example each of water soluble and far soluble vitammins.

Watch Video Solution

76. What is the function of digestive enzymes?

Watch Video Solution

77. Write the zwitter ion structure of α-amino acids ?

Watch Video Solution

78. Define the following with an example of each :

(a) Polysaccharides

(b) Denatured protein

(c) Essential amino acids

Watch Video Solution

79. (a) Give one example each of essential and non-essential amino acids.

(b) What is the difference between DNA and RNA ?

Watch Video Solution

Target

1. Heterocylic amino acid among the following is :

A. Lysine

B. Tyrosine

C. Proline

D. Serine.

Answer: C

Watch Video Solution

2. The sugar which is not a disaccharide in the following is :

A. Lactose

B. Galactose

C. Sucrose

D. Maltose

Answer: B

Watch Video Solution

3. Purine derivative among the following bases is

A. Guanine

B. Cytosine

C. Thymine

D. Uracil

Answer: A

Watch Video Solution

4. Vitamin B_{12} contains

A. Fe (II)

B. Co (III)

C. Zn (II)

D. Cal (II)

Answer: B

Watch Video Solution

5. The process by which protein synthesis takes place is based on genetic information called

A. replication

B. messenger hypothesis

C. translation

D. transcription

Answer: C

Watch Video Solution

6. Which of the following is an example of ketohexose ?

A. mannose

B. Galactose

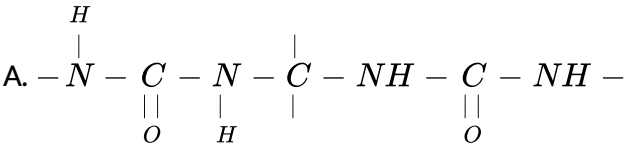
C. maltose

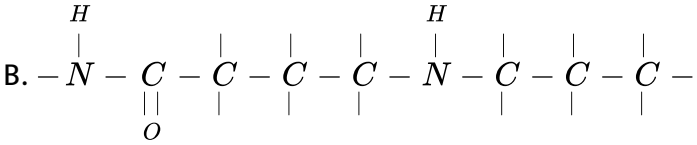
D. fructose

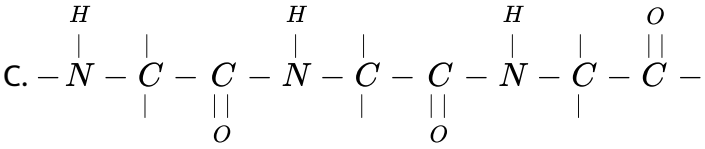
Answer: D

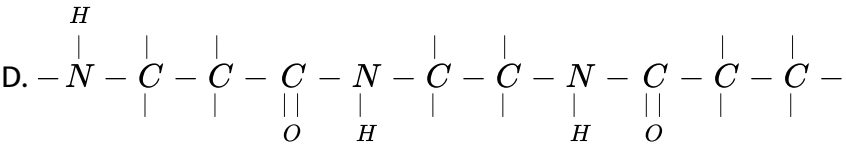
Watch Video Solution

7. Which of the following represents a peptide chain ?

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

8. Muta rotation does not occur in :

A. Sucrose

B. D-glucose

C. L-glucose

D. None of these

Answer: A

Watch Video Solution

9. The conversion of maltose into glucose is possible through the enzyme

A. zymase

B. lactase

C. maltase

D. diastase

Answer: C

Watch Video Solution

10. Which of the following biomolecules contains non-transition metal ion ?

A. vitamin B_{12}

B. chlorophyll

C. haemoglobin

D. Insulin

Answer: B

Watch Video Solution

11. The human body does not produce.

A. enzymes

B. DNA

C. vitamins

D. hormones

Answer: C

Watch Video Solution

12. During the process of digestion, the proteins present in food material are hydrolysed to amino acids. The two enzymes involved in the process

are :

$$\text{Proteins} \xrightarrow[(A)]{\text{enzyme}} \text{polypeptides} \xrightarrow[(B)]{\text{enzyme}} \text{amino acids}$$

A. invertase and zymase

B. amylase and maltose

C. diastose and lipase

D. pepsin and tripsin

Answer: D

Watch Video Solution

13. Thymine is

A. 5-methyluracil

B. 4-methyluracil

C. 3-methyluracil

D. 1-methyluracil

Answer: A

Watch Video Solution

14. Methyl$-\alpha-D-$ glucoside and methyl$-\beta-D-$ glucoside are:

A. epimers

B. anomers

C. enantiomers

D. diastereomers

Answer: B

Watch Video Solution

15. RNA and DNA are chiral molecules. Their chirality is due to :

A. Chiral bases

B. Chiral phosphate ester units

C. D-sugar component

D. L-sugar component.

Answer: C

Watch Video Solution

16. In DNA, the complementary bases are :

A. Adenine and adenine, cytosine 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

Watch Video Solution

17. α-D(+)-glucose and β-D(+) glucose are

A. enantiomers

B. conformers

C. epimers

D. anomers

Answer: D

Watch Video Solution

18. The segment of DNA which acts as the instrumental manual for the synthesis of the protein is:

A. Ribose

B. gene

C. nucleoside

D. nucleotide

Answer: B

Watch Video Solution

19. Which of the following hormones contains iodine ?

A. Testosterone

B. Adrenaline

C. Thyroxine

D. Insulin

Answer: C

Watch Video Solution

20. The two function groups present in a typical carbohydrate are

A. $-OH$ and $-COOH$

B. $-CHO$ and $-COOH$

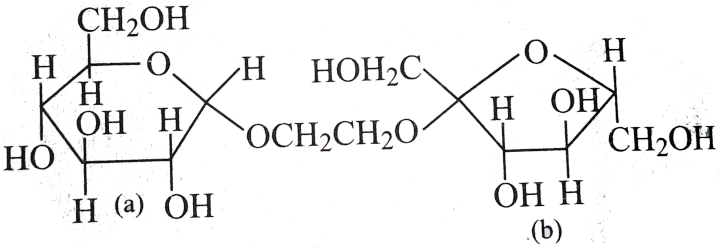
C. $>C=O$ and $-OH$

D. $-OH$ and $-CHO$

Answer: C

Watch Video Solution

21. 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

Watch Video Solution

22. Which of the following bases is not present in D.N.A. ?

A. Uracil

B. Adenine

C. Cytosine

D. Guanine

Answer: A

Watch Video Solution

23. Lactose is made of

A. $\alpha - D -$ glucose only

B. $\alpha - D -$ glucose and $\beta - D -$ glucose

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

D. $\beta - D -$ galactose and $\alpha - D -$ glucose

Answer: D

Watch Video Solution

24. Fructose reduces 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

Watch Video Solution

25. The presence or absence of hydroxy group on which carbon atom of sugar differentiates RNA and DNA.

A. 1^{st}

B. 2^{nd}

C. 3^{rd}

D. 4^{th}

Answer: B

Watch Video Solution

26. Biuret test is not given by :

A. Proteins

B. carbohydrates

C. polypeptides

D. urea

Answer: B

Watch Video Solution

27. Which one of the following statements is not true regarding $(+)$ Lactose ?

A. On hydrolysis (+) lactose gives equal amoun 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. (+)Latose, $C_{12}H_{22}O_{11}$ contains-8-OH groups.

Answer: C

Watch Video Solution

28. 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

Watch Video Solution

29. 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

Watch Video Solution

30. 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

Watch Video Solution

31. Deficiency of vitamin B_1 causes the disease

A. convulsions

B. beri-beri

C. cheilosis

D. sterility

Answer: B

Watch Video Solution

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

A. $\alpha - D -$ galactopyranose and $\alpha - D -$ glucopyranose

B. $\alpha - D -$ glucopyranose and $\beta - D -$ fructofuranose

C. $\beta - D -$ glucopyranose and $\alpha - D -$ fructofuranose

D. $\alpha - D -$ glucopyranose and $\beta - D -$ fructopyranose.

Answer: B

Watch Video Solution

33. Which of the following statements is correct ?

A. All amino acids are optically active.

B. All amino acids except glycine are optically active.

C. All amino acids except glutamic acid are optically active.

D. All amino acids except lysine are optically active.

Answer: B

Watch Video Solution

34. Identify the sequence of base of mRNA molecule synthesised on the given strand of DNA. AGCGATTAC

A. ACGCATTAG

B. TGGCTAATG

C. UCGCUAAUG

D. UCGCUTTUC

Answer: C

Watch Video Solution

35. Synthesis of each molecule of glucose in photosynthesis involves :

A. 6 molecules of ATP

B. 18 molecules of ATP

C. 10 molecules of ATP

D. 8 molecules of ATP

Answer: B

Watch Video Solution

36. Which of the following α-mino acids has a phenolic (-OH) group in the back bone ?

A. Phenylalanine

B. Histidine

C. Tyrosine

D. Glutamic acid

Answer: C

Watch Video Solution

37. The sugar component in RNA molecule is :

A. D-xylose

B. D-Ribose

C. L-Ribose

D. D-Glucose

Answer: B

Watch Video Solution

38. Which one of the following is not correct ?

A. D(-) Fructose exists in furanose structure

B. D(+) Glucose exists in pyranose structure

C. In sucrose the two monosaccharides are held together by peptide linkage

D. Maltose is a reducing sugar.

Answer: C

Watch Video Solution

39. Naturally occurring sugars and amino acids have configuratoin respectively.

A. L-sugars, D-amino acids

B. D-sugars, D-amino acids

C. D-sugars, L-amino acids

D. L-sugars, L-amino acids.

Answer: C

Watch Video Solution

40. Which of the following reduces Tollen's reagent ?

A. Cane sugar

B. Starch

C. Glucose

D. All of these

Answer: C

Watch Video Solution

41. Which of the following bases is not present in DNA ?

A. Quinoline

B. Adenine

C. Cytosine

D. Thymine

Answer: A

Watch Video Solution

42. The statement that is NOT correct is that

A. aldose or ketose sugars in alkaline medium do not isomerise

B. carbohydrates are optically active

C. penta acetate of glucose does not react with hydroxylamine.

D. lactose has glycosidic linkage betweeb C_4 of glucose and C_1 of galactose units.

Answer: A

Watch Video Solution

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

A. Thyroxin

B. Estradiol

C. Adrenaline

D. Insulin

Answer: C

Watch Video Solution

44. The structure of D-(+) glucose is

The structure of L-(-) glucose is

A. Structure (i)

B. Structure (ii)

C. Both (i) & (ii)

D. Neither (i) nor (ii)

Answer: A

Watch Video Solution

45. Which of the vitamins given below is water soluble ?

A. Vitamin D

B. Vitamin K

C. Vitamin C

D. Vitamin E

Answer: C

Watch Video Solution

46. Glucose does not react with :

A. hydroxylamine

B. conc HNO_3

C. acetic anhydride

D. sodium bisulphite

Answer: D

Watch Video Solution

47. Which of the following is a water soluble vitamin ?

A. Vitamin A

B. Vitamin D

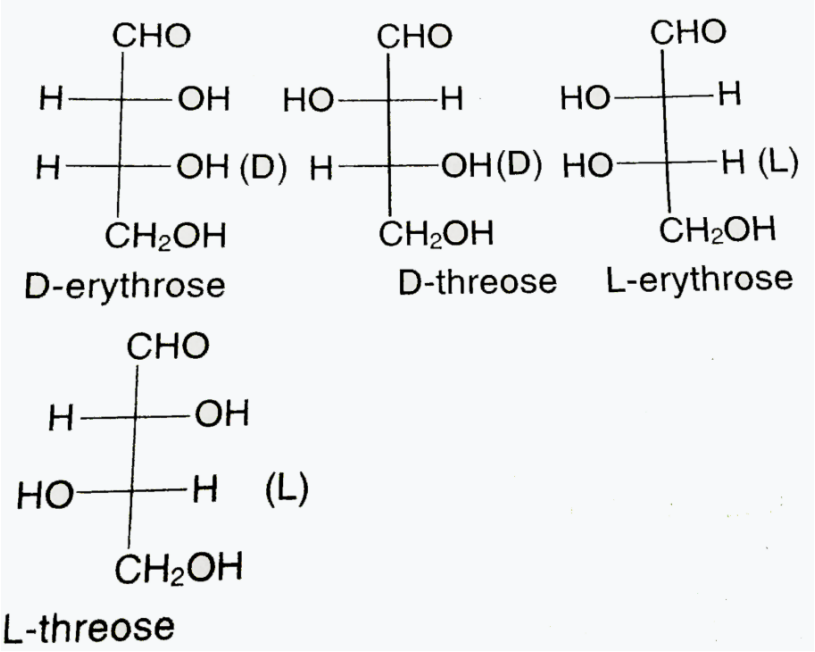
C. Vitamin B_1

D. Vitamin E

Answer: C

Watch Video Solution

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



respectively, is

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

B. L-erthrose, L-threose, L-erthrose, D-threose

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

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

Answer: A

Watch Video Solution

49. Thiol group is present in :

A. Cystine

B. Cysteine

C. Methionine

D. Cytosine.

Answer: B

Watch Video Solution

50. Which of the following is non-reducing sugar ?

A. Glucose

B. Sucrose

C. Maltose

D. Lactose

Answer: B

Watch Video Solution

51. Vitamin B_2 is :

A. Thiamine

B. Pyridoxine

C. Riboflavin

D. Pentothenic acid

Answer: C

Watch Video Solution

52. Most common types of secondary structures of proteins are :

A. α-helix and β-helix structures

B. α-helix and β-pleated sheet structures

C. right and left hand twisted structures

D. globular and fibrous structures.

Answer: B

Watch Video Solution

53. Which of the following statements is not correct ?

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

B. Ovalbumin is a simple food reserve in egg white

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

D. Denaturation makes the proteins more active.

Answer: D

Watch Video Solution

54. Which of the following compounds will behave as a reducing sugar in an aqueous KOH solution ?

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

55. The difference between amylose and amylopectin is

A. Amylopectin has $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\alpha$ - linkage

B. Amylose has $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\beta$ - linkage

C. Amylopectin has $1 \rightarrow 4\alpha$ - linkage and $1 \rightarrow 6\beta$ - linkage

D. Amylose is made up of glucose and galactose.

Answer: A

Watch Video Solution

56. Which of the following statements is incorrect ?

A. Amylose is insoluble in water.

B. Fructose is reducing sugar.

C. Cellulose is the polymer of D-glucose.

D. D-Ribose sugar is present in DNA.

Answer: D

Watch Video Solution

57. Which of the following sets of amino acids contains only essential amino acids ?

A. Histidine, Glutamic acid and Cysteine

B. Arginine, Lysine and Histidine

C. Tyrosine, Aspargine and Proline

D. Valine, Glutamine asnd Isoleucine.

Answer: B

Watch Video Solution

58. Glucose on prolonged heating with HI gives

A. n-Hexane

B. 1-Hexane

C. Hexanoic acid

D. 6-iodohexane

Answer: A

Watch Video Solution

59. The predominat form of histamine present in human blood is (pK_a , Histimine = 6.0)

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

60. The Fischer presentation of D-glucose is given below

The correct structure(s) of $\beta - L -$ glucopyranose is (are)

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

Comprehension 1

1. Carbohydrates are polyhydroxy aldehydes or ketones or substances which generally give these upon hydrolysis. These have been classified as mono, oligo or polysaccharides. These are all optically active since they contain number of chiral carbon atoms in their molecules. Further, the carbohydrates may be either reducing or non-reducing in nature. In disaccharides and polysaccharides, the monosaccharides are linked to

each other by Glycosidic linkages.

The α and β forms of D(+) Glucose are known as

A. Enantiomers

B. Anomers

C. Epimers

D. Diastereomers

Answer: B

Watch Video Solution

Comprehension

1. Carbohydrates are polyhydroxy aldehydes or ketones or substances which generally give these upon hydrolysis. These have been classified as mono, oligo or polysaccharides. These are all optically active since they contain number of chiral carbon atoms in their molecules. Further, the carbohydrates may be either reducing or non-reducing in nature. In

disaccharides and polysaccharides, the monosaccharides are linked to each other by Glycosidic linkages.

Which of the following given the same osazone ?

A. Glucose, Fructose

B. Glucose, Galactose

C. Maltose, Lactose

D. Sucrose, Fructose

Answer: A

View Text Solution

2. Carbohydrates are polyhydroxy aldehydes or ketones or substances which generally give these upon hydrolysis. These have been classified as mono, oligo or polysaccharides. These are all optically active since they contain number of chiral carbon atoms in their molecules. Further, the carbohydrates may be either reducing or non-reducing in nature. In disaccharides and polysaccharides, the monosaccharides are linked to

each other by Glycosidic linkages.

In the polysacharides, the monosaccharides are linked to each other by :

A. Glyosidic Linkage

B. Peptide Linkage

C. Nucleosidic Linkage

D. None is correct

Answer: A

Watch Video Solution

3. All proteins are made up of α-amino acids which act as the building blocks. α-amino acids that are synthesised in the body, are known as non-essential α-amino acids while the one which the body fails to synthesise, are called essential α-amino acids. All of them exist as dipolar ions also known as Zwitterions. For all the α-amino acids, there is a certain pH of the medium known as isoelectric point at which the dipolar ions behave as electrically neutral species. In acidic medium, the ion migrates towards

cathos while in basic medium, it migrates towards anode on passing electric current.

The isoelectric point of an amino acid is

A. the pH at which it exists in basic form

B. the pH at which it exists in acidic form

C. the pH at which it exists in zwitterion form

D. the pH equal to its Pka.

Answer: C

Watch Video Solution

4. All proteins are made up of α-amino acids which act as the building blocks. α-amino acids that are synthesised in the body, are known as non-essential α-amino acids while the one which the body fails to synthesise, are called essential α-amino acids. All of them exist as dipolar ions also known as Zwitterions. For all the α-amino acids, there is a certain pH of the medium known as isoelectric point at which the dipolar ions behave

as electrically neutral species. In acidic medium, the ion migrates towards cathos while in basic medium, it migrates towards anode on passing electric current.

Which is basic amino acid ?

A. Aspartic acid

B. Histidene

C. Valine

D. Leucine

Answer: B

View Text Solution

Comprehension 2

1. All proteins are made up of α-amino acids which act as the building blocks. α-amino acids that are synthesised in the body, are known as non-essential α-amino acids while the one which the body fails to synthesise,

are called essential α-amino acids. All of them exist as dipolar ions also known as Zwitterions. For all the α-amino acids, there is a certain pH of the medium known as isoelectric point at which the dipolar ions behave as electrically neutral species. In acidic medium, the ion migrates towards cathos while in basic medium, it migrates towards anode on passing electric current.

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

A. Lysine

B. Phenylalanine

C. Valine

D. Glycine

Answer: D

Watch Video Solution

Matching Type Questions

1. Which of the following pairs gives positive iodoform test ?

A. Glucose, sucrose

B. Glucose, fructose

C. Hexanal, acetophenone

D. Fructose, sucrose

Answer: B

Watch Video Solution

2. The two forms of `D-glucopyranose obtained from solution of D-glucose are known as:

A. isomers

B. anomers

C. epimers

D. enantiomers

Answer: B

Watch Video Solution

3. The correct statement(s) about the following sugars X and Y is (are)

A. X is a reducing sugar and Y is a non-reducing sugar

B. X is a non-reducing sugar and Y is a reducing sugar

C. The glucosidic linkage in X and Y are α and β respectively.

D. The glucosidic linkages in X and Y are β and α, respectively.

Answer: B::C

View Text Solution

4. The following carbohydrate is :

A. a ketohexose

B. an aldohexose

C. an α-furance

D. an α-pyranoser

Answer: B

Watch Video Solution

Assertion Reason

1. Assertion : Fructose does not contain an aldehydic group but still reduces Tollen's regant.

Reason : In the presence of base, fructose undergoes rearrangement to give glucose.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: A

Watch Video Solution

2. Assertion : Glucose and fructose cannot be distinguished by silver mirror test.

Reason : Glucose contains aldehydic group while fructose has ketonic group.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: B

Watch Video Solution

3. Assertion : Enzyme hydrolysis of sucrose is called inversion.

Reason : The configuration of sucrose gets inverted under these conditions.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: C

Watch Video Solution

4. Assertion : Glucose given reddish brown precipitate with Fehiling's solution.

Reason : Reaction of glucose with Fehling's solution gives Cu_2O and gluconic acid.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: A

View Text Solution

5. Assertion : The two strands in DNA are complementary.

Reason : Cytosine always pasirs with guanine and thymine with adenine.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: A

Watch Video Solution

6. Assertion : The K_a value of α-amino acids is very low.

Reason : α-Amino acids have zwitterionic structure.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: B

View Text Solution

7. Assertion : Glucose gives a reddish brown precipitate with Fehiling's solution.

Reason : Reaction of glucose with Fehiling's solution gives CuO and gluconic acid.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: C

View Text Solution

8. Assertion : Reduction of glucose with $NaBH_4$ forms two products differing in configuration.

Reason : A chiral carbon is formed due to reduction of keto group at C_2.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: A

View Text Solution

9. Assertion : Reaction of boh glucose and fructose with excess of phenylhydrazine gives the same osazone.

Reason : Both glucose and fructose are monosaccharides in nature.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: B

Watch Video Solution

10. Assertion : Millon's test is on test for the identification of proteins.

Reason : Millon's reagent is a solution of mercurous nitrate and mercuric in nitric acid containing a little nitrous acid.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: B

Watch Video Solution

11. Assertion : All enzymes are made up of protems and all proteins have three dimensional structures.

Reason : Secondary structures of proteins are sequence of amino acids.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: D

Watch Video Solution

12. Assertion : Nucleoticles are phosphate esters of nucleosides.

Reason : The various nucleotides in proteins are linked either through

purine or pyridimine bases.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: C

Watch Video Solution

13. Assertion : Oxidation of glucose by Br_2 water gives gluconic acid.

Reason : Br_2 water oxidises both -CHO and -OH groups.

A. If both assertion and reason are correct and reason is correct explanation for assertion.

B. If both assertion and reason are correct but reason is not correct explanation for assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion and reason are both incorrect.

Answer: C

Watch Video Solution

Matrix Match Type

1. Match the statements (A, B, C, D) in Column I with the statements (p, q, r, s) in Column II. Answers to the questions have to be properly bubbled.

	Column I		Column II
(A)	$CH_3CH(OH)CHO$	(p)	Carbohydrate
(B)	$HOCH_2CH(OH)CHO$	(q)	Amino acid
(C)	$CH_3CH(NH_2)COOH$	(r)	Positive Tollen's test
(D)	$C_6H_5CH(CH_2NH_2)COOH$	(s)	Ninhydrin test

Watch Video Solution

2.

	Column I		Column II
(A)	Glucose	(p)	Reduces Fehling solution
(B)	Fructose	(q)	Exhibits multa rotation
(C)	Mannose	(r)	Forms tetra acetyl derivative on treatmen wit
(D)	Glucopyranose	(s)	Gets oxidised by Br_2 / H_2O

Watch Video Solution

3.

	Column I		Column II
(A)	Thymine	(p)	Pyrimidine base
(B)	Insulin	(q)	Cell wall compound
(C)	Pepsin	(r)	Hormone
(D)	Phospholipids	(s)	Enzyme

Watch Video Solution

4.

	Column I		Column II
(A)	Adenine	(p)	Purine
(B)	Thymine	(q)	Pyrimidine
(C)	Uracil	(r)	RNA
(D)	Deoxyribose	(s)	DNA

Watch Video Solution

5.

	Column I		Column II
(A)	Amylose	(p)	Polysaccharide
(B)	cellulose	(q)	$\alpha-$ glycosidic linkage
(C)	Maltose	(r)	$\beta-$ glycosidic linkage
(D)	Galactose	(s)	Hydrolysed to glucose

Watch Video Solution

6. Enzymatic reactions are given Column I and enzymes in Column II

	Column I		Column II
(A)	Maltose $\rightarrow$. Glucose	(i)	Zymase
(B)	Sucrose $\rightarrow$. Glucose + Fructose	(ii)	Pepsin
(C)	Glucose $\rightarrow$. Ethyl alcohol + CO_2	(iii)	Maltase
(D)	Starch $\rightarrow$. Maltose	(iv)	Invertase
(E)	Proteins $\rightarrow$. Amino acids	(v)	Diastase

Choose the correct matching of enzymatic reaction and enzyme that catalyses the reaction from the codes given below :

A. (A)-(ii), (B)-(iv), (C)-(v), (D)-(iii), (E)-(i)

B. (A)-(iii), (B)-(iv), (C)-(i), (D)-(v), (E)-(ii)

C. (A)-(v), (B)-(iv), (C)-(ii), (D)-(i), (E)-(iii)

D. (A)-(v), (B)-(iii), (C)-(iv), (D)-(ii), (E)-(i)

Answer: b

Watch Video Solution

7.

	Coloumn I		Column II
(A)	Ascorbic acid	(p)	Scurvy
(B)	Vitamin B	(q)	Dental bleeding
(C)	Retinal	(r)	Beri-Beri
(D)	Vitamin D	(s)	Night blindness
		(t)	Rickets.

Watch Video Solution

8.

	Column I		Column II
(A)	Epimers	(p)	$\alpha-(D)$glucose
(B)	Anomers	(q)	D-mannose
(C)	Reducing ketone	(r)	Fructose
(D)	Functional isomer of glucose	(s)	$\beta-(D)$glucose

Watch Video Solution