CHEMISTRY

FOR IIT JEE ASPIRANTS OF CLASS 12 FOR CHEMISTRY

BIOMOLECULES

Example

1. Name two disaccharides which on hydrolysis produce two similar and two different monosaccharides.

Watch Video Solution

2. The specific rotation of two glucose anomers are $\alpha = +110^\circ$ and $\beta = 19^\circ$ and for the constant equilibrium mixtures is $+52.7^\circ$. Calculate the percentage compositions of the anomers in the equilibrium mixture.

Watch Video Solution

3. Which type of bond exist in fibrous proteins.

Watch Video Solution

4. Protein present in silk fibres are

Watch Video Solution

5. What is the another name of bio catalysts ?

Watch Video Solution

Check Your Grasp

1. Fructose is a ketose sugar and also called

Watch Video Solution

2. The product of the reaction of ethyl bromide with dry silver oxide is the functional isomer of:

Watch Video Solution

3. Mutarotation is not seen in

Watch Video Solution

4. What is the difference between RNA and DNA?

Watch Video Solution

5. Define amino acid. State the importance of proteins in human body.

Watch Video Solution

6. Name the RNA that carries information about the sequence of amino acids in a polypeptide.

Watch Video Solution

7. (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

Evaluate Yourself 1

1. The monomer of cellulose is

A. β-D-glucose

B. Amylose

C. Amylopectin

D. Glycogen

Answer: A

Watch Video Solution

2. What is the number of asymmetric carbon atoms present in α-D-glucopyranose molecule?

A. 4

B. 6

C. 5

D. 3

Answer: A

Watch Video Solution

3. The presence of a primary amine can be confirmed by its reaction with .

A. NH_2OH

B. HCN

C. Tollwn's reagent

D. All of these

Answer: D

Watch Video Solution

4. Molecules such as erythrose and threose, which are stereoisomers but not mirror images, are referred to as a pair of ..... , D and L-threose are mirror images and are referred to as a pair of .....

A. Enantiomers, disastereomers

B. Diastereomers, enantiomers

C. Anomers, diastereomers

D. Diastereomers, anomers

Answer: B

View Text Solution

5. A sugar is classified as a D-isomer if the hydroxyl group

A. On the chiral carbon nearest carbon nearest to the carbonyl points to the left

B. On the chiral carbon nearest to the carbonyl point to the right

C. On the chiral carbon farthest from the carbonyl point to the left

D. On the chiral carbon farthest from the carbonyl points to the right

Answer: D

View Text Solution

6. All of the statements concerning monosaccharides are correct except ?

A. The number of stereisomers possible is `2", where n is the number of chiral carbon atoms in the molecules

B. Monosaccharides with 5 or 6 carbon atoms exist in solution in cyclic form

C. The two different cyclic forms of a particular mnosaccharide are called tautomers

D. Hemiacetal

Answer: C

View Text Solution

7. When a monosaccharide forms a rings by interaction of one of its hydroxyl group with its aldehyde group, the bond is referred to as a (an) ..... Linkage

A. Ether

B. Ester

C. Acetal

D. Hemiacetal

Answer: D

Watch Video Solution

8. Common reducing reactions of monosaccharides are due to

A. Their cyclic structures

B. The presence of at least one hydroxyl group

C. The presence of more than one hydroxyl group

D. The presence of a carbonyl group, usually on the C-1 carbon atom

Answer: D

View Text Solution

Evaluate Yourself 2

1. Peptidies on hydrolysis give

A. Ammonia

B. Amines

C. Amino acids

D. Hydroxy acids

Answer: C

Watch Video Solution

2. Which of the following is a test for proteins?

A. Molisch's test

B. Beilstein test

C. Biuret test

D. Benedict's test

Answer: C

Watch Video Solution

3. The peptide bond joining amino acids into proteins is a specific example of the ..... Bond.

A. Amide

B. carbonyl

C. Ester

D. Glycosidic

Answer: A

Watch Video Solution

4. Two functional groups that are present in all amino acids are the ..... group and the ..... Group.

A. Hydroxyl, amide

B. Carboxyl, amine

C. Carboxyl , phosphate ester

D. Acetal , amine

Answer: B

Watch Video Solution

5. Which amino acid is classified as neutral and non-polar ?

A. Aspartic acid

B. Histidine

C. Phenylalanine

D. Lysine

Answer: C

Watch Video Solution

6. Serum albumin is an example of a(an)

A. Enzyme

B. Structural protein

C. Storage protein

D. Transport protein

Answer: D

Watch Video Solution

7. Collagen is an example of a(an)

A. Enzyme

B. Structural protein

C. Storage protein

D. Transport protein

Answer: B

Watch Video Solution

Evaluate Yourself 3

1. The source of Folic acid si

A. Yeast

B. Spinach leaf

C. Liver of OX

D. all the above

Answer: B

View Text Solution

2. Scurvy is caused due to deficiency of

A. Vitamin A

B. Vitamin C

C. Cellulose

D. Vitamin D

Answer: B

View Text Solution

3. Which of the following is called vitamin H ?

A. Biotin

B. Folic acid

C. Thiamin

D. Niacin

Answer: A

View Text Solution

4. Which of the following vitmains is present in all food stuffs ?

A. B_3

B. B_{12}

C. C

D. A

Answer: A

View Text Solution

5. Which of the following is a steroid ?

A. Insulin

B. Vitamins

C. Cytokinins

D. Estrogen

Answer: C

View Text Solution

6. The Hormone insulin is a secretion of the organ

A. Overy

B. Testis

C. Aderal cortex

D. Pancreas

Answer: D

View Text Solution

7. The chemical messengers produced in ductless glands are

A. vitamins

B. Lipids

C. Antibotics

D. Hormones

Answer: D

View Text Solution

Cuq Carbohydrates

1. Which of the following carbohydrates is not monosaccharide ?

A. Glucose

B. Fructose

C. Galactose

D. Sucrose

Answer: D

Watch Video Solution

2. Glucose is not

A. dextrose

B. Grape sugar

C. Aldohexosc

D. Ketohexose

Answer: D

Watch Video Solution

3. The letter 'D' in carbohydrates significs

A. dextro rotatory

B. mode of synthesis

C. its configuration

D. its diamagnetic nature

Answer: C

Watch Video Solution

4. Hydrolysis of sucrose is called

A. Mutarotation

B. Saphonification

C. Inversion

D. de esterification

Answer: C

View Text Solution

5. Raffinose on hydrolysis does not give

A. Glucose

B. Ribose

C. Fructose

D. Galactose

Answer: B

 Watch Video Solution

6. For the formation of glucasozone how many phenyl hydrazine molecules react with one molecules of glucose

A. 1

B. 2

C. 3

D. 4

Answer: C

Watch Video Solution

7. The acidic amino acids is :

A. Aspartic acid

B. Lysine

C. Serine

D. Tyrosine

Answer: A

Watch Video Solution

8. Proteins are

A. Polyamides

B. Polyesters

C. Polyhydric alcohols

D. Polycarboxylic acid

Answer: A

View Text Solution

9. Protein synthesis in living cells is called called,

A. Transcription

B. Translation

C. Replication

D. Duplication

Answer: B

Watch Video Solution

10. Proteins are condensation polymers of

A. α-Amino acids

B. β-Amino acids

C. α-Hydroxy acids

D. β-Hydroxy acids

Answer: A

Watch Video Solution

11. The P^H value of a solution in which a polar amino acid does not migrate under the influence of electric field is called

A. Iso electronic point

B. Iso electric point

C. Neutralization point

D. all the above

Answer: B

View Text Solution

12. Which of the following is a fibrous protein?

A. Haemoglobin

B. albumin

C. keratin

D. enzymes

Answer: C

Watch Video Solution

13. Which of the following is a globular protein?

A. collagen

B. myoglobin or haemoglobin

C. myosin

D. fibroin

Answer: B

Watch Video Solution

14. The destruction of the biological bature and activity of proteins by heat or chemical agent is called :

A. Dehydration

B. Denaturation

C. Denitrogenation

D. Deammination

Answer: B

Watch Video Solution

Cuq Vitamins

1. Disease scurvy is caused by the deficiency of vitamin

A. A

B. B

C. C

D. D

Answer: C

View Text Solution

2. Deficiency of vitamin A leads to a disease known as

A. Scurvy

B. Night blindness

C. Beriberi

D. Rickets

Answer: B

Watch Video Solution

3. Pyridioxine is the name given to vitamin

A. B_2

B. B_6

C. B_1

D. B_{12}

Answer: B

Watch Video Solution

4. Which of the following compounds in not a vitamin ?

A. Niacin

B. Riboflavin

C. Thiamine

D. Guanine

Answer: D

Watch Video Solution

5. Degeneration of Lacrymal glands is due to the deficiency of

A. Vitamin A

B. Vitamin E

C. Vitamin D

D. Vitamin C

Answer: A

Watch Video Solution

6. Deficiency of vitamin D gives

A. Rickets

B. Night blindness

C. Xerosis

D. Loss of apetite

Answer: A

Watch Video Solution

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

A. Thymine

B. Uracil

C. Adenine

D. Guanine

Answer: B

 Watch Video Solution

8. The number of Nucleotide pairs present in one turn of DNA helix

A. 10

B. 9

C. 8

D. 4

Answer: A

View Text Solution

9. Change in Amino acid sequence leads to

A. mutation

B. Translation

C. Fermentation

D. Genetic code

Answer: A

View Text Solution

10. Purine derivative among the following bases is

A. thymine

B. Uracil

C. guanine

D. cytosine

Answer: C

Watch Video Solution

11. The pairs of bases in DNA are held together by

A. Hydrogen bonds

B. Ionic bonds

C. Phosphate groups

D. Oxygen linkages

Answer: A

Watch Video Solution

12. Receptors of hormones are generally

A. carbonydrates

B. Vitamins

C. Lipids

D. Proteins

Answer: D

View Text Solution

13. Androgens are

A. Female sex hormone

B. Non steriod

C. Plant hormone

D. Male sex hormone

Answer: D

Watch Video Solution

14. Which of the following is a derivative of amino acids ?

A. Thyroxin

B. estradiol

C. estrone

D. Progesterone

Answer: A

Watch Video Solution

15. Phosphorylation of glucose is increased by

A. Auxins

B. Insulin

C. Ethylene

D. Traumatic acid

Answer: B

View Text Solution

16. Estradiol is responsible for the development of

A. Primary male characters

B. Secondary female characters

C. primary female characters

D. Secondary male characters

Answer: B

View Text Solution

Exercise I C W

1. To convert glucose to saccharic acid the reagent used is

A. bromine water

B. Fehling's solution

C. Nitric acid

D. Alkaline solution of Iodine

Answer: C

Watch Video Solution

2. The reagnet which may be used to distinguish cane sugar and glucose solutions is

A. solution

B. Baeyer's reagent

C. Both 1 & 2

D. Fehling's solution

Answer: D

View Text Solution

3. Glucose react with

A. Phenyl hydrazine

B. $NaHSO_3$

C. Tollen's reagent

D. Fehling's solution

Answer:

Watch Video Solution

4. Total number of Nitrogens present in glucosazone molecules

A. 4

B. 2

C. 6

D. 8

Answer: A

Watch Video Solution

5. Cellulose is a linear polymer of

A. α-D - glucose

B. β-D - glucose

C. α-D -fructose

D. β-L-glucose

Answer: B

Watch Video Solution

6. The formation of furanose structure of fructose involves the interaction of functional groups present at :

A. C-1 and C-4

B. C-2 and C-6

C. C-2 and C-5

D. C-1 and C-5

Answer: C

Watch Video Solution

7. Which of the following amino acids possesses a non-polar side chain ?

A. isoleucine

B. serine

C. cysteine

D. glutamic acid

Answer: A

Watch Video Solution

8. Which of the following α-amino acids does not contain a chiral carbon ?

A. Glycine

B. Alanine

C. Phenylalanine

D. valine

Answer: A

Watch Video Solution

9. A sulphur containing amino acid is

A. Glycine

B. Cysteine

C. Alanine

D. Leucine

Answer: B

View Text Solution

10. The helical structure of protein is stabilised by:

A. dipeptide bonds

B. hydrogen bonds

C. ether bonds

D. pepetide bonds

Answer: B

Watch Video Solution

11. The disease pernicious anaemia is caused by the deficiency of vitamin

A. A

B. K

C. B_1

D. B_{12}

Answer: D

View Text Solution

12. Hyper glycemia is due to the deficiency of

A. Vitamin B_7

B. Vitamin C

C. Vitamin B_{12}

D. Vitamin E

Answer: C

Watch Video Solution

13. The vitamin which maintain the redox potentials of cells is

A. folic acid

B. Ascorbic acid

C. Pyridoxine

D. Calciferol

Answer: B

View Text Solution

14. The vitamin , which plays a role in transportation , of amino acids across the cell membrane is

A. B_1

B. B_2

C. B_3

D. B_6

Answer: D

View Text Solution

15. AT/GC ratio in human being is

A. $0.93:1$

B. $1:0.93$

C. $1.52:1$

D. $0.93:1$

Answer: C

Watch Video Solution

16. In DNA one strand direction of 5'-3' the other stand is

A. 5'-3'

B. 5'-5'

C. 3'-3'

D. 3'-5'

Answer: D

Watch Video Solution

17. No. of hydrogen bonds present between G and C

A. 2

B. 3

C. 1

D. 0

Answer: B

Watch Video Solution

18. Which of the following Hormones helps in the conversion of glucose into Glycogen in the body ?

A. Insulin

B. Cortisone

C. Thyroxin

D. Oxytocin

Answer: A

Watch Video Solution

19. The disease diabetes mellitus is caused by the deficiency of

A. Iodine

B. Insulin

C. Phenyl alanine Hydroxylase

D. Lysine

Answer: B

View Text Solution

20. The Hormone used as an oral contraceptive is

A. Aldosterone

B. Cortisone

C. Progesterone

D. Testosterone

Answer: C

Watch Video Solution

21. The Hormone that prepares the uterus for the implantation of the embryo is

A. Estradiol

B. Progesterone

C. Insulin

D. Androgens

Answer: B

Watch Video Solution

22. The sex hormone which controls the development and maintanance of pregnancy is

A. Cortisone

B. Thyroxine

C. Progesterone

D. estrone

Answer: C

View Text Solution

Exercise I H W

1. Aqueous solution of carbohydrate with 2 drop of alcholic solution of α-naphthol and H_2SO_4 gives a ring at the junction. The colour of the ring is:

A. Yellow

B. Green

C. Violet

D. Red

Answer: C

Watch Video Solution

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

A. Rotatory motion

B. Inversion

C. Mutarotation

D. Specific rotation

Answer: B

Watch Video Solution

3. Keratin , a structural protein is present in

A. Hair

B. Skin

C. Wool

D. All of these

Answer: D

Watch Video Solution

4. Which one of the following is first member of monosaccharides ?

A. $HOH_2C - \overset{\overset{O}{||}}{C} - CH_2OH$

B. $HOH_2C - CHOH - CHO$

C. $HOH_2C - CHOH - CHOH - CHO$

D. $HOH_2 - CHOH - \overset{\overset{O}{||}}{C} - CH_2OH$

Answer: B

View Text Solution

5. Which one of the following is reducing sugar ?

A. Starch

B. Cellulose

C. Glycogen

D. Fructose

Answer: D

View Text Solution

6. In the given structure there are four chiral carbons. Hence this structure will have how many stereoisomers ?

$HOH_2C - CHOH - CHOH - CHOH - CHOH - CHO$

A. `16

B. 8

C. 32

D. 4

Answer: A

Watch Video Solution

7. α-D glucose and β-D glucose are :

A. Anomers

B. 2-Epimers

C. 3-Epimers

D. Enantiomers

Answer: A

View Text Solution

8. Which of the following statement are correct :

A. All the three forms of glucose are interconvertible in aqueous solution

B. Amount of all the three forms of glucose are same in aqueous solution

C. Interconversion of one form into other two forms are not the cause of mutarotation.

D. α-glucose is more stable than β-glucose

Answer: C

View Text Solution

9. Which of the following compounds will not show maturotation:

A. Methyl -α-D - glucopyranoiside

B. α-D(+) glucospyranose

C. β-D(+) glucospyranose

D. β-D(+) galactopyranose

Answer: A

Watch Video Solution

10. Fructose is ketose sugar even then it gives red precipitate with Fehling solution because :

A. Ketones are oxidised by Fehling solution

B. Keto sugars undrego transformation into aldose sugars in the presence of Felhing's solution

C. (1) and (2) both are correct

D. Both (1) and (2) incorrect

Answer: D

View Text Solution

11. In the given reactions :

Glucose $+3C_6H_5NHNH_2 \xrightarrow{H^{\oplus}/\Delta}$ Osazone + A+B

(A) and (B) are :

A. $C_6H_5NH_2$ and NH_3

B. $C_6H_5NH_2$ and NH_2OH

C. $C_6H_5NH-NHON$ and NH_3

D. NH_2OH and HOH

Answer: A

View Text Solution

12. Which of the following gives violet colour with conc. HCl ?

A. Fructose

B. Glucose

C. Maltose

D. Starch

Answer: B

View Text Solution

13. If specific rotation of glucose solution is 52° and fructose solution -92° then what will be specific rotaion of invert sugar ?

A. -20°

B. $+20^\circ$

C. -72°

D. $+72^\circ$

Answer: A

Watch Video Solution

14. The number of polypeptide chains present in haemoglobin is :

A. Two

B. Four

C. Nine

D. 50

Answer: A

View Text Solution

15. Secondary structure of proteins is due to :

A. Peptide bond

B. hydrogen bonds

C. Covalent bond

D. Co-ordinate bond

Answer: A

View Text Solution

16. The number of amino acids in insulin is

A. 21

B. 574

C. 51

D. 5733

Answer: C

Watch Video Solution

17. Deficiency of vitamin E causes

A. Night blindness

B. Loss of fertility

C. Scurvy

D. Impaired clotting

Answer: B

Watch Video Solution

18. Which one of the following is synthesised in our body by sun's rays

A. vitamin D

B. Vitamin B

C. Vitamin K

D. Vitamin A

Answer: A

Watch Video Solution

19. The carbohydrate present in DNA is

A. L-glucose

B. D-ribose

C. 2-Deoxyribose

D. Fructose

Answer: C

Watch Video Solution

20. In the sequence of changes/processes,

$X \xrightarrow{\text{replication}} Y \xrightarrow{\text{transcription}} Z \xrightarrow{\text{translation}}$ proteins X, Y and Z are

A. DNA , DNA and RNA

B. RNA, RNA and DNA

C. DNA , RNA and RNA

D. DNA ,RNA and DNA

Answer: A

Watch Video Solution

21. RNA and DNA are chiral molecules, their chirality is due to

A. Chiral phosphate ester units

B. D-sugar component

C. L-sugar component

D. Chiral bases

Answer: B

Watch Video Solution

22. The numberof hydrogen bonds present in the sequence of a stretch of a double helical DNA 5' ATGCCTAA 3 is

A. 16

B. 19

C. 24

D. 20

Answer: B

Watch Video Solution

Exercise 2 C W

1. Which of the following statements is true regarding a carbohydrate having five carbon atoms and an aldehyde group ?

A. It can have 8 stereo iosmers

B. It can have 4 stereo isomers

C. It can have 2 stereo isomer

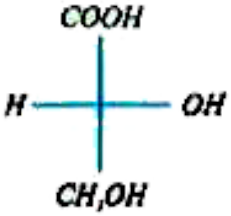
D. All the above

Answer: D

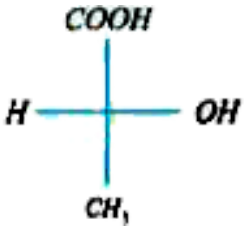
Watch Video Solution

2. Which of the following is different with refered to D, L-Configuration ?

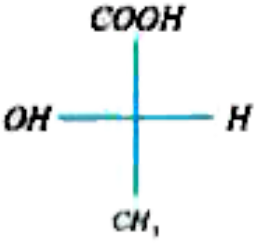
A.



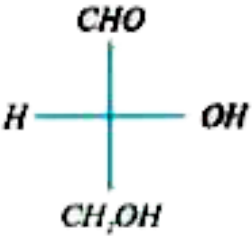
B.



C.



D.



Answer: C

Watch Video Solution

3. Which of the following is least related to the other three ?

A. Galactose

B. Glucose

C. Mannose

D. Arabinose

Answer: D

View Text Solution

4. Which of the following statements about (+) (-) sucrose is not correct ?

A. it does not posses a free aldehydic (or) ketonic group

B. on hydrolysis , it produce invert sugar

C. it is an a -D-Glucoside

D. it undergoes mutarotation

Answer: D

View Text Solution

5. Sucrose reacts with acetic anhydride to form

A. Penta-acetate

B. hexa-acetate

C. Tetra-acetate

D. Octa-acetate

Answer: D

Watch Video Solution

6. All monosaccharides containing five or six carbon atoms have

A. Open chain structures only

B. Pyranose structures only

C. Furanose structures only

D. may have pyranose or furanose structures

Answer: D

Watch Video Solution

7. Which of the following disaccharide has different type of linkage ?

A. maltose

B. Galactose

C. Starch

D. Sucrose

Answer: D

View Text Solution

8. Starch is made up of :

A. $alpah$-glucose pyranose

B. β-fructose pyranose

C. β-fructose furanose

D. both (1) and (3)

Answer: D

View Text Solution

9. In alkaline medium fructose is -

A. An aldose

B. A reducing sugar

C. A non reducing sugar

D. A furanose

Answer: C

View Text Solution

10. Glucose will how mutarotation in _____ solvent

A. acidic

B. basic

C. neutral

D. amphiprotic

Answer: C

View Text Solution

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

A. isomer

B. anomer

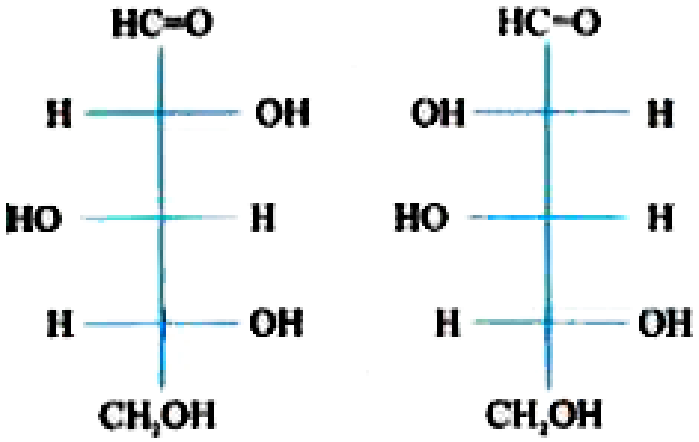
C. epimer

D. enantiomer

Answer: B

Watch Video Solution

12. At which carbon are the following sugars epimers of each other



A. C-1

B. C-2

C. C-3

D. C-4

Answer: B

Watch Video Solution

13. The structural feature which distinguishes proline from α amino acids is

A. It is optically inactive

B. It cantains aromatic group

C. it si a dicarboxylic acid

D. It is a secondary amine

Answer: D

View Text Solution

14. β- pleated structure of proteins is

A. primary structure

B. secondary structure

C. Tertiary structure

D. Quatemary structure

Answer: B

Watch Video Solution

15. Number of peptide linkages in the artifical sweetener "aspartame" is

A. 2

B. 21

C. 1

D. 11

Answer: C

Watch Video Solution

16. For a neutral amino acid (X), isoelectric point is 5.8 . Now is solubility at this piont in water is

A. maximum

B. minimum

C. zero

D. unpredicatable

Answer: A

View Text Solution

17. Protein with special three dimensional structure and biological activity is called :

A. native protein

B. Conjugative protein

C. simple protein

D. Globular protein

Answer: A

View Text Solution

18. A mixture of α-amino acids is obtained when proteins are hydrolysed by

A. Acids

B. Bases

C. Enzymes

D. All

Answer: D

View Text Solution

19. In aqueous solution amino acids moslty exit as

A. $NH_2 - CHR - COOH$

B. $NH_2 - CHR - COO^-$

C. $N_3H^+ - CHR - COOH$

D. $H_3N^+ - CHR - COO^-$

Answer: D

Watch Video Solution

20. The chemical change in a DNA molecules that leads to the synthesis of proteins with different amino acids sequence is called,

A. Allergy

B. Mutation

C. Transcription

D. Metabolism

Answer: B

View Text Solution

21. If the amino group of Glycine and carboyxylic acid group of alanine undergo elimination of water molecule, the name of the compound thus formed is

A. Alanylgycide (dipeptide)

B. Glycyl alanide (tri peptide)

C. Glycyl alanine (dipeptide)

D. Alanylglycine (dipeptide)

Answer: D

Watch Video Solution

22. The Secondary structure of a proteins refers to ?

A. α - helical back bone

B. hydrophobic interactions

C. Sequence of α-amino acids

D. fixed configuration of the polypeptide back bone

Answer: A

Watch Video Solution

23. Nature of aqueous solutions of two different amino acids X and Y are acidic an basic. Now X and Y are

A. Alanine and valine

B. Aspartic acid and Asparagine

C. Glutamine and Glutamic acid

D. Aspactic acid and Lysine

Answer: D

Watch Video Solution

24. The force that stabilize the 2^0 and 3^0 structure of protein are :

A. H-bonds

B. Disulphide linkages

C. Both 1 & 2

D. Covalent bonds

Answer: C

View Text Solution

25. At $pH = 4$, glycine exists as:

A. $H_3\overset{+}{N} - CH_2 - COO^-$

B. $H_2\overset{+}{N} - CH_2 - COOH$

C. $H_2N - CH_2 - COOH$

D. $H_2N - CH_2 - COO^-$

Answer: B

Watch Video Solution

26. A nanopeptide contains how many peptide linkages ?

A. 10

B. 8

C. 9

D. 18

Answer: B

View Text Solution

27. The bonds in protein structure, that are not broken on denaturation , are :

A. Hydrogen bonds

B. peptide bonds

C. ionic bonds

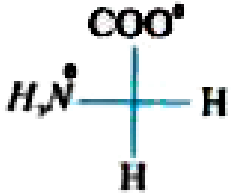
D. disulphide bonds

Answer: B

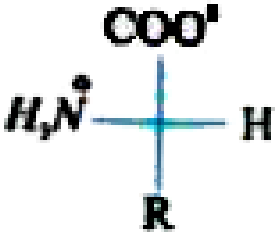
Watch Video Solution

28. Which of the following is an L-amino acids ?

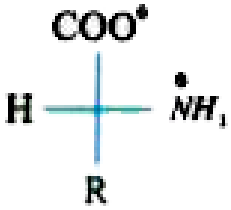
A.



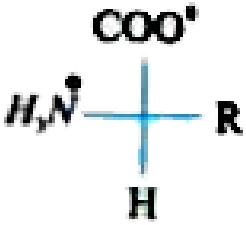
B.



C.



D.



Answer: B

Watch Video Solution

29. Formation of RBC is because of

A. Mucoprotein

B. Vitamin B_{12}

C. Vitamin C

D. Both 1 & 2

Answer: B

View Text Solution

30. The vitamin which is water soluble and antioxidant is

A. vitamin B_6

B. Vitamin B_{12}

C. Vitamin C

D. Vitamin E

Answer: C

View Text Solution

31. Which of the following vitamin contains ionone ring and hydrocarbon chain ?

A. Retinol

B. Calciferol

C. Thiamin

D. Riboflavin

Answer: A

View Text Solution

32. Which vitamins are present in much smaller amounts in cells

A. A

B. D

C. B & C

D. k

Answer: A

Watch Video Solution

33. If the sequence of bases in DNA is TGAACCCTT then the sequence of bases in m-RNA

A. ACUUGGGAA

B. TCUUGGGTT

C. ACUUCCCAA

D. None of the above

Answer: A

Watch Video Solution

Exercise 2 H W

1. α-D - Glucose from β-D-glucose due to difference in one of the carbon atoms with respect to its

A. number of -OH groups

B. configuration

C. conformation

D. size of hemiacetal ring

Answer: B

Watch Video Solution

2. D-Glucose shows muta rotation between

A. it is dextrarotatory

B. it undergoes inter conversion between it's pyranose structure and furanose structure

C. it undergoes interconversion between it's α and β (+) Glucopyranose structure

D. it undergoes interconversion with D(-) fructose

Answer: C

View Text Solution

3. The reactions of glucose with acetic anhydride suggest that, it is

A. Penta hydroxy aldehyde

B. Hydrate of carbon

C. Polyhydroxy ketone

D. An alcohol

Answer: A

Watch Video Solution

4. Hydrolysis of sucrose with dilute aqueous sulphuric acid yields

A. 1:1 D(+)- Glucose , D-(-)- Fructose

B. 1:2 D-(+)- Glucose , D-(-)- Fructose

C. 1:1 D-(-)- Glucose , D-(+)- Fructose

D. 1:2 D-(-) Glucose , D-(+)- Fructose

Answer: A

Watch Video Solution

5. A dextrorotatory sugar present in fruits is

A. Galactose

B. Fructose

C. Cellulose

D. Starch

Answer: B

View Text Solution

6. In lactose, the reducing part is

A. Galactose

B. Glucose

C. Fructose

D. Mannose

Answer: B

Watch Video Solution

7. Glucose contains in addition to aldehyde groups :

A. one secondary -OH-and four primary -OH groups

B. one primary -OH-and four secondary -OH groups

C. two primary -OH-and three secondary -OH groups

D. three primary -OH and two secondary -OH groups

Answer: B

Watch Video Solution

8. Which one of the following polysaccharides is composed of β-glycosidic link ?

A. Starch

B. Glycogen

C. Dextrin

D. Cellulose

Answer: D

Watch Video Solution

9. D-Glucose will form same osazone with

A. D-Mannose

B. D-Fructose

C. D-Allose

D. Both 1 & 2

Answer: D

View Text Solution

10. Relation between D-Glucose & D-Fructose is

A. C_2 -epimer

B. C_3 -epimer

C. Functional isomer

D. Positioinal isomer

Answer: C

Watch Video Solution

11. α-D-Glucose and β-D-Glucose are:

A. Epimers

B. Anomers

C. Enantiomers

D. Acetals

Answer: B

View Text Solution

12. Which of the following pairs of monosaccharides will form the same osazone

A. D-glucose and L-glucose

B. D-glucose and D-galactose

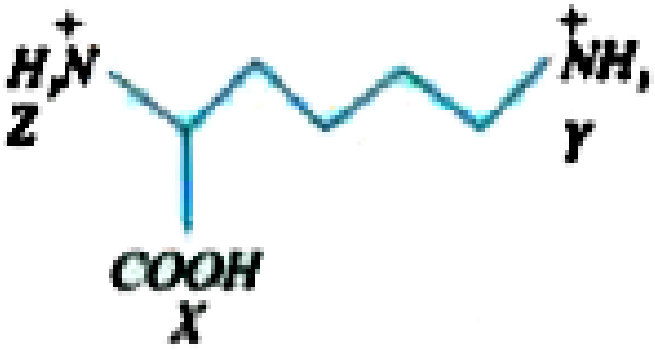
C. D-glucose and D-fructose

D. D-glucose and D-allose

Answer: C

Watch Video Solution

13.



Arrange in order of increasing acid strength

A. $X > Z > Y$

B. $Z < X > Y$

C. $X > Y > Z$

D. $Z > X > Y$

Answer: A

View Text Solution

14. An α-amino acid exists as, $\overset{+}{N}H_3 - \underset{R}{\underset{|}{CH}} - COOH$ at (pH=2) and its isoelectric point is 6. The amino acid at pH 10.97 will exist as :

A. $\overset{+}{N}H_3 - \underset{R}{\underset{|}{CH}} - COO^-$

B. $NH_2 - \underset{R}{\underset{|}{CH}} - COO^-$

C. $NH_2 - \underset{R}{\underset{|}{CH}} - COOH$

D. $\underset{+}{NH_2} - \underset{R}{\underset{|}{\overset{-}{C}H}} - COOH$

Answer: B

View Text Solution

15. The deficiency of vitamin k cause

A. haemorrhage

B. Lengthening time of blood clotting

C. Inflammation of tunge

D. Both 1 & 2

Answer: D

Watch Video Solution

16. The vitamins which is neither soluble in water nor in fat is

A. biotin

B. phylloquinone

C. thymine

D. ergocalciferol

Answer: A

Watch Video Solution

17. What of the following vitamin contain nitrogen

A. A

B. B

C. C

D. D

Answer: B

View Text Solution

18. Which of the following is provitamin A

A. Ascorbic acid

B. β-caraotene

C. Calciferol

D. Ergosterol

Answer: B

Watch Video Solution

Exercise 3

1. The reagent which forms crystalline osazone derivatives when heated with glucose is?

A. Fehling solution

B. phenyl hydrazine

C. Benedict solution

D. hydroxyl amine

Answer: B

Watch Video Solution

2. Which one of the following is a conjugated protien

A. Phosphoprotein

B. Glycorprotein

C. Chromoprotein

D. All of these

Answer: D

Watch Video Solution

3. Which of the following does not exist as a Zwitter ion ?

A. Glycine

B. Glutamic acid

C. Sulphanilic acid

D. p-aminobenzoic acid

Answer: D

View Text Solution

4. Proteins can be denatured by

A. carbon dioxide

B. carbon monoxide

C. heat

D. Oxygen

Answer: C

Watch Video Solution

5. The beta (β) and alpha (α) glucose have different specific rotation. When either is dissolved in water, their specific rotation changed to reach a certain fixed value. This is called :-

A. epimerisation

B. reacemisation

C. anomerisation

D. mutarotation

Answer: D

Watch Video Solution

6. Which of the following is incorrect ?

A. Functional isomersim is shown by

$CH_3 - CH_2 - OH$ and $CH_3 - O - CH_3$

B. $H - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{OH}{|}}{C}} - H \xrightarrow{\text{Conc.}H_2SO_4}$

$H - \overset{\overset{H}{|}}{C} = \overset{\overset{H}{|}}{} - H + H_2O$

C. Glucose is a monosaccharide sugar

D. Fructose is a disasaccharide sugar

Answer: D

View Text Solution

7. Assertion- Diusruption of the natural structure of a protein is called denaturation.

Reason : The change in colour and appearance of egg during cooking is due to denaturation.

A. Both Assertion and Reason are true and reason is the correct explanation of Assertion.

B. Both Assertion and Reason are true but reason is not the correct explanations of Assertion.

C. Assertion is true but Reason is False.

D. Both Assertion & Reason are False

Answer: B

View Text Solution

8. In DNA, the complementary bases are :

A. adenine and thymine , guanine and cytosine.

B. adenine and thymine, guanine and uracil

C. adenine and thymine, thymine and cytosine.

D. adenine and thymine, cytosine and guanine

Answer: A

Watch Video Solution

9. Which of the following is not present in a nucleotide ?

A. Cytosine

B. Guanine

C. Adenine

D. Tyrosine

Answer: D

View Text Solution

10. Preteins when heated with conc. NHO_3 give a yellow colour. This is

A. oxidising test

B. xanthoprotic test

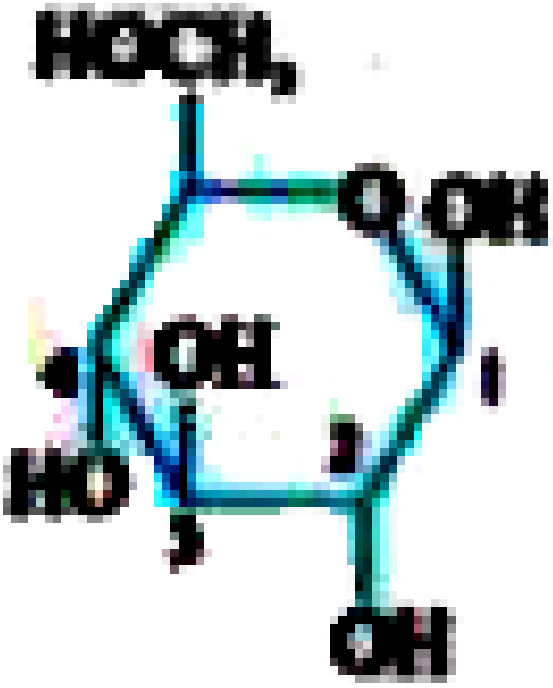
C. Hoppe's test

D. acid-base test

Answer: B

View Text Solution

11. In the following strcuture



anomeric carbon is

A. 1

B. 2

C. 3

D. 4

Answer: A

View Text Solution

12. A diabetic person carries a packet of glucose with him always because

A. glucose increases the blood sugar level slowly.

B. glucose reduces the blood sugar level

C. glucose increases the blood sugar level almost insantaneously

D. glucose increases the blood sugar level slowly.

Answer: C

Watch Video Solution

Watch Video Solution

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

A. nucleotides

B. ribose

C. genc

D. nucleoside

Answer: C

Watch Video Solution

14. The base found only in nucleotide of RNA, is

A. adenine

B. uracil

C. guanine

D. cytosine

Answer: B

Watch Video Solution

15. The transfer RNA anticodon for the messenger RNA codon G-C-A is

A. C-G-U

B. G-C-U

C. U-G-C

D. G-U-C

Answer: A

Watch Video Solution

16. The pK_{a1} and pK_{a2} of an amino acid are 2.3 and 9.7 respectively. The isoelectric point of the amino acid is:

A. 12.0

B. 7.4

C. 6.0

D. 3.7

Answer: C

Watch Video Solution

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

A. (-) fructose

B. (+) sucrose

C. (+) lactose

D. (+) maltose

Answer: B

Watch Video Solution

18. Hydrolysis of sucrose is called

A. inversion

B. esterification

C. hydration

D. saponification

Answer: A

Watch Video Solution

19. Glucose + Tollen's reagent $\rightarrow$ Silver mirror the above process shows

A. presence of -COOh group

B. presence of keto group

C. presence of -CHO group

D. presence of $-CONH_2$ group

Answer: C

View Text Solution

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

A. (+) lactose $c_{12}H_{22}O_{11}$ contains 8-OH groups .

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

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

D. (+) lactose is reducing sugar and does not exhibit mutarotation.

Answer: D

Watch Video Solution

21. What is nature of glucose -glucose linkage in starch that makes its so susceptible to acid hydrolysis ?

A. Starch is haiacetal

B. starch is acetal

C. starch is polymer

D. Starch contains only few molecules of glucose

Answer: B

View Text Solution

22. Which is not the correct statement about RNA and DNA?

A. DNA is active in virus where RNA never appears in virus

B. DNA exists as dimer while RNA is usually single stranded

C. DNA contains deoxyribose as its sugar and RNA contains ribose.

D. RNA contains uracil in place of thymine (found in DNA) as a base.

Answer: A

Watch Video Solution

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

A. Enzyme action specific

B. Enzyme are denatured by ultraviolet rays and at high temperature

C. Enzymes are least reactive at optimum temperature

D. Enzymes are mostly proteinous in nature

Answer: C

Watch Video Solution

24. Deficiency of vitamin B_1 causes the disease :

A. Beri beri

B. cheilosis

C. Sterility

D. Convulsions

Answer: A

Watch Video Solution

25. Which one of the following sets of monosaccharides

A. α-D-Glucopyranose and β-D-Fructofuranose

B. β-D-Glucopyranose and β-D-fructofuranose

C. β-D-Glucopyranose and β-D-fructofurancose

D. α -D-Glucopyranose and α-D-fructofuranose

Answer: A

View Text Solution

26. The epimerisation involves

A. Change of configuration

B. Addition of 1 more C

C. Subtraction of 1 C

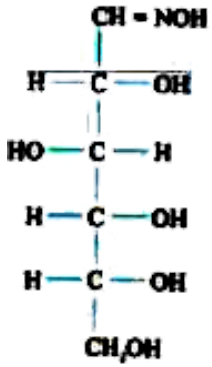
D. Conversion of $-CHO$ to $-C=O$

Answer: A

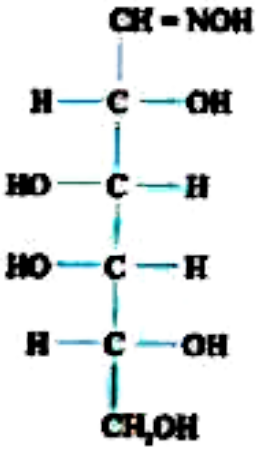
View Text Solution

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

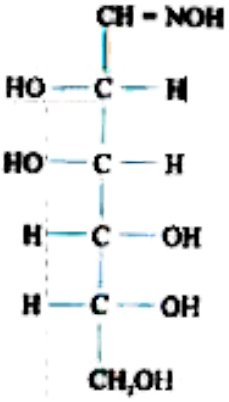
A.



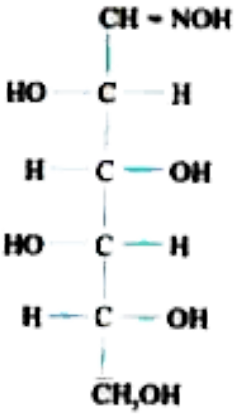
B.


CH = NOH
H — C — OH
HO — C — H
HO — C — H
H — C — OH
CH2OH

C.


CH = NOH
HO — C — H
HO — C — H
H — C — OH
H — C — OH
CH2OH

D.


CH = NOH
HO — C — H
H — C — OH
HO — C — H
H — C — OH
CH2OH

Answer: A

Watch Video Solution

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

A. DNA $\rightarrow$ RNA $\rightarrow$ Proteins

B. DNA $\rightarrow$ RNA $\rightarrow$ Carbohydrates

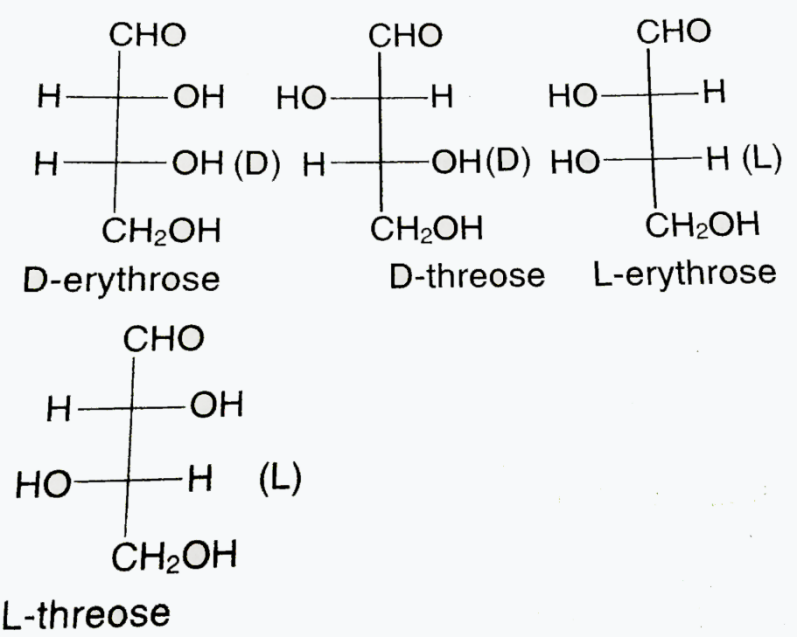
C. Amino acids $\rightarrow$ Protein $\rightarrow$ DNA

D. DNA $\rightarrow$ Carbohydrates $\rightarrow$ Proteins

Answer: A

Watch Video Solution

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



respectively, is

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

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

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

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

Answer: B

Watch Video Solution

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

A. dative bond

B. α glycosidic bond

C. β-gluycosidic bond

D. peptide bond

Answer: D

Watch Video Solution

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

A. The sugar component in RNA is 2'-deocyribose and the sugar component in DNA is arabinose .

B. The sugar component in RNA is arabinose and the sugar compoenent in DNA is 2'-deoxyriboses.

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

D. The sugar component in RNA is arabinose and the sugar component in DNA is ribose

Answer: C

Watch Video Solution

32. Which one given below is a non – reducing sugar ?

A. Sucrose

B. Maltose

C. Lactose

D. Glucose

Answer: A

Watch Video Solution

Exercise 4

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

A. Guanine

B. Thymine

C. Quinoline

D. Adenine

Answer: C

View Text Solution

2. Synthesis of each molecule of glucose in photosynthesis involves.

A. 10 molecules of ATP

B. 8 molecules of ATP

C. 6 molecules of ATP

D. 18 molecules of ATP

Answer: D

Watch Video Solution

3. Which of the following compound can be detected by Molisch's test?

A. Nitro compounds

B. sugars

C. amines

D. primary alcohols

Answer: B

Watch Video Solution

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

A. 2^{nd}

B. 3^{rd}

C. 4^{th}

D. 1^{st}

Answer: A

Watch Video Solution

5. Biuret test is not given by :

A. carbohydrates

B. polypeptides

C. urea

D. proteins

Answer: A

Watch Video Solution

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

A. $-OH$ and $-COOH$

B. $-CHO$ and $-COOH$

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

D. $-OH$ and $-CHO$

Answer: C

Watch Video Solution

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

A. conformers

B. epimers

C. anomers

D. enantiomers

Answer: C

Watch Video Solution

8. Number of HlO_4 molecular required to complete oxidation one mole of glucose is

A. 4

B. 5

C. 6

D. none

Answer: C

View Text Solution

9. Glucose upo Ruff's degradation produces

A. Mannose

B. Ribose

C. Arabinose

D. Erythrose

Answer: C

Watch Video Solution

10. $C_6H_{12}O_6 \xrightarrow{\text{Ruff's degradation}} \xrightarrow{\text{Ruff's degradation}} \xrightarrow{conc.HNO_3}$ Meso Tartaric acid

Meso Tartaric acid

A. Ribose

B. Arabinose

C. Mannose

D. Talose

Answer: A

View Text Solution

11. Number of moles of $CH_3 - OH$ in acidic medium react with one mole of glucose .

A. 1

B. 4

C. 3

D. 5

Answer: B

View Text Solution

12. Amino acids on treating with Ninhydrin forms

A. red colour complex

B. Purple colour complex

C. Blue colour complex

D. No reaction

Answer: A

Watch Video Solution

13. A tripeptide contains glycine, alanine and serine. How many different sequences are possible ?

A. 27

B. 8

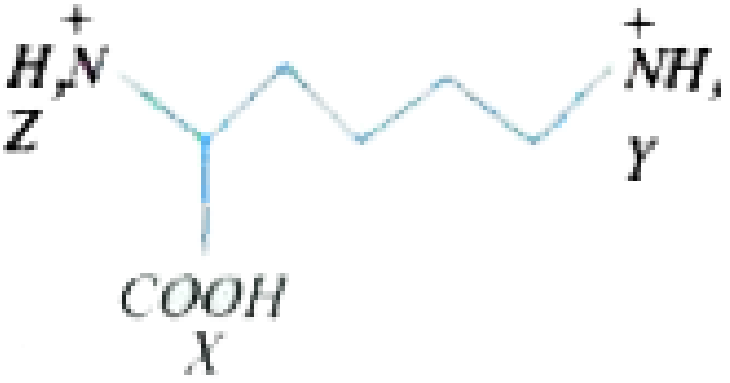
C. 6

D. 9

Answer: C

Watch Video Solution

14.



Arrange in order of increasing acid strength

A. $X > Z > Y$

B. $Z < X > Y$

C. $X > Y > Z$

D. $Z > X > Y$

Answer: A

Watch Video Solution

15. An α-amino acid exists as, $\overset{+}{N}H_3 - \underset{\underset{R}{|}}{CH} - COOH$ at (pH=2) and its isoelectric point is 6. The amino acid at pH 10.97 will exist as :

A. $\overset{+}{N}H_3 - \underset{\underset{R}{|}}{CH} - COO^-$

B. $NH_2 - \underset{\underset{R}{|}}{CH} - COO^-$

C. $NH_2 - \underset{\underset{R}{|}}{CH} - COOH$

D. $\overset{+}{N}H_2 - \underset{\underset{R}{|}}{\overset{-}{C}H} - COOH$

Answer: B

Watch Video Solution

16. Which of the following sets of vitamins is fat soluble

A. D, B_1, B_2, E

B. C, D, B_6, B_{12}

C. A, D, E, K

D. A, D, B_1, B_2

Answer: C

Watch Video Solution

17. The number of hydrogen bonds between guanine and cytosine, and between adenine and thymine in DNA is

A. 1,2

B. 3,2

C. 3,1

D. 2,1

Answer: B

Watch Video Solution

18. $X \xleftarrow{HI} \text{Glucose} \xrightarrow{HNO_3} Y$ what are X and Y

A. X-n -hexane , Y-Gluconic acid

B. X-Gluconic acid, Y-Saccharic acid

C. X-n-hexanol , Y-Saccharic acid

D. X-n-hexane , Y-Saccharic acid

Answer: D

Watch Video Solution

19. The site of action of insulin is

A. mitochondria

B. nucleus

C. plasma membrane

D. DNA

Answer: C

Watch Video Solution

20. The AT/GC ratio in human beings is (where A = adenin , T=thymine, G=Guanine, C=Cytosine)

A. 1

B. 1.52

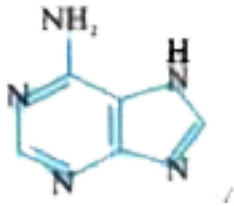
C. 9.3

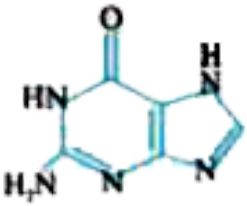
D. 2

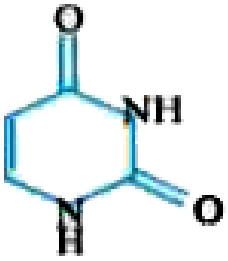
Answer: B

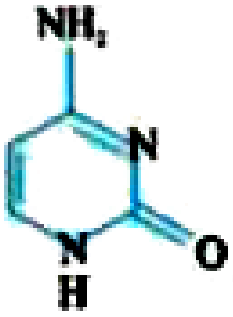
Watch Video Solution

21. The base present in cytidine is

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

22. In an amino acid, the carboxyl group ionises at $pK_{a1} = 2.34$ and ammonium ion at $pK_{a2} = 9.60$. The isoelectric point of the amino acid is at pH

A. 5.97

B. 2.34

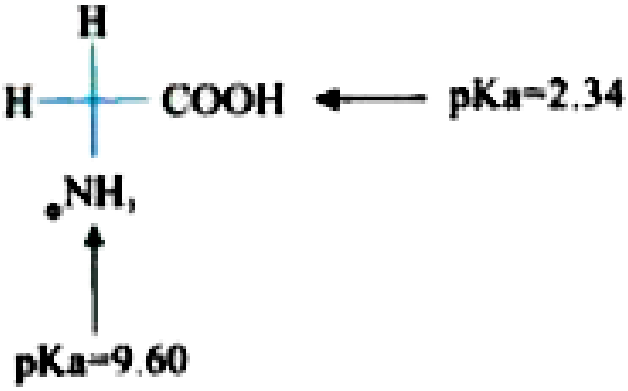
C. 9.60

D. 6.97

Answer: A

Watch Video Solution

23. What is the pI of glycine ? The structure and pKa values are shown below



A. 7.36

B. 5.97

C. 3.63

D. 11.94

Answer: B

Watch Video Solution

24. A sample of DNA has the ratio of $\frac{AT}{GC}$ is 0.8 . If the no. of moles of adenine in a sample is 25000. What is the no. of moles of cytosine in it

A. 50000

B. 40000

C. 31250

D. 62500

Answer: C

Watch Video Solution

Exercise 4 Ncert Examplar Problems

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

A. Amylose

B. Amylopectin

C. Cellulose

D. Glucose

Answer: B

Watch Video Solution

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

A. Amylose

B. Cellulose

C. Amylopectin

D. Glycogen

Answer: D

Watch Video Solution

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

A. 2 molecules of glucose

B. 2 molecules of glucose +1 , molecule of fructose

C. 1 molecule of glucose + 1 molecules of fructose

D. 2 molecules of fructose

Answer: C

Watch Video Solution

4. 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 bond

B. van der waals forces

C. Hydrogen bonds

D. Dipole -dipole interactions

Answer: C

Watch Video Solution

5. 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

6. 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

7. Nucleic acids are the polymers of

A. Nucleosides

B. Nucleotides

C. Bases

D. Sugars

Answer: B

Watch Video Solution

8. 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

9. Each polypetide in a protein has amino acids linked each other in a specific sequence. This sequence of amino acid is said to be

A. Primary structure of proteins

B. Secondary structure of proteins

C. Tertiary structure of proteins

D. quatemary structure of proteins

Answer: A

Watch Video Solution

10. 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

11. 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

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

A. Adenine

B. Thymine

C. Cytosine

D. Uracil

Answer: D

Watch Video Solution