CHEMISTRY

BOOKS - MODERN PUBLISHERS CHEMISTRY (HINGLISH)

BIOMOLECULES

Solved Examples

1. Write the formula of a tripeptide alanylglycyl phenylalanine.

Watch Video Solution

2. 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

3. In E. coli DNA, AT/GC ratio is 0.93. If the number of moles of adenine in its DNA sample is $465,000,$ calculate the number of moles of guanine present.

Watch Video Solution

4. A DNA molecule with more number of GC base pairs than AT base pairs has higher T_m than the one with lesser number of GC base pairs than AT base pairs. Explain why?

Watch Video Solution

5. The two samples of DNA, A and B have melting tempreatures $(T_m)340$ and $350K$,respectively. Can you draw any conclusion from this data regarding their base content?

Watch Video Solution

6. What will be the sequence of bases on the strand of DNA that would be complentary to strand having the following sequence of bases :

A A T C G T A G G C

Watch Video Solution

Conceptual Questions 1

1. Why are carbohydrates generally optically active ?

Watch Video Solution

2. How do anomers differ from epimers?

Watch Video Solution

3. What do you mean by pitch or frequency ? What is difference between them ?

Watch Video Solution

4. Is a diet consisting mainly of rice an adequate diet? Why or why not?

Watch Video Solution

5. Amylose and cellulose both are linear polymers of glucose. The different between them is:

Watch Video Solution

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

Watch Video Solution

7. Draw open chain structure of an aldopentose and aldohexose. Predict the number of asymmetric carbon atoms present in each.

Watch Video Solution

8. What is meant by inversion of sugar ?

Watch Video Solution

9. Give 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

10. Write any two reactions of glucose which cannot be explained be the open chain structure of glucose molecule.

Watch Video Solution

11. Write a reaction which shows that all the carbon atoms in glucose are in a straight chain.

Watch Video Solution

12. Name the linkage connecting monosaccharide units in polysaccharides.

Watch Video Solution

13. Give one example each for a disaccharide and a polysaccharide.

Watch Video Solution

14. Hydrolysis of sucrose gives

Watch Video Solution

15. What are the products of hydrolysis of lactose?

Watch Video Solution

16. The disaccharide present in milk is

Watch Video Solution

17. Write the product when D-glucose reacts with conc. HNO_3

Watch Video Solution

18. Which type of linkage is present in amylopectin?

Watch Video Solution

Conceptual Questions 2

1. (i) Which vitamin deficiency causes rickets?

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

Watch Video Solution

2. How many naturally occurring amino acids in proteins exist? How many of these are synthesised by the body ?

Watch Video Solution

3. Tabulate differences between DNA and RNA.

Watch Video Solution

4. Differentiate between primary and secondary structures of proteins.

Watch Video Solution

5. αamino acids are those which

Watch Video Solution

6. State the use of interferon and insulin in medicines.

Watch Video Solution

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

Watch Video Solution

8. What are the main functions of the hormone adrenaline?

Watch Video Solution

9. Name the enzyme present in human saliva. What type of food material is digested by this enzyme ?

Watch Video Solution

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

Cysteine, Tyrosine, Trypsin, Proline, Serine

Watch Video Solution

11. What are non-essential amino acids? Give one example.

Watch Video Solution

12. How are nucleosides, nucleotides and nucleic acids related?

View Text Solution

13. What is prosthetic group?

Watch Video Solution

14. What is the function of enzyme present in liver?

Watch Video Solution

15. Fresh tomatoes are a better source of vitamin C than those present in tomatoes which have been stored for some time.

View Text Solution

16. Which enzyme converts sucrose into glucose and fructose?

Watch Video Solution

17. Name the enzyme which converts

(i) maltose into glucose

(ii) glucose into alcohol

View Text Solution

18. What are histones? What are their functions?

Watch Video Solution

19. What are coenzymes ? Give example.

Watch Video Solution

20. What is isoelectric point?

View Text Solution

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

Watch Video Solution

22. Amino acids have high melting points and are soluble in water.

Watch Video Solution

23. What is meant by secondary structure of proteins ?

Watch Video Solution

24. What are essential and non-essential amino acids? Give two examples of each.

Watch Video Solution

25. Differentiate between Keratin and insulin.

Watch Video Solution

26. Write the zwitterion structure for glycine.

Watch Video Solution

27. What type of forces are responsible for the formation of β-pleated sheet structure?

View Text Solution

28. Write the chemical name of vitamin $B)_{12}$.

View Text Solution

29. What is the chemical name of vitamin C and which disease is caused by its deficiency?

View Text Solution

30. What is the chemical name of vitamin A and which disease is caused by its deficiency?

View Text Solution

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

Watch Video Solution

32. Vitamin C is found in fruits and vegetables. It cannot be stored in our body. Why?

View Text Solution

33. Name the vitamins whose deficiency cause (i) rickets (ii) night blindness, (iii) scurvy.

View Text Solution

34. Which of the following amino acids is not optically active

Watch Video Solution

35. The metal present in vitamin B_{12} is

Watch Video Solution

36. The base present in RNA but not found in DNA is :

Watch Video Solution

37. Name one fibrous and one globular protein.

Watch Video Solution

Ncert File Ncert In Text Question

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 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

Ncert File Ncert Textbook Exercises

1. What are monosaccharides?

Watch Video Solution

2. What are reducing sugars?

Watch Video Solution

3. Write two main functions of carbohydrates in plants.

Watch Video Solution

4. Classify the following into monosaccharides and disaccharides.

A. Ribose and 2- Deoxyribose

B. maltose

C. galactose

D. fructose

Answer:

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? Give two examples of each.

Watch Video Solution

12. Define 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 type 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 vitamines 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. Two strands in DNA are not identical but are complementary. Explain?

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

Ncert Exemplar Problems Multiple Choice Questions Type I

1. Glycogen is a branched chain polymer of $\alpha - D$ glucose units in which chain is formed by $C1 - C4$ 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 molecules of glucose

B. 2 molecules of glucose +1 molecule of fructose

C. 1 molecule of glucose + 1 molecule of fructose

D. 2 molecules of fructose

Answer: C

Watch Video Solution

4. Which of the following pairs represents anmors?

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 Waals forces

C. Hydrogen bonds

D. Dipole-dipole interactions

Answer: C

Watch Video Solution

6. In disaccharides, if the reducing groups of monosaccharides, i.e., aldehydic or ketonic groups are bonded, these are non-reducing sugars. Which of the following disaccharide 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 furanose 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: A

Watch Video Solution

15. Three cyclic structures 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: C

View Text 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: A

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: C

View Text 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. 19.

Answer: C

View Text Solution

Ncert Exemplar Problems Multiple Choice Questions Type Ii

1. 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: A::C

Watch Video Solution

2. 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: B::D

Watch Video Solution

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

A. Amylose

B. Amylopectin

C. Cellulose

D. Glycogen

Answer: B::D

Watch Video Solution

4. 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. $(CH_3)_2CH - \underset{\underset{NH_2}{|}}{\text{CH}} - COOH$

B. $HOOC - CH_2 - CH_2 - \underset{\underset{NH_2}{|}}{\text{CH}} - COOH$

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

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

Answer: A::B

Watch Video Solution

5. 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::C

Watch Video Solution

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

A. Ribose

B. Glucose

C. Fructose

D. Galactose

Answer: B::D

Watch Video Solution

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

A. van der Waals forces

B. disulphide linkage

C. electrostatic forces of attraction

D. hydrogen bonds

Answer: B::D

Watch Video Solution

8. Which of the following are purine bases?

A. Guanine

B. Adenine

C. Thymine

D. Uracil

Answer: A::B

Watch Video Solution

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

A. Proteins

B. Dinucleotides

C. Nucleic acids

D. Biocatalysts

Answer: A::D

Watch Video Solution

Ncert Exemplar Problems 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

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 yout explain the presence of five $-OH$ groups in glucose molecule?

Watch Video Solution

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

Watch Video Solution

View Text 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. Structure of glycine and alanine are given below. Show the peptide linkage in glycylalanine.

$$\underset{\text{(Gylcince)}}{H_2N-CH_2-COOH}, \underset{\text{(Alanine)}}{H_2N-\underset{\displaystyle CH_3}{\underset{|}{CH}}-COOH}$$

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. Describe the term D- and L-configuration used for amino acids with examples.

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

Ncert Exemplar Problems Matching Type Questions

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

View Text Solution

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

View Text Solution

Ncert Exemplar Problems Assertion And Reason Type Questions

1. 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

2. 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

3. 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

4. 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

5. 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

6. 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

Quick Memory Test Accelerate Your Potential For Objective Questions A Say True Of False

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

Watch Video Solution

2. Lecithin is an α-amino acid.

Watch Video Solution

3. Starch has the components amylose and amylopectin.

Watch Video Solution

4. Chemically, denaturation does not change the primary structure of proteins.

Watch Video Solution

5. State true / false :- The disease albinism is caused by the deficiency of enzyme tyrosinase.

Watch Video Solution

6. Uracil occurs in DNA and not in RNA.

Watch Video Solution

7. Lactose on hydrolysis with dil.HCl gives

Watch Video Solution

8. Glycogen is a polymer of glucose units.

Watch Video Solution

9. α-Amino acids show basic character due to - COO- group and acidic character due to $-NH_3^+$ group.

Watch Video Solution

10. Glucose and fructose from identical osazones because :

Watch Video Solution

11. The synthesis of proteins is governed by DNA.

Watch Video Solution

12. When glucose is heated with methanol in the presence of dry HCl gas, it forms one methyl glycoside.

Watch Video Solution

13. Alanine and valine are neutral α-amino acids.

Watch Video Solution

14. Keratin, fibroin and collagen are fibrous proteins.

Watch Video Solution

15. Deficiency of vitamin D causes rickets.

Watch Video Solution

Quick Memory Test Accelerate Your Potential For Objective Questions B Complete The Missing Links

1. The sugar in DNA is :

Watch Video Solution

2. Cellulose is a linear polymer of

Watch Video Solution

3. Amylopectin is a polymer of :

Watch Video Solution

4. the acidic group in aqueous solution of glycine is

Watch Video Solution

5. Deficiency of molybdenum causes

Watch Video Solution

6. Change in the sequence of nucleotide in DNA is called as

Watch Video Solution

7. Heart attacks can be checked by using the enzyme .....

Watch Video Solution

8. The chemical name of vitamin B_{12} is.....

View Text Solution

9. Nucleotide constituent of RNA are

Watch Video Solution

10. The two strands of DNA are held together by :

Watch Video Solution

11. Most of the naturally occurring ..... have D-configuration while most of the naturally occurring ..... have L-configuration.

Watch Video Solution

12. Starch is converted to maltose by

Watch Video Solution

13. The pentose sugar in DNA and RNA has the :

Watch Video Solution

14. Denaturation of proteins

Watch Video Solution

15. The molecule in which one of the nitrogen bases is bonded with a sugar molecule is called .....

View Text Solution

Quick Memory Test Accelerate Your Potential For Objective Questions C Choose The Correct Alternative

1. Glucose, Mannose and fructose.give identical osazones. Explain

Watch Video Solution

2. Why is DNA molecule considered as a better hereditary material than RNA molecule ?

Watch Video Solution

3. The chemical name of vitamin B_1 is

Watch Video Solution

4. Xerophthalmia in children and nyctalopia (Night blindness) in adults is caused by the deficiency of vitamin

Watch Video Solution

5. The acidic character of glycine is due to $-COO^-$ group / NH_3^+ group.

Watch Video Solution

6. Which pyrimidine is absent in DNA but present in RNA?

Watch Video Solution

7. Guanine is a purine/pyrimidine.

Watch Video Solution

8. Which enzyme converts sucrose into glucose and fructose?

Watch Video Solution

9. Which structure of proteins involve in denaturation?

Watch Video Solution

10. Collagen is a fibrous /globular protein.

Watch Video Solution

11. At isoelectric point the amino acids have least /maximum solubility in water.

Watch Video Solution

12. α-D glucose and β-D -glucose are

Watch Video Solution

13. Amylopectin is water soluble/insoluble fraction.

Watch Video Solution

Revision Exercises Objective Questions Multiple Choice Questions

1. Which of the following proteins is globular?

A. Collagen

B. Albumin

C. Myosin

D. Fibroin

Answer: B

Watch Video Solution

2. During conversion of glucose into glucose cyanohydrin which functional group/ atom of glucose is replaced ?

A. hydrogen

B. aldehydic group

C. primary alcoholic group

D. secondary alcoholic group

Answer: B

Watch Video Solution

3. Which one of the following enzymes digests protein in stomach?

A. Invertase

B. Trypsin

C. Tyrosinase

D. Ureas

Answer: B

Watch Video Solution

4. Biotin is chemical name of vitamin

A. B_6

B. E

C. H

D. K

Answer: C

Watch Video Solution

5. Metabolic activities of cells are controlled by

A. proteins

B. DNA

C. RNA

D. fat

Answer: B

Watch Video Solution

6. The linkage which holds various amino acdis units in primary structure of proteins is

A. glycosidic linkage

B. hydrogen bond

C. peptide linkage

D. ionic bond

Answer: C

Watch Video Solution

7. Vitamin A is called:

A. Ascorbic acid

B. Retinol

C. Calciferol

D. Tocoferol

Answer: B

Watch Video Solution

8. Deficiency of vitamin B_1 causes the disease :

A. Beri-Beri

B. Rickets

C. Anaemia

D. Xerosis

Answer: A

Watch Video Solution

9. Deficiency of vitamin C causes

A. Scurvy

B. Rickets

C. Anaemia

D. None of these

Answer: A

Watch Video Solution

10. Which of the following is an example of a non reducing sugar?

A. Sucrose

B. Lactose

C. Maltose

D. None

Answer: A

Watch Video Solution

11. Which of the following is not an essential amino acid?

A. Glycine

B. Lysine

C. Phenyl alanine

D. Valine

Answer: A

Watch Video Solution

12. Which of the following vitamins is water soluble

A. Vitamin 'E'

B. Vitamin 'K'

C. Vitamin 'B'

D. Vitamin 'A'

Answer: C

Watch Video Solution

13. Vitamin B_1 is:

A. Riboflavin

B. Cobalamin

C. Thiamine

D. Pyridoxine

Answer: C

Watch Video Solution

14. निम्नलिखित में से कोण सा कित्रिम मधुरक हैं ?

A. Sucrose

B. Glucose

C. Fructose

D. Maltose

Answer: C

Watch Video Solution

15. Rickets is caused by the deficiency of —

A. Vitamin D

B. Vitamin C

C. Vitamin A

D. Vitamin B

Answer: A

Watch Video Solution

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

A. Maintain pH

B. Catalyse biochemical process

C. provide immunity

D. transport oxygen

Answer: B

Watch Video Solution

17. The disaccharide present in milk is :

A. sucrose

B. maltose

C. lactose

D. cellulose

Answer: C

Watch Video Solution

18. Which base is present in RNA but not in DNA?

A. Uracil

B. Cytosine

C. Guanine

D. Thymine

Answer: A

Watch Video Solution

19. In aqueous solution amino acids moslty exit as

A. cation

B. anion

C. dianion

D. zwitter ion

Answer: D

Watch Video Solution

20. 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

21. Which of the following is a polysaccharide ?

A. Maltose

B. Sucrose

C. Fructose

D. Cellulose

Answer: D

Watch Video Solution

22. The Vitamin responsible for the coagulation of blood is :

A. Vitamin B_1

B. Vitamin D

C. Vitamin K

D. Vitamin C

Answer: C

Watch Video Solution

23. Which one is the complimentary base of adenine in one strand to that in the other strand of DNA?

A. Cytosine

B. Guanine

C. Uracil

D. Thymine

Answer: D

Watch Video Solution

24. Ribose is a

A. monosaccharide

B. polysaccharide

C. polypeptide

D. disaccharide

Answer: A

Watch Video Solution

25. In which of the following order base, phosphate and sugar are arranged in the nucleotide of DNA?

A. Base-phosphate-sugar

B. Base-sugar-phosphate

C. Phosphate-base-sugar

D. Sugar-base-phosphate

Answer: B

Watch Video Solution

26. Glycogen is an example of:

A. Polysaccharide

B. Disaccharide

C. Monosaccharide

D. Protein

Answer: A

Watch Video Solution

27. Which of the following amino acids is not optically active

A. Alanine

B. Glycine

C. Valine

D. Leucine

Answer: B

Watch Video Solution

28. Which of the following acids is a vitamin?

A. Aspartic acid

B. Adipic acid

C. Ascorbic acid

D. Saccharic acid

Answer: C

Watch Video Solution

29. The reason for the double helical structure of DNA is due to the presence of

A. van der Waals' forces

B. dipole-dipole interactions

C. hydrogen bonding

D. London forces

Answer: C

Watch Video Solution

30. Which of the following is not present in RNA?

A. Uracil

B. Thymine

C. Ribose

D. Phosphate

Answer: B

Watch Video Solution

Revision Exercises Objective Questions Multiple Choice Questions Passage Based Questions

1. Carbohydrates play a vital role in our daily life. These are classified as monosacchrides, oligosaccharides and polysaccharides depending upon the number of smaller molecules on hydrolysis. It has been suggested that monosaccharides do not have a free aldehyde or ketonic group but have cyclic hemiacetal or hemiketal structures. D - Glucose exists in two isomeric stereoisomeric forms : $\alpha - D -$ glucose and $\beta - D$ glucose which have different positions of H and OH groups on first carbon atom. Disaccharides such as sucuose, maltose, lactose, etc., give monosaccharides on hydrolysis. Polysaccharides are starch, cellulose, glycogen, having molecular formula $(C_6H_{10}O_5)_n$.

What is the name of the linkage which holds together monosaccharide units in sucrose?

Watch Video Solution

2. Assertion: Glucose does not gives 2,4-DNP test.

Reason: Glucose exists in cyclic hemiacetal form

Watch Video Solution

3. Carbohydrates play a vital role in our daily life. These are classified as monosacchrides, oligosaccharides and polysaccharides depending upon the number of smaller molecules on hydrolysis. It has been suggested that monosaccharides do not have a free aldehyde or ketonic group but have cyclic hemiacetal or hemiketal structures. D - Glucose exists in two isomeric stereoisomeric forms : $\alpha - D -$ glucose and $\beta - D$ glucose which have different positions of H and OH groups on first carbon atom. Disaccharides such as sucuose, maltose, lactose, etc., give monosaccharides on hydrolysis. Polysaccharides are starch, cellulose, glycogen, having molecular formula $(C_6H_{10}O_5)_n$.

Name the water insoluble component of starch.

Watch Video Solution

4. which of the following disaccharides will give two molecules of glucose on hydrolysis ?

Watch Video Solution

5. When glucose is heated with methanol in the presence of dry HCl gas, it forms one methyl glycoside.

Watch Video Solution

6. Nucleic acids are the biopolymers in which the repeating structural monomeric units is a nucleotide. The nucleotides structural monomeric unit is a nucleotide. The nucleotides consist of three components, a pentose sugar $(D-(0)-\quad \text{ribose or 2 - deoxy} \quad -D-(\ -\ )-\text{ribose, heterocyclic base})$, (purines i.e., adenine and guanine and pyrididines i.e., thymine, cytosine

and uracil) and phosphoric acid. Sugar - base constitutes nucleosides. the two types of nucleic acids are DNA and RNA. Nucleic acids play significant role in replication and protein synthesis.

Name the base which is present in RNA but not in DNA.

Watch Video Solution

7. Nucleic acids are the biopolymers in which the repeating structural monomeric units is a nucleotide. The nucleotides structural monomeric unit is a nucleotide. The nucleotides consist of three components, a pentose sugar $(D-(0)-\quad \text{ribose or 2 - deoxy} \quad -D-(\ -\ )-\text{ribose, heterocyclic base})$, (purines i.e., adenine and guanine and pyrididines i.e., thymine, cytosine and uracil) and phosphoric acid. Sugar - base constitutes nucleosides. the two types of nucleic acids are DNA and RNA. Nucleic acids play significant role in replication and protein synthesis.

What type of linkage hold together monomers of DNA?

Watch Video Solution

8. Nucleic acids are the biopolymers in which the repeating structural monomeric units is a nucleotide. The nucleotides structural monomeric unit is a nucleotide. The nucleotides consist of three components, a pentose sugar $(D-(0)-\quad \text{ribose or 2 - deoxy} \quad -D-(\ -\ )-\text{ribose, heterocyclic base})$, (purines i.e., adenine and guanine and pyridines i.e., thymine, cytosine and uracil) and phosphoric acid. Sugar - base constitutes nucleosides. the two types of nucleic acids are DNA and RNA. Nucleic acids play significant role in replication and protein synthesis.

How are nucleic acids, nucleosides and nucleotides related?

Watch Video Solution

9. Nucleic acids are the biopolymers in which the repeating structural monomeric units is a nucleotide. The nucleotides structural monomeric unit is a nucleotide. The nucleotides consist of three components, a pentose sugar $(D-(0)-\quad \text{ribose or 2 - deoxy} \quad -D-(\ -\ )-\text{ribose, heterocyclic base})$

, (purines i.e., adenine and guanine and pyridines i.e., thymine, cytosine and uracil) and phosphoric acid. Sugar - base constitutes nucleosides. the two types of nucleic acids are DNA and RNA. Nucleic acids play significant role in replication and protein synthesis.

If one of the strands of DNA has the following sequence of bases in the 5' - 3' direction.

$5' - A - G - T - C - A - A - G - 3'$

Which base is closest to the 5' - end in the complementary strand?

Watch Video Solution

10. Nucleic acids are the biopolymers in which the repeating structural monomeric units is a nucleotide. The nucleotides structural monomeric unit is a nucleotide. The nucleotides consist of three components, a pentose sugar

$(D - (0) - \quad \text{ribose or 2 - deoxy} \quad - D - (\ -\ ) - \text{ribose, heterocyclic base})$

, (purines i.e., adenine and guanine and pyrididines i.e., thymine, cytosine and uracil) and phosphoric acid. Sugar - base constitutes nucleosides. the two types of nucleic acids are DNA and RNA. Nucleic acids play significant

role in replication and protein synthesis.

Adenine and thymin are joined by stronger hydrogen bonds than guanine and cytosin. Is it true or false?

Watch Video Solution

Revision Exercises Objective Questions Multiple Choice Questions Assertion Reason Questions

1. Assertion : Glycosides are hydrolysed in acidic conditions.

Reason : Glycosides are acetals

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

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

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

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: C

Watch Video Solution

3. Assertion: Fats and oils are one of the main sources of food for all living organisms.

Reason : Lipids act as energy reserves.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

4. Assertion: The newly formed RNA dictates the synthesis of protein at the ribosome.

Reason : DNA has a double helical structure while RNA has single stranded structure.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: B

 Watch Video Solution

5. Assertion: Uracil is present in DNA.

Reason : DNA undergoes replication.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: D

Watch Video Solution

6. Statement I: Cellulose is not diagested by human beings.

Statement II: Cellulose is a polymer of `beta-D-flucose.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: B

Watch Video Solution

7. Assertion: Vitamin A and D are not absorbed in the body unless fat digestion and absorption proceed normally.

Reason : Vitamin A and D are fat soluble vitamins.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

8. Assertion: Except glycine, all naturally occurring α-amino acids are optically active.

Reason : All α-amino acids occurring naturally except glycine has at least one asymmetric carbon.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

9. Assertion :- Insulin is water soluble hormone.

Reason:- Insulin is an example of globular protein.

A. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

10. 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. Assertion and reason both are correct statements and reason is correct explanation for assertion.

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

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

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

Answer: A

Watch Video Solution

Revision Exercises Objective Questions Very Short Answer Questions

1. What is mutarotation?

Watch Video Solution

2. What is the basic difference between proteins and polypeptides?

Watch Video Solution

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

Watch Video Solution

4. Name the enzyme which is used to cure the heart disease.

Watch Video Solution

5. The enzyme defective in albinism is

Watch Video Solution

6. Name on fibrous and one globular protein.

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

9. Peptide linkage.

Watch Video Solution

10. Why is cellulose not used as a nutrient in the human gut ?

Watch Video Solution

11. What type of sugar molecule is present in DNA ?

Watch Video Solution

12. The sugar component in RNA molecule is :

Watch Video Solution

13. Write the chemical name of vitamin B_{12}.

Watch Video Solution

Watch Video Solution

14. Which vitamin deficiency causes pernicious anaemia?

Watch Video Solution

15. What is the chemical name of vitamin B_1 and which disease is caused by its deficiency?

Watch Video Solution

16. What is the chemical name of vitamin A and which disease is caused by its deficiency?

Watch Video Solution

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

Watch Video Solution

18. the enzyme that converts glucose into alcohol is

Watch Video Solution

19. Enzyme which hydrolyses starch to maltose is

Watch Video Solution

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

Watch Video Solution

21. Which of the components of starch is water soluble ?

Watch Video Solution

22. Which component of starch is a branched polymer of $\alpha -$ glucose and insoluble in water ?

Watch Video Solution

23. Nitrogenous bases present in DNA

Watch Video Solution

24. Which amino acid is optically inactive?

Watch Video Solution

25. Deficiency of which of the vitamin in causes rickets?

Watch Video Solution

26. Name the disease caused by deficiency of vitamin-K.

Watch Video Solution

27. Reducing sugar

Watch Video Solution

28. Write the structure of the product obtained when glucose is oxidised with nitric acid .1

Watch Video Solution

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

Watch Video Solution

30. Write the name of linkage joining two amino acids.

Watch Video Solution

31. What are the products of hydrolysis of lactose?

Watch Video Solution

32. What are the hydrolysis products of sucrose ?

Watch Video Solution

33. What are the products of hydrolysis of maltose?

Watch Video Solution

Revision Exercises Objective Questions Short Answer Questions

1. What are monosaccharides? Draw open chain structure of aldopentose and aldohexose. How many asymmetric carbons are present in each?

Watch Video Solution

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

Watch Video Solution

3. Distinguish between

(i) a globular protein and fibrous protein

(ii) α-glucose and β-glucose

(iii) primary and secondary structure of protein.

(iv) DNA and RNA

(v) Nucleoside and nucleotide

Watch Video Solution

4. What type of forces are responsible for the formation of

(a) Cross linking of polypeptide chains

(b) α-helix formation

(c) β-sheet structure.

Watch Video Solution

5. What are enzymes? How do enzymes differ from ordinary chemical catalysts? Comment on the specificity of enzyme action. What is the most important reason for their specificity?

Watch Video Solution

6. Name two components of starch. How do they differ from each other structurally?

Watch Video Solution

7. (a) What are essential amino acids?

(b) A carbohydrate $(C_{12}H_{22}O_{11})$ is boiled with dil.H_2SO_4 in alcoholic solution to form two hexoses with the same chemical formula. Identify the carbohydrate and the two hexoses. Give necessary chemical equations.

(c) What is denaturation of protein?

Watch Video Solution

8. (a) What are vitamins? Name any two vitamins.

(b) Why vitamin A and C are essential to us? Name one important source of each.

Watch Video Solution

9. (a) List the important structural and functional differences between DNA and RNA.

(b) Draw the structure of β-D-ribose and β-D-2-deoxyribose.

Watch Video Solution

10. (a) What are essential and non-essential amino acids ?

(b) Give chemical name of vitamin-A.

(c) Name the enzyme which converts glucose into ethanol.

Watch Video Solution

11. (a) What is essentially the difference between α-form of glucose and β-form of glucose? What is meant by pyranose structure of glucose?

(b) Describe what you understand by primary and secondary structure of proteins.

Watch Video Solution

12. (a) What is meant by (i) a peptide linkage (ii) a glycosidic linkage?

(b) Name the bases present in RNA. Which one of these is not present in DNA?

Watch Video Solution

13. (a) Write two differences between starch and cellulose.

(b) Write one function and two sources of vitamin D.

Watch Video Solution

14. (a) Name the metal present in Vitamin-B_{12}.

(b) What is Zwitter ion?

(c) Name the metal present in green leaves.

Watch Video Solution

15. Define the following terms:

(a) Anomers

(b) Peptide bond

(c) Reducing sugar.

Watch Video Solution

Watch Video Solution

16. (a) What is denaturation of proteins?

(b) What type of bonds hold a DNA double helix together?

(c) Which enzyme is present in saliva? What is its function?

Watch Video Solution

17. (a) What is meant by

(i) peptide linkage (ii) biocatalysts?

(b) Write any two reactions of glucose which cannot be explained by the open chain structure of glucose molecule.

Watch Video Solution

18. (a) What are globular and fibrous proteins? Give examples.

(b) What is glycosidic linkage? Name the disease caused by the deficiency of vitamin D. Give one function of vitamin D.

Watch Video Solution

19. (a) Write Haworth structure, of "Lactose".

(b) (i) What are non-essential amino acids?

(ii) Write Zwitter ion structure of "glycine".

(c) Name the nitrogenous base present in RNA but not in DNA.

Watch Video Solution

20. (a) Name one fibrous protein and one globular protein.

(b) What are the products obtained on hydrolysis of sucrose?

(c) What is the structural feature characterising reducing sugars?

Watch Video Solution

21. (a) Give one example each of disaccharide and a polysaccharide.

(b) What are three types of RNA molecules which perform different functions?

Watch Video Solution

22. (a) (i) Name the water insoluble component of starch.

(ii) Mention one water soluble vitamin.

(iii) Is Lysine an essential or non-essential amino acid?

(b) Write the structure of maltose.

Watch Video Solution

23. (a) Write the Haworth structure of maltose.

(b) What is peptide linkages? How many peptide bonds are present in a tetrapeptide?

(c) Name the hormone which regulates blood sugar level in the body.

Watch Video Solution

24. (i)Deficiency of which vitamin causes rickets ?

(ii) Given an example for each of fibrous protein and globular protein. (iii)

Write the product formed on reaction of D-glucose with Br_2 water.

Watch Video Solution

25. Distinguish between the primary, secondary and tertiary structure of protein.

Watch Video Solution

26. (a) What is glycosidic linkage?

(b) What are nucleic acids? Mention their two important biological functions.

Watch Video Solution

27. Write the full form of DNA and RNA. Name the specific nitrogenous bases present in DNA and RNA.

Watch Video Solution

28. Give the reaction of glucose with Tollen's reagent and Fehling's solution.

Watch Video Solution

29. (i) What are nucleosides and nucleotides?

(ii) Name one water soluble vitamin.

Watch Video Solution

30. (a) What are zwitter ions?

(b) What is denaturation of proteins?

(c) What is meant by inversion of sugar?

(d) What is mutarotation?

Watch Video Solution

31. What happens when glucose reacts with the following :

(a) HI, heat

(b)NH_2OH

(c) Br, water

Watch Video Solution

32. (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

33. (a) What are essential amino acids ?

(b) Give chemical name of vitamin-A.

Watch Video Solution

34. What is meant by denaturation of protein? Differentiate between fibrous proteins and globular proteins.

Watch Video Solution

35. Name the three major classes of carbohydrates and give the distinctive characteristic of each class.

Watch Video Solution

36. Define the following as related to proteins :

(i) Peptide linkage

(ii) Primary structure

(iii) Denaturation

Watch Video Solution

37. (a) What is polysaccharide? Explain with an example.

(b) What is meant by primary structure of proteins?

Watch Video Solution

38. (a) Name the vitamins whose deficiency is responsible for

(i) night blindness,

(ii) poor coagulation of blood.

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

Watch Video Solution

39. (c) What is the difference between amylose and amylopectin?

(d) What is a glycosidic linkage?

(e) Name the base that is found in RNA only.

Watch Video Solution

40. Distinguish between the following:

(i) A globular protein and a fibrous protein.

(ii) Primary and secondary structure of proteins.

Watch Video Solution

41. (a) (i) What is Zwitter ion?

(ii) Name a source of vitamin E.

(iii) Name the disease caused due to deficiency of vitamin K in our body.

Watch Video Solution

42. (i) Write the name of two monosaccharides obtained on hydrolysis of lactose sugar.

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

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

Watch Video Solution

43. (a) Explain the terms:

(i) Zwitter ion

(ii) Oligosaccharides

Watch Video Solution

44. (b) What are the different types of RNA found in the cells of an organism? State the functions of each type.

Watch Video Solution

45. What is denaturation of proteins? Mention four different types of forces that stabilize protein structure.

Watch Video Solution

46. Define the terms:

(i) Biomolecules

(ii) Carbohydrates

(iii) Reducing Sugars.

Watch Video Solution

47. (a) Fresh tomatoes are a better source of vitamin C than those which have been stored for some time. Why?

(b) Represent sucrose and $\alpha - D -$ maltose in the form of Haworth structures.

Watch Video Solution

48. (a) What are zwitter ions? Give examples.

(b) Give chemical name of vitamin-C.

Watch Video Solution

49. (a) What are reducing sugars?

(b) What is the effect of denaturation on the structure of proteins?

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

Watch Video Solution

50. Differentiate between the following:

(i) Amylose and Amylopectin.

(ii) Peptide linkage and Glycosidic linkage

(iii) Fibrous proteins and Globular proteins.

Watch Video Solution

51. Write chemical reaction to show that open structure of D-glucose contains the following:

(i) Straight chain

(ii) Five alcohol groups

(iii) Alsehyde as carbonyl group

Watch Video Solution

52. Define the following with a suitable example in each :

(i) Oligosaccharides

(ii) Denaturation of protein

(iii) Vitamins

Watch Video Solution

53. Write the reactions involved when D-glucose is treated with the following reagents:

(i) Br_2 water

(ii) $H_2N - OH$

(iii) $(CH_3CO)_2O$

Watch Video Solution

54. How are vitamins classified? Mention the chief sources of vitamins A and C.

Watch Video Solution

55. (a) Name two water soluble vitamins, their sources and the diseases caused by their deficiency in diet.

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

58. (a) What is meant by

(i) peptide linkage

(ii) pyranose structure of glucose.

(b) Write the main structural differences between DNA and RNA. Of the four bases present, name those which are common to both DNA and RNA.

Watch Video Solution

59. What is essentially the difference between α-glucose and β-glucose ? What is meant by pyranose structure of glucose ?

Watch Video Solution

60. Define the following as related to proteins :

(i) Peptide linkage

(ii) Primary structure

(iii) Denaturation

Watch Video Solution

61. Define the following terms:

(i) Glycosidic linkage

(ii) Invert sugar

(iii) Oligosaccharides

Watch Video Solution

62. (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

63. (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

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

(b) Amino acids shown amphoteric behaviour. Why ?

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

Watch Video Solution

65. Define the following with an example of each :

(a) Polysaccharides

(b) Denatured protein

(c) Essential amino acids

Watch Video Solution

66. Define the following terms with a suitable example of each:

(a) Anomers

(b) Essential amino acids

(c) Denaturation of protein.

Watch Video Solution

67. Differentiate between the following :

(a) Fibrous protein and globular protein

(b) Essential amino acids and non-essential amino acids.

(c) Amylose and amylopectin.

Watch Video Solution

68. Define the following terms with a suitable example of each:

(a) Tertiary structure of protein

(b) Essential amino acids

(c) Disaccharides

Watch Video Solution

69. Explain what is meant by (i) a peptide linkage, (ii) a glycosidic linkage.

Watch Video Solution

70. What is the difference between a nucleotide and nucleoside ? Give two examples of each with their structure.

Watch Video Solution

Revision Exercises Objective Questions Longanswer Questions

1. (a) Write reactions to show how glucose separately reacts with

(i) NH_2OH

(ii) HNO_3

(iii) ammoniacal $AgNO_3$

(b) What do you understand by

(i) denaturation and

(ii) renaturation of proteins?

(c) Name the deficiency diseases resulting from lack of vitamins A and E in the diet.

Watch Video Solution

2. (a) Name the three major classes of carbohydrates and give an example of each of these classes.

(b) Ans the following :

(i) What type of linkage is responsible for the primary structure of proteins ?

(ii) Name the location where position synthesis occurs in our body.

OR

(a) How are lipids classified ? Given an example of each class.

(b) Explain the following terms :

(i) Mutarotation

(ii) Avitaminosis.

Watch Video Solution

3. 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

Higher Order Thinking Skills Advanced Level Questions With Answers

1. Glucose, Mannose and fructose give identical osazones. Explain

Watch Video Solution

2. What forces are responsible for the stability of α-helix. Why is it also known as 3.6_{13} helix?

Watch Video Solution

3. Write the structure of alanine at pH = 2 and pH = 10.

Watch Video Solution

4. Glucose shows mutarotation when it dissolves in water. The specific rotation of α-D glucose and β-D- glucose is $+112.2^{\circ}$ and $+18.7^{\circ}$

respectively. Calculate the percentage of two anomers present at equilibrium mixture with a specific rotation of $+52.6^{\circ}$.

Watch Video Solution

5. The Chargoff's rule says that DNA contains equal amounts of guanine and cytosine and also equimolar amounts of adenine and thymine as :

$G = C$ and $A = T$

(a) Does Chargoff's rule imply that equal amounts of guanine and adenine are present in DNA ?

(b) Does Chargoff's rule imply that the sum of purine residues equals the sum of pyrimidine residues i.e. does $A + G = C + T$?

(c) Does Chargoff's rule apply only to double stranded DNA or would it apply to each individual strand if the double helical strand were separated into two complementary strands ?

Watch Video Solution

6. Explain: On electrolysis in acidic solution, glycine migrates towards cathode while in alkaline solution, it migrates towards anode.

Watch Video Solution

7. Glucose does not give

Watch Video Solution

8. The K_α and K_β values of a-amino acids are very low. Explain.

Watch Video Solution

9. Give one example each of α-amino acid which is achiral and α-amino acid having more than one chiral centre.

Watch Video Solution

10. (a). Name the smallest aldose which forms cyclic hemiacetal and the functional groups are involved in its formation.

(b). What is invert sugar ?

(c). Calculate the specific rotation of invert sugar. Given,

$|\alpha|_{D}\text{of}D-glu\cos e=52.7^{\circ}$

$|\alpha|_{D}\text{of}D-\text{uc}\rightarrow se=\ -92.4^{\circ}$

(d). Give the mechanism of mutarotaion of $\beta-D-$ gluoco-pyranose in (i) $aq.\ H^{\oplus}$ and (ii) $\overset{\Theta}{O}H$.

(e). Why is the mutaraotation faster in the presence of $2-$ pyridinol?

Watch Video Solution

11. Do the anomers of α-D-glucose have specific rotations of the same magnitude but opposite signs?

Watch Video Solution

12. A compound A $(C_6H_{12}O_6)$ is oxidised by bromine water into monobasic acid. It also reduces Tollen's reagent and reacts with HCN to give a compound (B) which on hydrolysis gives a compound (C). On treating C with HI/red P, n-heptanoic acid is obtained. Compound A on treatment with excess phenyl hydrazine gave D-glucosazone. Name the compound A and draw its cyclic form.

Watch Video Solution

13. The Fischer projection of D-glucose is

(i) Write Fischer projection for L-glucose.

(ii) Give the product of reaction of L-glucose with Tollen's reagent.

View Text Solution

14. If one of the strands of DNA has the following sequence of bases running in the $5' - 3'$ direction :

$5' - G - G - A - C - A - A - T - C - T - G - C - 3'$

(i) What is the sequence of bases in the complementary strand?

(ii) Which base is closest to the $5'$-end in the complementary strand.

View Text Solution

Competition File Objective Type Questions A Multiple Choice Questions

1. Glucose and fructose are

A. structural isomers

B. functional isomers

C. anomers

D. geometrical isomers.

Answer: B

Watch Video Solution

2. Glucose is :

A. aldopentose

B. aldohexose

C. ketopentose

D. ketohexose.

Answer: B

Watch Video Solution

3. The monomer unit of starch are:

A. α-glucose

B. β-glucose

C. pyranose

D. galactose.

Answer: A

Watch Video Solution

4. Which of the following is the sweetest sugar?

A. Glucose

B. Fructose

C. Maltose

D. Sucrose.

Answer: B

Watch Video Solution

5. Maltose is made up of :

A. α-D-glucose

B. D-fructose

C. α-D-glucose and β-D-glucose

D. glucose and fructose.

Answer: A

Watch Video Solution

6. Invert sugar is mixture of

A. glucose and fructose

B. glucose and lactose

C. glucose and lactose

D. only glucose.

Answer: A

Watch Video Solution

7. Glucose on treatment with sodium amalgam gives

A. n-heptanoic acid

B. Sorbitol

C. gluconic acid

D. glucaric acid

Answer: B

Watch Video Solution

8. Glucose molecule reacts with X number of molecules of phenylhydrazine to yield osazone. The value of X is

A. three

B. two

C. one

D. four.

Answer: A

Watch Video Solution

9. Callulose is not digestible by human beings due to the absence of cellulose hydrolysing enzyme called

A. urease

B. cellulase

C. zymase

D. invertase

Answer: B

Watch Video Solution

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

A. enantiomers

B. geometrical isomers

C. epimers

D. anomers

Answer: D

Watch Video Solution

11. Complete hydrolysis of cellulose gives:

A. L-glucose

B. D-fructose

C. D-ribose

D. D-glucose

Answer: D

Watch Video Solution

12. 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 does not give 2, 4-DNP test

D. It is present in furanose form.

Answer: D

Watch Video Solution

13. The amino acids are the end-products of the digestion of

A. fats

B. lipids

C. proteins

D. enzymes.

Answer: C

Watch Video Solution

14. The sequence in which amino acids are arranged in a protein molecule refers to its-

A. primary structure

B. secondary structure

C. tertiary structure

D. tetrahedral structure

Answer: A

Watch Video Solution

15. The bond that stabilizes the secondary structure of proteins is

A. Covalent bond

B. Sulphur linkage

C. Hydrogen bond

D. Ionic bond.

Answer: C

Watch Video Solution

16. Which of the following is a protein?

A. Glycogen

B. Amylopectin

C. Keratin

D. Lecithin.

Answer: C

Watch Video Solution

17. Which amino acid has no asymmetric carbon?

A. Histidine

B. Glycine

C. α-Alanine

D. Threonin

Answer: B

Watch Video Solution

18. Which statement is incorrect about the peptide bond?

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

B. Spectroscopic analysis shows planar structure of CO-NH group

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

D. None of the above.

Answer: A

Watch Video Solution

19. In basic medium, alanine exists as

A. $\begin{array}{l} CH_3CH-NH_3^+ \\ \quad\quad | \\ \quad\quad COOH \end{array}$

B. $\begin{array}{l} CH_3CH-NH^- \\ \quad\quad | \\ \quad\quad COOH \end{array}$

C. $\begin{array}{l} CH_3CH-NH_2 \\ \quad\quad | \\ \quad\quad COO^- \end{array}$

D. $CH_3CH - NH_3^+$
$|$
COO^-

Answer: C

Watch Video Solution

20. Which of the following is not an essential amino acid?

A. Lysine

B. Glysine

C. Phenylalanine

D. Valine

Answer: B

Watch Video Solution

21. Denaturation of protein leads to loss of its biological activity by :-

A. loss of primary structure

B. loss of primary and secondary structure

C. loss of secondary and tertiary structure

D. formation of amino acids.

Answer: C

Watch Video Solution

22. In which of the following pair, both the proteins are same type, fibrous or globular?

A. myosin, albumin

B. insulin, collagen

C. keratin, fibroin

D. albumin, myosin

Answer: C

Watch Video Solution

23. The chemical messengers produced in ductless glands are called:

A. Lipids

B. Cellular membrane

C. Hormones

D. Antibodies

Answer: C

Watch Video Solution

24. Which of the following hormones control the homeostasis of glucose ?

A. thyroxine

B. oxytocin

C. insulin

D. cortisone

Answer: C

Watch Video Solution

25. Deficiency of vitamin D leads to disease

A. Rickets

B. Beri-beri

C. Scurvy

D. Night-blindness

Answer: A

Watch Video Solution

26. Night-blindness may be caused by the deficiency of vitamin

A. A

B. B

C. C

D. D

Answer: A

Watch Video Solution

27. Vitamin A is called:

A. Ascorbic acid

B. Retinol

C. Calciferol

D. None of these

Answer: B

Watch Video Solution

28. The only vitamin with metal atom in it is

A. Vitamin A

B. Vitamin K

C. Vitamin B_{12}

D. Vitamin E.

Answer: C

Watch Video Solution

29. Enzymes are regarded as

A. biocatalysts

B. activators

C. messengers

D. antibodies

Answer: A

Watch Video Solution

30. 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

31. Which of the following hormones is an amino acid derivative?

A. Oxytocin

B. Estrone

C. Adrenaline

D. Vasopressin

Answer: C

Watch Video Solution

32. The best source of vitamin C is :

A. cereals

B. egg yolk

C. citrus fruits

D. milk Nucleic acids

Answer: C

Watch Video Solution

33. Nucleic acids are polymers of

A. nucleosides

B. globnulins

C. nucleons

D. nucleotides

Answer: D

Watch Video Solution

34. The three dimensional structure of DNA was elucidated

A. James Watson

B. M. Wilkins

C. Dalton

D. Franklin

Answer: A

Watch Video Solution

35. Which of the following bases is not present in DNA

A. Adenine

B. Guanine

C. Uracil

D. Thymine

Answer: C

Watch Video Solution

36. The chemical change in DNA molecule that could lead to synthesis of protein with an altered amino acid sequence is called

A. Replication

B. Lipid formation

C. Cellular membrane

D. Mutation.

Answer: D

Watch Video Solution

37. In nucleic acid, corresponding nucleotides are linked together by -

A. peptide linkage

B. phosphate group

C. glycosidic linkage

D. hydrogen bonds

Answer: B

Watch Video Solution

38. The relationship between the nucleotide triplets and the amino acid is called.

A. Gene

B. Genetic code

C. Replication

D. Enzymes

Answer: B

Watch Video Solution

39. Mutation in DNA occurs due to changes in the sequence of

A. nitrogeneous bases

B. ribose units

C. phosphate units

D. hydrogen bonds

Answer: A

Watch Video Solution

40. Chargaff' a rule states that in an organism:

A. amount of adenine (A) is equal to that of thymine (T) and the amount of guanine (G) is equal to that of cytosine (C).

B. Amount of adenine (A) is equal to that of guanine (G) and the amount of thymine (T) is equal to that of cytosine (C)

C. Amount of adenine (A) is equal to that of cytosine (C) and the amount of thymine (T) is equal to that of guanine (G)

D. Amount of all bases are equal.

Answer: A

Watch Video Solution

41. Which of the following statement is not correct?

A. Cytosine and thymine are pyrimidines

B. DNA differs from RNA in sugar as well as nitrogenous base

C. In RNA, heterocylic amine base is bonded to C-1' of sugar and the phosphoric acid is bonded to C-5' sugar position

D. In double helix structure of DNA, thymine can bond to cytosine by two hydrogen bonds

Answer: D

Watch Video Solution

42. The bond formed as the result of dehydration synthesis reaction between two nucleotides is called as

A. glycosidic bond

B. aminoester bond

C. phosphodiester bond

D. disulphide linkage

Answer: C

Watch Video Solution

43. The number of hydrogen bonds between adenine and thymine in DNA molcule are

A. 1

B. 2

C. 3

D. 0

Answer: B

Watch Video Solution

44. Which of the following gives maximum energy in metabolic process?

A. Proteins

B. Vitamins

C. Lipids

D. Carbohydrates

Answer: C

Watch Video Solution

45. Phospholipids are esters of glycerol with

A. three carboxylic acid residues

B. two carboxylic acid residues and one phosphate group

C. one carboxylic acid residue and two phosphate groups

D. three phosphate groups.

Answer: B

Watch Video Solution

Competition File Objective Type Questions B Multiple Choice Questions

1. Which of the following is an amine hormone ?

A. Oxytocin

B. Insuline

C. Progesterone

D. Thyroxine

Answer: D

Watch Video Solution

2. In DNA, the complementary bases are :

A. adenine and thymine, guanine and cytosine

B. adenine and thymine, guanine and uracil

C. adenine and guanine, thymine and cytosine

D. uracil and adenine, cytosine and guanine

Answer: A

Watch Video Solution

3. Which of the following hormones contains iodine

A. Testosterone

B. Adrenaline

C. Thyroxine

D. Insulin

Answer: C

Watch Video Solution

4. If one strand of DNA has the sequence ATGCTTGA, the sequence in the complimentary strand would be

A. TCCGAACT

B. TACGTAGT

C. TACGAACT

D. TAGCTAGT

Answer: C

Watch Video Solution

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

A. $(+)$ Maltose

B. $(-)$ Fructose

C. $(+)$ Sucrose

D. Lactose

Answer: C

Watch Video Solution

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

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

B. $(+)$ Lactose is a $\beta-$ 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 exihibit mutarotation.

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

Answer: C

Watch Video Solution

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

A. $(+)$ Maltose

B. $(-)$ Fructose

C. $(+)$ Sucrose

D. Lactose

Answer: C

Watch Video Solution

8. The linkage between the two monosaccharide units in lactose is

A. C_1 of $\beta - D -$ glucose and C_4 of $\beta - D -$ galactose

B. C_1 of $\beta - D -$ galactose and C_4 of $\beta - D -$ glucose

C. C_1 of $\alpha - D -$ galactose and C_4 of $\beta - D -$ glucose

D. C_1 of $\beta - D -$ galactose and C_4 of $\alpha - D -$ glucose

Answer: B

View Text Solution

9. A basic amino acid among the following is

A. glycine

B. valine

C. proline

D. histidine

Answer: D

Watch Video Solution

10. Glucose on oxidation with bromine water gives

A. gluconic acid

B. tartaric acid

C. saccharic acid

D. mesooxalic acid

Answer: A

Watch Video Solution

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

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

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

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

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

Answer: B

Watch Video Solution

12. Deficiency of vitamin B_1 causes the disease :

A. convulsions

B. beri-beri

C. cheilosis

D. sterility

Answer: B

Watch Video Solution

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

A. Thyroxin

B. Insulin

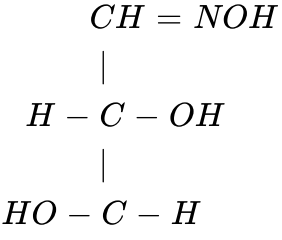
C. Adrenaline

D. Estradiol

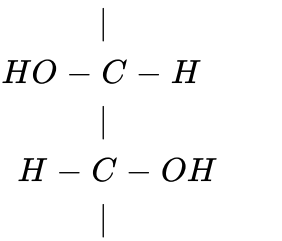
Answer: C

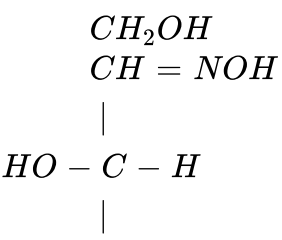
Watch Video Solution

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

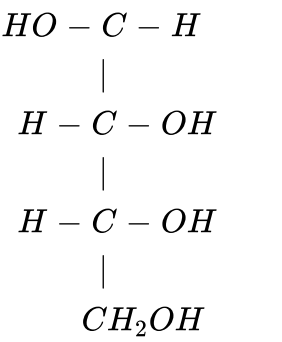


A.

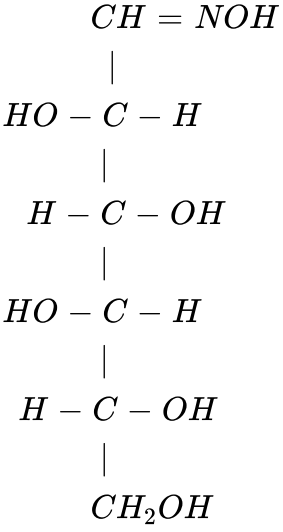




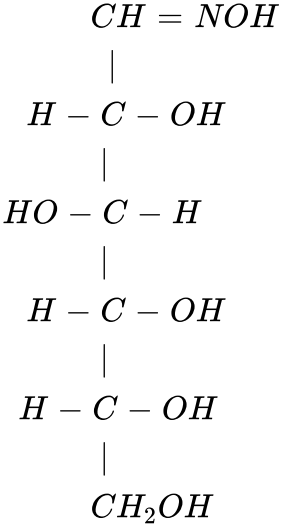
B.



C.



D.



Answer: D

Watch Video Solution

15. Cheilosis and digestive disorders are due to the deficiency of

A. vitamin A

B. thiamine

C. riboflavin

D. ascorbic acid

Answer: C

Watch Video Solution

16. Glucose does not react with :

A. Hydroxylamine

B. Conc. HNO_3

C. acetic anhydride

D. sodium bisulphate

Answer: D

Watch Video Solution

17. The correct statement regarding RNA and DNA, respectively is :

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

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

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

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

Answer: D

Watch Video Solution

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

A. peptide bond

B. dative bond

C. α-glycosidic bond

D. β-glycosidic bond

Answer: A

Watch Video Solution

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

A. Glucose

B. Sucrose

C. Maltose

D. Lactose

Answer: B

Watch Video Solution

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

A. Amino acids $\rightarrow$ Proteins $\rightarrow$ DNA

B. DNA $\rightarrow$ Carbohydrates $\rightarrow$ Proteins

C. DNA $\rightarrow$ RNA $\rightarrow$ Proteins

D. DNA $\rightarrow$ RNA $\rightarrow$ Carbohydrates

Answer: C

Watch Video Solution

21. Which of the following statements is not correct?

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

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

C. Denaturation makes the proteins more active.

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

Answer: C

Watch Video Solution

22. The difference between amylose and amylopectin is

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

B. amylose have 1 $\rightarrow$ 4 α-linkage and 1 $\rightarrow$ 6 β-linkage

C. amylopectin have 1 $\rightarrow$ 4 α-linkage and 1 $\rightarrow$ 6 β-linkage

D. amylose is made up of glucose and galactose

Answer: A

Watch Video Solution

23. Enzymes that utilize ATP in phosphate transfer require an alkaline erath metal (M) as the cofactor M is

A. Sr

B. Be

C. Mg

D. Ca

Answer: C

Watch Video Solution

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

A. lysine

B. valine

C. leucine

D. alanine

Answer: D

Watch Video Solution

Competition File Objective Type Questions B Multiple Choice Questions Jee Main Other State Boards For Engineering Entrance

1. The tripeptide is written as Glycine-Alanine-Glycine. The correct structure of the tripeptide is

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

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

A. $-OH$ and $-COOH$

B. $-CHO$ and $-COOH$

C. 

D. $-OH$ and $-CHO$

Answer: C

Watch Video Solution

3. Biuret test is not given by :

A. Urea

B. Proteins

C. Carbohydrates

D. Polypeptides

Answer: C

Watch Video Solution

4. Lactose is made of

A. $\alpha - D -$ glucose only

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

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

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

Answer: C

Watch Video Solution

5. α-maltose consists of

A. one α-D-glucopyranose unit and one

B. β-D- glucopyranose unit with 1-2 glycosidic linkage

C. two α-D-glucopyranose units with 1-4 glycosidic linkage

D. two β-D-glucopyranose units with 1-4 glycosidic linkage

Answer: D

View Text Solution

6. Glucose reacts with Tollen's reagent to give a derivative of

A. monocarboxylic acid

B. dicarboxylic acid

C. ketone

D. keto acid

Answer: A

Watch Video Solution

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

A. 1 st

B. 2nd

C. 3rd

D. 4th

Answer: B

Watch Video Solution

8. The change in optical rotation with time of freshly prepared solution of sugar is known as :

A. racemisation

B. specific rotation

C. mutarotation

D. tautomerism

Answer: C

Watch Video Solution

9. Which one 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

10. Which of the following compounds can be detected by Molisch's test?

A. Sugars

B. Amines

C. Primary alcohols

D. Nitro compounds

Answer: A

View Text Solution

11. The α- and β-forms of glucose are

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

B. diastereomers of glucose

C. anomers of glucose

D. isomers which differ in the configuration of C-2

Answer: C

View Text Solution

12. Which one of the following is essential for cell wall formation?

A. Starch

B. Glycogen

C. Cellulose

D. Amylose

Answer: C

Watch Video Solution

13. Why sucrose is not a reducing sugar.

A. it is chemically stable

B. it contains no free aldehyde or keto group adjacent to a group

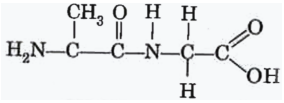
C. it is built up of a fructose unit

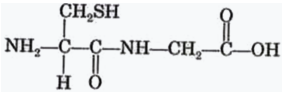
D. it is optically active

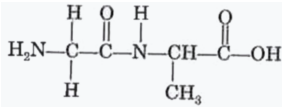
Answer: B

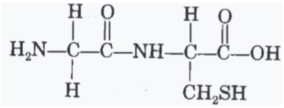
Watch Video Solution

14. The correct structure of the dipeptide gly-ala is

A. 

B. 

C. 

D. 

Answer: C

Watch Video Solution

15. Ribose and 2-deoxyribose can be differentiated by

A. Fehling's reagent

B. Tollen's reagent

C. Barfoed's reagent

D. Osazone formation

Answer: D

Watch Video Solution

16. How many amino acids are present in insulin ?

A. 25

B. 51

C. 20

D. 22

Answer: B

Watch Video Solution

17. 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

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

A. quinoline

B. adenine

C. cytosine

D. thymine

Answer: A

Watch Video Solution

19. The statement that is not correct is

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

B. carbohydrates are optically active.

C. pentaacetate of glucose does not react with hydroxylamine.

D. lactose has glycosidic linkage between C_1 of glucose and C_4 of galactose unit.

Answer: A

View Text Solution

20. Which one of the following is an essential amino acid?

A. Cysteine

B. Serine

C. Tryosine

D. Isoleucine

Answer: D

Watch Video Solution

21. Adenosine is an example of

A. purine base

B. nucleoside

C. nucleotide

D. pyrimidine base

Answer: B

Watch Video Solution

22. Glycogen is

A. a structural polysaccharide

B. structurally similar to amylopectin but extensively branched

C. a polymer of β-D- glucose units

D. structurally very much similar to amylopectin.

Answer: B

View Text Solution

23. Which the list shown below, the correct pair of structures of alanine in pH ranges 2-4 and 9-11 is

I. $H_3N^+CH(CH_3)CO_2H$

II. $H_2NCH(CH_3)CO_2^-$

III. $H_3N^+CH(CH_3)CO_2^-$

IV. $H_2NCH(CH_3)CO_2H$

A. I, II

B. I, III

C. II, III

D. III, IV

Answer: A

Watch Video Solution

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

A. Vitamin E

B. Vitamin K

C. Vitamin C

D. Vitamin D

Answer: C

Watch Video Solution

25. Thiol group is present in

A. cytosine

B. cystine

C. cysteine

D. methionine

Answer: C

Watch Video Solution

26. Glucose on oxidation with bromine water yields gluconic acid. This reaction confirms the presence of

A. six carbon atoms linked in straight chain

B. secondary alcoholic group in glucose

C. aldehyde group in glucose

D. primary alcoholic group in glucose.

Answer: C

Watch Video Solution

27. In double strand helix structure of DNA, heterocyclic base cytosine forms hydrogen bond with

A. adenine

B. guanine

C. purine

D. thyamine

Answer: B

View Text Solution

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

A. Maltose

B. Lactose

C. Sucrose

D. Glucose

Answer: C

Watch Video Solution

29. Which one of the following gives positive Fehling's solution test?

A. Sucrose

B. Glucose

C. Fats

D. Protein

Answer: B

Watch Video Solution

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

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

31. ADP and ATP differ in the number of-

A. phosphate units

B. ribose unit

C. adenine base

D. nitrogen atom

Answer: A

Watch Video Solution

32. Hormones are secreted by ductless glands of human body. Iodine containing hormone is

A. Insulin

B. adrenaline

C. testosterone

D. thyroxine

Answer: D

Watch Video Solution

33. Pick the wrong statement from the following:

A. Consumption of citrus fruits and green leafy vegetables in food prevents scurvy.

B. Deficiency of vitamin B_6pyridoxine) results in convulsions.

C. Sources of vitamin B_1 are yeast, milk, green vegetables and cereals.

D. Deficiency of vitamin D causes Xerophthalmia.

Answer: D

View Text Solution

34. The glycosidic linkage present in sucrose is between

A. C - 1 of α-glucose and C - 2 of β-fructose

B. C- 1 of β-galactose and C-4 of α-glucose

C. C - 1 of α-glucose and C - 4 of α-glucose

D. C - 1 of α-glucose and C - 4 of β-fructose

Answer: A

View Text Solution

35. What is the correct explanation of the non-reducing property of sucrose?

A. α-D-glucopyranose and β-D-fructofuranose are linked via C_2 and C_1 centres respectively.

B. α-D-glucopyranose and β-D-fructofuranose are linked via C_1 and C_2 centres respectively.

C. α-D-glucopyranose and β-D-fructofuranose are linked via C_2 and C_2 centres respectively.

D. α-D-glucopyranose and β-D-fructofuranose are linked via C_3 and C_4 centres respectively.

Answer: B

View Text Solution

36. Two forms of D-glucopyranose, are called

A. diastereomers

B. anomers

C. epimers

D. enantiomers

Answer: B

Watch Video Solution

37. Glycosidic linkage is :

A. $C_1 - C_4 - \beta$ linkage

B. $C_1 - C_6 - \alpha$-linkage

C. $C_1 - C_6 - \beta$-linkage

D. $C_1 - C_4 - \alpha$-linkage

Answer: D

Watch Video Solution

38. Glucose on prolonged heating with HI gives

A. n-Hexane

B. 1-Hexene

C. Hexanoic acid

D. 6-iodohexanal

Answer: A

Watch Video Solution

39. The predominant form of histamine present in human blood is (pKa, Histidine = 6.0)

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

40. In simplified version of nucleic acid chain, nucleotides are joined together by

A. phosphoester linkage

B. phosphodiester linkage

C. phosphodisulphide linkage

D. sulphodiester linkage

Answer: B

Watch Video Solution

41. Prothrombin that helps in clotting of blood, is present in

A. A

B. C

C. B_2

D. K

Answer: D

Watch Video Solution

42. What is an invert sugar ?

A. isorotatory

B. laevorotatory

C. dextrorotatory

D. optically inactive

Answer: B

Watch Video Solution

43. The vitamin which contain aromatic ring is

A. B complex

B. C

C. A

D. K

Answer: D

Watch Video Solution

44. Maltose on treatment with dilute HCl gives

A. D-Glucose and D-Fructose

B. D-Fructose

C. D-Galactose

D. D-Glucose

Answer: D

Watch Video Solution

45. The peptide that gives positive ceric ammonium nitrate and carbylamines tests is:

A. Lys-Asp

B. Ser-Lys

C. Gln-Asp

D. Asp-Gin

Answer: B

Watch Video Solution

46. The number of chiral carbon atom present in open chain and cyclic form of glucose -

A. 4 & 5

B. 5 & 5

C. 4 & 4

D. 5 & 4

Answer: A

Watch Video Solution

47. Which of the following IS INCORRECT about glycogen ?

A. It is a straight chain polymer similar to amylose

B. Only α-linkages are present in the molecule

C. It is present in animal cells

D. It is present in some yeast and fungi

Answer: A

Watch Video Solution

48. Among the following compounds most basic amino acid is :

A. Serine

B. Lysine

C. Histidine

D. Asparagine.

Answer: B

Watch Video Solution

49. The correct structure of histidine in a strongly acidic solution $(Ph = 2)$ is :

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

50. Glucose and fructose can be disntiguished by

A. Fehling's test

B. Barfoed's test

C. Benedict's test

D. Seliwanoff's test

Answer: D

Watch Video Solution

51. Which of the following statements is not true about sucrose?

A. On hydrolysis, it produces glucose and fructose

B. The glycosidic linkage is present between C_1 of α-glucose and C_4 of β-fructose

C. It is also named as invert sugar

D. It is a non-reducing sugar

Answer: B

Watch Video Solution

52. Amylopectin in composed of:

A. α-D-glucose, $C_1 - C_4$ and $C_1 - C_6$ linkages

B. α-D-glucose, $C_1 - C_4$ and $C_2 - C_6$ linkages

C. β-D-glucose, $C_1 - C_4$ and $C_2 - C_6$ linkages

D. β-D-Glucose, $C_1 - C_4$ and $C_1 - C_6$ linkages

Answer: A

Watch Video Solution

53. Which of the following statements is not true about RNA?

A. It has always double stranded α-helix structure

B. It usually does not replicate

C. It is present in the nucleus of the cell

D. It controls the synthesis of protein

Answer: A

Watch Video Solution

54. Which of the following tests cannot be used for identifying amino acids ?

A. Biuret test

B. Xanthoproteic test

C. Barfoed test

D. Ninhydrin test

Answer: C

Watch Video Solution

Competition File Objective Type Questions B Multiple Choice Questions Jee Advanced For Iit Entrance

1. Cellulose upon acetylation with excess acetic anhydride/H_2SO_4 (catalytic) gives cellulose triacetate whose structure is

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

2. The following carbohydrate is

A. a ketohexose

B. an aldohexose

C. an α-furanose

D. an α-pyranose

Answer: B

View Text Solution

3. The structure of $D-(+)-$ glucose is

The structure of $L-(-)-$ glucose is

A. 

B. 

C. 

D. 

Answer: A

View Text Solution

Competition File Objective Type Questions C Multiple Choice Questions

1. Starch is a mixture of

A. amylum

B. amylopectin

C. amylase

D. β-D-glucose

Answer: B::C

Watch Video Solution

2. Which of the following are essential amino acids?

A. Valine

B. Lysine

C. Alanine

D. Serine

Answer: A::B

View Text Solution

3. Which one of the following glycosidic linkages is found in maltose?

A. Maltose

B. Amylose

C. Galactose

D. Sucrose

Answer: A::B::D

Watch Video Solution

4. What are fibrous proteins ? Give examples.

A. myosin

B. albumins

C. collagen

D. fibroin

Answer: A::C::D

Watch Video Solution

5. The substituted pyrimidines are

A. adenine

B. uracil

C. cytosine

D. guanine

Answer: B::C

View Text Solution

6. Which of the following statements is/are correct?

A. Adenine and cytosine are substituted purines

B. the sugar present in DNA nucleoside is deoxyribose

C. RNA contains uracil instead of thymine present in DNA

D. In nucleic acids, a phosphate group is bonded to a hydroxyl group of sugar.

Answer: B::C::D

Watch Video Solution

7. Which of the following statements is/are not true?

A. Collagen in tendons is a globular protein

B. Keratin protein present in hair has a-helix structure

C. Coagulation of albumin present in white of an egg is an example of denaturation of protein.

D. The enzymes are not specific in nature.

Answer: B::D

View Text Solution

8. 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 glycosidic linkages in (X) and (Y) are α and β-respectively

D. The glycosidic linkages in (X) and (Y) are β and α-respectively.

Answer: B::C

View Text Solution

9. Among the following statements about the molecules X and Y, the one(s) which is (are) correct is (are)

A. X and Y are diastereomers

B. X and Y are enantiomers

C. X and Y are both aldohexoses

D. X is a D-sugar and Y is an L-sugar.

Answer: B::C::D

View Text Solution

10. For 'invert sugar', the correct statement(s) is (are)

(Given : specific rotations of (+) - sucrose, (+) - maltose, + 66°, $+140^{\circ}$, -52° and 92° respectively)

A. 'invert sugar' is prepared by acid catalyzed hydrolysis of maltose

B. 'invert sugar' is an equimolar mixture of $D-(+)$glucose and $D-(-)-$ fructose

C. specific rotation of 'invert sugar' is -20°

D. on reaction with Br_2 water, 'invert sugar' forms saccharic acid as one of the products.

Answer: B::C

Watch Video Solution

11. Which of the following statement(s) is(are) true?

A. The two six-membered cyclic hemiacetal forms of D-(+)-glucose are called anomers.

B. Hydrolysis of sucrose gives dextrorotatory glucose and laevorotatory fructose.

C. Monosaccharides cannot be hydrolysed to give polyhydroxy aldehydes and ketones.

D. Oxidation of glucose with bromine water gives glutamic acid.

Answer: A::B::C

Watch Video Solution

Competition File Objective Type Questions D Multiple Choice Questions

1. The two cyclic hemiacetal forms of glucose differing only in the configuration of the hydroxyl group at C-1 are called

A. epimers

B. Fischer projections

C. anomers

D. mutarotational isomers

Answer: C

Watch Video Solution

2. Monosaccharides are polyhydric aldehydes and ketones which cannot be hydrolysed into simpler carbohydrates. The monosaccharides containing $-CHO$ group are called aldoses while those containing $C=O$ group are called ketoses. The aldehyde group is always present at C_1 while keto group is generally present at C_2. All monosaccharides are oxidised by Tollen's reagent and Fehling solution and are called reducing sugars.

The monosaccharide molecules may be assigned D and L-configurations depending upon whether the configuration of the molecule is related to D- or L-glyceraldehyde. If the $-OH$ group is attached to the carbon

adjacent to the $-CH_2OH$ group (last chiral carbon) is on the right hand side, it is assigned D-configuration. The molecule is assigned L-configuration if the -OH group attached to the carbon adjacent to the $-CH_2OH$ group is on the left. The monosaccharides contain one or more chiral carbon atoms. Pentoses and hexoses have cyclic structures furanose (five membered) and pyranose (six membered). During cyclization, C_1 in aldohexoses and C_2 in fructose become chiral and the newly formed -OH group may be either on the left or on the right in Fischer projection formulae. These monosaccharides, therefore, exist in two stereoisomeric forms called α-anomer and β-anomer while C_1 and C_2 are called glycosidic or anomeric carbon. The bonds joining glycosidic carbon are called glycosidic linkages. $D(+)$ glucose exists in two stereoisomeric forms, α-D- glucose and β-D-glucose. When either of these two forms of glucose i.e., $\alpha - D -$ glucose are dissolved in water and allowed to stand, these get slowly converted into other form and an equilibrium mixture of both is formed. This process is called mutarotation.

The maximum number of optical isomers of glucose expected are

A. 8

B. 12

C. 16

D. 25

Answer: C

Watch Video Solution

3. Monosaccharides are polyhydric aldehydes and ketones which cannot be hydrolysed into simpler carbohydrates. The monosaccharides containing $-CHO$ group are called aldoses while those containing $C=O$ group are called ketoses. The aldehyde group is always present at C_1 while keto group is generally present at C_2. All monosaccharides are oxidised by Tollen's reagent and Fehling solution and are called reducing sugars.

The monosaccharide molecules may be assigned D and L-configurations depending upon whether the configuration of the molecule is related to D- or L-glyceraldehyde. If the $-OH$ group is attached to the carbon

adjacent to the $-CH_2OH$ group (last chiral carbon) is on the right hand side, it is assigned D-configuration. The molecule is assigned L-configuration if the -OH group attached to the carbon adjacent to the $-CH_2OH$ group is on the left. The monosaccharides contain one or more chiral carbon atoms. Pentoses and hexoses have cyclic structures furanose (five membered) and pyranose (six membered). During cyclization, C_1 in aldohexoses and C_2 in fructose become chiral and the newly formed -OH group may be either on the left or on the right in Fischer projection formulae. These monosaccharides, therefore, exist in two stereoisomeric forms called α-anomer and β-anomer while C_1 and C_2 are called glycosidic or anomeric carbon. The bonds joining glycosidic carbon are called glycosidic linkages. $D(+)$ glucose exists in two stereoisomeric forms, α-D- glucose and β-D-glucose. When either of these two forms of glucose i.e., $\alpha - D -$ glucose are dissolved in water and allowed to stand, these get slowly converted into other form and an equilibrium mixture of both is formed. This process is called mutarotation.

Which of the following statements is not correct?

A. Monosaccharides reduce Tollen's reagent.

B. On dissolving α-D-glucose in water having specific rotation 111°, its specific rotation decreases

C. Glucose is aldohexose while fructose is ketohexose

D. In D-glucose, -OH group is present to left at 5th carbon atom.

Answer: D

Watch Video Solution

4. Monosaccharides are polyhydric aldehydes and ketones which cannot be hydrolysed into simpler carbohydrates. The monosaccharides containing $-CHO$ group are called aldoses while those containing $C=O$ group are called ketoses. The aldehyde group is always present at C_1 while keto group is generally present at C_2. All monosaccharides are oxidised by Tollen's reagent and Fehling solution and are called reducing sugars.

The monosaccharide molecules may be assigned D and L-configurations depending upon whether the configuration of the molecule is related to

D- or L-glyceraldehyde. If the $-OH$ group is attached to the carbon adjacent to the $-CH_2OH$ group (last chiral carbon) is on the right hand side, it is assigned D-configuration. The molecule is assigned L-configuration if the -OH group attached to the carbon adjacent to the $-CH_2OH$ group is on the left. The monosaccharides contain one or more chiral carbon atoms. Pentoses and hexoses have cyclic structures furanose (five membered) and pyranose (six membered). During cyclization, C_1 in aldohexoses and C_2 in fructose become chiral and the newly formed -OH group may be either on the left or on the right in Fischer projection formulae. These monosaccharides, therefore, exist in two stereoisomeric forms called α-anomer and β-anomer while C_1 and C_2 are called glycosidic or anomeric carbon. The bonds joining glycosidic carbon are called glycosidic linkages. $D(+)$ glucose exists in two stereoisomeric forms, α-D- glucose and β-D-glucose. When either of these two forms of glucose i.e., $\alpha - D -$ glucose are dissolved in water and allowed to stand, these get slowly converted into other form and an equilibrium mixture of both is formed. This process is called mutarotation.

Two forms of D-glucopyranose are called

A. epimers

B. anomers

C. enantiomers

D. diastomers.

Answer: B

Watch Video Solution

5. Monosaccharides are polyhydric aldehydes and ketones which cannot be hydrolysed into simpler carbohydrates. The monosaccharides containing $-CHO$ group are called aldoses while those containing $C=O$ group are called ketoses. The aldehyde group is always present at C_1 while keto group is generally present at C_2. All monosaccharides are oxidised by Tollen's reagent and Fehling solution and are called reducing sugars.

The monosaccharide molecules may be assigned D and L-configurations depending upon whether the configuration of the molecule is related to

D- or L-glyceraldehyde. If the $-OH$ group is attached to the carbon adjacent to the $-CH_2OH$ group (last chiral carbon) is on the right hand side, it is assigned D-configuration. The molecule is assigned L-configuration if the -OH group attached to the carbon adjacent to the $-CH_2OH$ group is on the left. The monosaccharides contain one or more chiral carbon atoms. Pentoses and hexoses have cyclic structures furanose (five membered) and pyranose (six membered). During cyclization, C_1 in aldohexoses and C_2 in fructose become chiral and the newly formed -OH group may be either on the left or on the right in Fischer projection formulae. These monosaccharides, therefore, exist in two stereoisomeric forms called α-anomer and β-anomer while C_1 and C_2 are called glycosidic or anomeric carbon. The bonds joining glycosidic carbon are called glycosidic linkages. $D(+)$ glucose exists in two stereoisomeric forms, α-D- glucose and β-D-glucose. When either of these two forms of glucose i.e., $\alpha - D -$ glucose are dissolved in water and allowed to stand, these get slowly converted into other form and an equilibrium mixture of both is formed. This process is called mutarotation.

Mutarotation does not occur in

A. sucrose

B. D-glucose

C. L-glucose

D. none of these.

Answer: A

Watch Video Solution

6. Monosaccharides are polyhydric aldehydes and ketones which cannot be hydrolysed into simpler carbohydrates. The monosaccharides containing $-CHO$ group are called aldoses while those containing $C=O$ group are called ketoses. The aldehyde group is always present at C_1 while keto group is generally present at C_2. All monosaccharides are oxidised by Tollen's reagent and Fehling solution and are called reducing sugars.

The monosaccharide molecules may be assigned D and L-configurations depending upon whether the configuration of the molecule is related to

D- or L-glyceraldehyde. If the $-OH$ group is attached to the carbon adjacent to the $-CH_2OH$ group (last chiral carbon) is on the right hand side, it is assigned D-configuration. The molecule is assigned L-configuration if the -OH group attached to the carbon adjacent to the $-CH_2OH$ group is on the left. The monosaccharides contain one or more chiral carbon atoms. Pentoses and hexoses have cyclic structures furanose (five membered) and pyranose (six membered). During cyclization, C_1 in aldohexoses and C_2 in fructose become chiral and the newly formed -OH group may be either on the left or on the right in Fischer projection formulae. These monosaccharides, therefore, exist in two stereoisomeric forms called α-anomer and β-anomer while C_1 and C_2 are called glycosidic or anomeric carbon. The bonds joining glycosidic carbon are called glycosidic linkages. $D(+)$ glucose exists in two stereoisomeric forms, α-D- glucose and β-D-glucose. When either of these two forms of glucose i.e., $\alpha - D -$ glucose are dissolved in water and allowed to stand, these get slowly converted into other form and an equilibrium mixture of both is formed. This process is called mutarotation.

Which of the following pairs give positive Tollen's test?

A. Glucose, sucrose

B. Glucose, fructose

C. Hexanal, acetophenone

D. Fructose, sucrose.

Answer: B

Watch Video Solution

7. Proteins are high molecular mass complex biomolecules of amino acids. The important proteins required for our body are enzymes, hormones, antibodies, transport proteins, structural proteins, contractile proteins etc. Except for glycine, all α-amino acids have chiral carbon atom and have L-configuration. The amino acids exists as dipolar ion called zwitter ion, in which a proton goes from the carboxyl group to the amino group. A large number of α-amino acids are joined by peptide bonds forming polypeptides. The peptides having very large molecular mass (more than 10,000) are called proteins. The structure of proteins is described as

primary structure giving sequence of linking of amino acids, secondary structure giving manner in which polypeptide chains are arranged and folded, tertiary structure giving folding, coiling or bonding polypeptide chains producing three dimensional structures and quaternary structure giving arrangement of sub-units in an aggregate protein meolecule.

Which of the following α-amino acid does not form optical isomers?

A. $N^+H_3CH(CH_3)COO^-$

B. $N^+H_3CH_2COO^-$

C. $N^+H_3CH(CH_2Ph)COO^-$

D. $N^+H_3CH\left[CH(CH_3)_2\right]COO^-$

Answer: B

Watch Video Solution

8. Proteins are high molecular mass complex biomolecules of amino acids. The important proteins required for our body are enzymes, hormones, antibodies, transport proteins, structural proteins, contractile proteins

etc. Except for glycine, all α-amino acids have chiral carbon atom and have L-configuration. The amino acids exists as dipolar ion called zwitter ion, in which a proton goes from the carboxyl group to the amino group. A large number of α-amino acids are joined by peptide bonds forming polypeptides. The peptides having very large molecular mass (more than 10,000) are called proteins. The structure of proteins is described as primary structure giving sequence of linking of amino acids, secondary structure giving manner in which polypeptide chains are arranged and folded, tertiary structure giving folding, coiling or bonding polypeptide chains producing three dimensional structures and quaternary structure giving arrangement of sub-units in an aggregate protein meolecule.

Which of the following statements is not correct?

A. Amino acids exist as zwitter ions

B. All naturally occurring α-amino acids have $-NH_2$ group on the right

C. Except glycine, all other naturally occuring α-amino acids have a chiral carbon atom.

D. The basic character in α-amino acids is due to the $-COO^-$ group.

Answer: B

Watch Video Solution

9. Proteins are high molecular mass complex biomolecules of amino acids. The important proteins required for our body are enzymes, hormones, antibodies, transport proteins, structural proteins, contractile proteins etc. Except for glycine, all α-amino acids have chiral carbon atom and have L-configuration. The amino acids exists as dipolar ion called zwitter ion, in which a proton goes from the carboxyl group to the amino group. A large number of α-amino acids are joined by peptide bonds forming polypeptides. The peptides having very large molecular mass (more than 10,000) are called proteins. The structure of proteins is described as primary structure giving sequence of linking of amino acids, secondary structure giving manner in which polypeptide chains are arranged and folded, tertiary structure giving folding, coiling or bonding polypeptide chains producing three dimensional structures and quaternary structure

giving arrangement of sub-units in an aggregate protein meolecule.

All proteins on hydrolysis give

A. peptides

B. α-amino acids

C. amines and carboxylic acid residues

D. enzymes

Answer: B

Watch Video Solution

10. Tertiary structure of proteins having amino acid cysteine is achieved through

A. primary structure

B. secondary structure

C. tertiary structure

D. configuration.

Answer: A

Watch Video Solution

11. Tertiary structure of proteins having amino acid cysteine is achieved through

A. enzymes

B. hormones

C. antibodies

D. lipids

Answer: D

Watch Video Solution

Competition File Objective Type Questions D Multiple Choice Questions Integer Type Questions

1. Among the following total number of essential amino acids: Leucine, Alanine, Phenylalanine, Proline, Threonine, Lysine, Histidine, Arginine, Cysteine, Tryptophan, Serine, Valine is

Watch Video Solution

2. The number of tripeptides formed by three amino acids: glycine, alanine and serine is

Watch Video Solution

3. The number of chiral carbons in $\beta - D(+) -$ glucose is:

Watch Video Solution

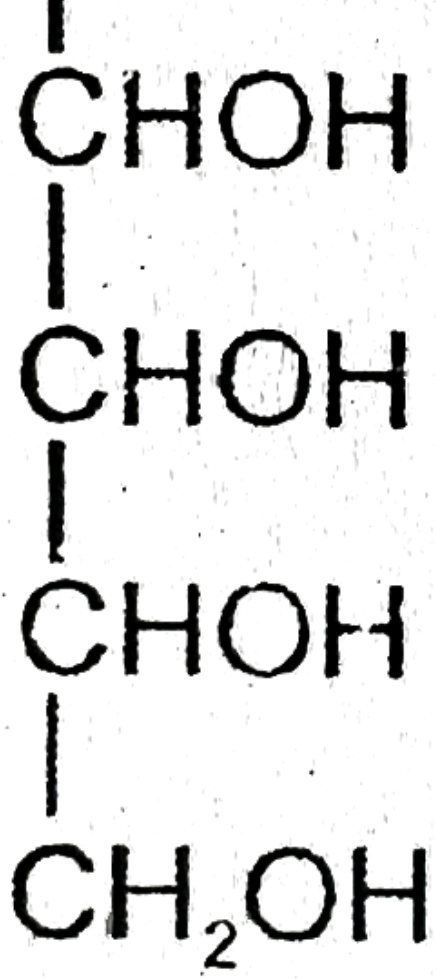
4. The number of peptide hormones among insulin, testosterone, oxytocin, thyroxine, vasopressin, cortisone is

Watch Video Solution

5. The number of fat soluble vitamins among, D, K, B_{12}, C, B_2, E is

Watch Video Solution

6. When the following aldohexose exists in its D-configuration, the total number of stereisomers in its pyranose form is :



Watch Video Solution

7. 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

Unit Practice Test For Board Examination

1. Glycosidic linkage is :

A. $C_1 - C_4\alpha -$ linkage

B. $C_1 - C_6\alpha -$ linkage

C. $C_1 - C_4\beta -$ linkage

D. $C_1 - C_6\beta -$ linkage

Answer:

Watch Video Solution

2. In double strand helix structure of DNA, heterocyclic base cytosine forms hydrogen bond with

A. thymine

B. Cytosine

C. Guanine

D. adenine

Answer:

Watch Video Solution

3. Which of the following hormones contains iodine ?

A. adrenaline

B. insulin thyroxine

C. thyroxine

D. testosterone

Answer:

Watch Video Solution

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

A. Vitamin B_6

B. Vitamin B_{12}

C. Vitamin K

D. Vitamin H

Answer:

Watch Video Solution

5. Which enzyme is used in the treatment of heart disease?

Watch Video Solution

6. Name the purines present in DNA.

Watch Video Solution

7. Name the enzyme present in human saliva. What type of food material is diagested by this enzyme ?

Watch Video Solution

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

Watch Video Solution

9. What are the polysaccharides that make up starch and what is the difference between them?

Watch Video Solution

10. Define the following as related to proteins :

(i) Peptide linkage

(ii) Primary structure

(iii) Denaturation

Watch Video Solution

11. What are essential and non - essential amino acids? Give two examples of each type. Explain the amphoteric behaviour of amino acids.

Watch Video Solution

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

(i). HI

(ii).Bromine water

(iii). HNO_3

Watch Video Solution

13. (a) What are vitamin ? How are these classified.

Name the vitamins whose deficiency causes.

(i) rickets

(ii) beri - beri

(iii) night blindness.

(c) Give two difference between hormones and vitamins.

Watch Video Solution