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India's Number 1 Education App

CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

BIOMOLECULES

Exercise 1

1. Which one of the following is non-reducing sugar ?

A. Maltose

B. Lactose

C. Sucrose

D. Cellobioase

Answer: C

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2. Which of the following is the sweetest sugar?

A. Glucose

B. Fructose

C. Maltose

D. Sucrose

Answer: B

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3. Consider the following reactions

$$C_{12}H_{22}O_{11} + H_2O \xrightarrow{H^+} X + Y$$

What are the products 'X' and 'Y'?

A. Two molecules of glucose

B. Two molecules of fructose

C. One molecule of glucose and one molecule of fructose

D. None of the above

Answer: D

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

A. tautomerism

B. racemisation

C. specific rotation

D. mutarotation

Answer: D

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5. Cane sugar on hydrolysis gives

A. glucose + lactose

B. fructose + fructose

C. glucose + fructose

D. glucose + glucose

Answer: C

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6. Glucose reacts with bromine water to products :

A. acetic acid

B. saccharic acid

C. glyceraldehyde

D. gluconic acid

Answer: D

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7. Complete hydrolysis of cellulose gives:

A. D-fructose

B. D-ribose

C. D-glucose

D. L-glucose

Answer: C

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8. The correct statement about the following disaccharide is

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

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

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

D. Ring (II) is pyranose with α-glycosidic linkage

Answer: A

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9. Amylopectin is a polymer of :

A. α-D-glucose

B. α-D-fructose

C. lactose

D. amylose

Answer: A

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10. Carbohydrates are represented by the general formula

A. $C_xH_{2x}O_{2x+2}$

B. $C_x(H_2O)_x$

C. $C_x(H_2O)_y$

D. $C_x(H_2O)_{2x}$

Answer: C

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11. Why polysaccharides are called non-sugars?

A. They yield large number of monosaccharide on hydrolysis

B. They are not sweet in taste

C. They are reducing sugars

D. They are non-reducing sugars

Answer: B

12. Which of the following is used to obtain α-form of glucose?

A. It is obtained by the crystallisation from concentrated solution of glucose at 317 K

B. It is obtained by the crystallisation from concentrated solution of glucose at 303 K

C. It is obtained by the crystallisation from hot saturated aqueous solution at 303 K

D. It is obtained by the crystallisation from hot and saturated aqueous solution at 371 K

Answer: B

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13. What are the hydrolysis products of sucrose ?

A. one molecule of glucose

B. two molecule of glucose

C. one molecule of glucose and fructose

D. one molecule of glucose and maltose

Answer: C

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14. Which of the following statements is correct about fructose?

A. It is dextrorotatory compound

B. It exists in the two cyclic forms which is obtained by the addition of OH at C-5 to the gt C =O group

C. It exists as six membered ring

D. It is named as furanose as it contain one oxygen and six carbon atom

Answer: B

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15. Which of the following polysaccharide is stored in the cell wall?

A. Cellulose

B. Amylase

C. Amylopectin

D. Glycogen

Answer: A

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16. The ultimate product of the hydrolysis of starch is

A. only glucose

B. glucose and fructose in equimolar amounts

C. galactose and fructose in equimolar amounts

D. glucose and galactose in equimolar amounts

Answer: A

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17. What happens when conc. H_2SO_4 is treated with sugar?

A. dehydration

B. hydrolysis

C. reduction

D. oxidation

Answer: A

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18. Glucose and mannose are :

A. epimers

B. anomers

C. ketohexoses

D. disaccharides

Answer: A

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19. Glucose does not react with

A. Br_2 / H_2O

B. $H_2N - OH$

C. HI

D. $NaHSO_3$

Answer: D

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

A. (-)-fructose

B. (+)-sucrose

C. (+)-lactose

D. (+)-maltose

Answer: B

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21. Glucose +x phenyl hydrazine $\rightarrow$ osazone 'x' will be :

A. three

B. two

C. one

D. four

Answer: B

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22. Glucose + Tollen's reagent $\rightarrow$ silver mirror. The 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

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23. A carbohydrate is treated with α-naphthol and cone. H_2SO_4 . What colour will be formed at the junction of two liquids?

A. Blue

B. Violet

C. Green

D. Red

Answer: B

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24. 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 instantaneously

D. glucose reduces the blood sugar level slowly

Answer: C

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25. The term anomer of glucose refers to

A. isomers of glucose that differ in configurations at C-1 and C-4

B. a mixture of (D)-glucose and (L)-glucose

C. enantiomers of glucose

D. isomers of glucose that differ in configuration at (C-1)

Answer: D

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26. An organic compound answers Molisch's test as well as Benedict's test but it does not answer Seliwanoff's test. Most probably, it is

A. sucrose

B. protein

C. fructose

D. maltose

Answer: D

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27. $\alpha -$ and $\beta -$ Glucose differ in the orientation of the $(-OH)$ group around:

A. C_1

B. C_2

C. C_3

D. C_4

Answer: A

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

A. Tyrosine

B. Cysteine

C. Isoleucine

D. Serine

Answer: C

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29. How many amino acids are used in protein synthesis?

A. 15

B. 18

C. 20

D. 91

Answer: C

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

A. lactic acid

B. serine

C. alanine

D. glycine

Answer: D

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31. Which of the following is correct for Zwitter ion?

A. The carboxyl group can lose a proton and amino group can accept a proton in the aqueous solution which give rise to a dipolar ion.

B. The carboxyl group can accept a proton and amino group can lose a proton in aqueous solution which give nse to a dipolar ion.

C. The amino group can accept a proton and ester group can lose a proton in aqueous solution which give rise to dipolar ion.

D. The amino group can lose a proton in aqueous solution and ester group can accept a proton in aqueous solution which give rise to the dipolar ion.

Answer: A

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32. Amino acids exist in Zwitter ion form. What is the structure of glycine at pH = 4?

A. $H_3N^{\oplus} - CH_2 - COO^-$

B. $H_3N^{\oplus} - CH_2 - COOH$

C. $H_2N - CH_2 - COOH$

D. $H_2N - CH_2 - COO^-$

Answer: A

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33. Isoelectric point is a

A. specific temperature

B. suitable concentration of amino acid

C. hydrogen ion concentration that does not allow migration of amino acid under electric field

D. melting point of an amino acid under the influence of electric field

Answer: C

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34. The correct statement in respect of protein haemoglobin is that it

A. functions as a catalyst for biological reactions

B. maintains blood sugar level

C. act as an oxygen carrier in the blood

D. forms antibodies and offers resistance to diseases

Answer: C

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35. The α-amino acid which does not give purple colour in the ninhydrin test is

A. proline

B. glycine

C. Phenylalanine

D. aspartic acid

Answer: A

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

A. formation of amino acids

B. loss of primary structure

C. loss of both primary and secondary structures

D. loss of both secondary and tertiary structures

Answer: D

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37. Which of the following has an imino group instead of amino group $(-NH_2)$?

A. Proline

B. Isoleucine

C. Tyrosine

D. Serine

Answer: A

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38. The main force(s) which stabilise the 2° and 3° structures of proteins is/are

A. hydrogen bonds

B. disulphide linkages

C. van der Waals' and electrostatic forces of attraction

D. All of the above

Answer: D

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39. The spatial arrangement of the two or more polypeptide chains with respect to each other is known as

A. primary structure

B. secondary structure

C. tertiary structure

D. quaternary structure

Answer: D

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40. Proteins when heated with cone. HNO_3 gives a yellow colour. This Is

A. Hoppe's test

B. acid base test

C. Biuret's test

D. xanthoprotic test

Answer: D

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41. Secondary structure of proteins refers to

A. mainly denatured proteins and structure of prosthetic group

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

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

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

Answer: D

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42. In an alkaline medium, glycine predominantly exists as/in a/an

A. cation

B. anion

C. Zwitter ion

D. covalent form

Answer: B

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43. Which of the following is a heterocyclic amino acid?

A. Glycine

B. Alanine

C. Phenylalanine

D. Tryptophan

Answer: D

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44. Which of the following statement is false?

A. α-carbon of α-amino acid is asymmetric

B. All proteins are found in L-form

C. Human body can synthesise all proteins they need

D. At pH= 7, both amino acid and carboxylic groups exist in ionised form

Answer: B

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45. 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

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46. The pOH range for the isoelectric point of the amphoteric ion of an amino acid is

A. 5.5 to 6.3

B. 2.5 to 5.0

C. 7.7 to 8.5

D. 9.0 to 10.7

Answer: C

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47. Helical structure of protein is stabilised by

A. peptide bond

B. hydrogen bond

C. van der Waals' force

D. dipole association

Answer: B

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48. The linkage present in proteins and peptides is

A. $-\overset{\overset{O}{||}}{C}-NH-$

B. $-\overset{\overset{O}{||}}{C}-O$

C. $-\overset{\overset{O}{||}}{C}-O-\overset{\overset{O}{||}}{C}-$

D. $-NH-$

Answer: A

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49. Which one of the following is a conjugated protein?

A. Phosphoprotein

B. Glycoprotein

C. Chromoprotein

D. All of these

Answer: D

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50. Protein present in hair is

A. albumin

B. globulin

C. keratin

D. chromoprotein

Answer: C

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51. Biuret test is not given by :

A. carbohydrates

B. polypeptides

C. urea

D. proteins

Answer: A

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52. Which of the following acids is a vitamin?

A. Aspartic acid

B. Ascorbic acid

C. Adipic acid

D. Saccharic acid

Answer: C

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53. The vitamin which is water-soluble and is an anitoxidant is

A. Vitamin E

B. Vitamin D

C. Vitamin C

D. Vitamin B_1

Answer: C

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54. The chemical name of vitamin B_1 is

A. ascorbic acid

B. pyridoxine

C. riboflavin

D. thiamine

Answer: D

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55. Identify the vitamin whose deficiency in our blood decreases reproductive power?

A. Vitamin E

B. Vitamin D

C. Vitamin A

D. Vitamin C

Answer: A

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

A. Aluminium

B. Iron

C. Zinc

D. Cobalt

Answer: D

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57. 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

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58. Pyridoxin is also known as

A. Vitamin B_2

B. Vitamin B_6

C. Vitamin B_{12}

D. Vitamin B_1

Answer: B

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59. Which of the following is a molecular disease?

A. Allergy

B. Cancer

C. German measles

D. Sickel cell anaemia

Answer: D

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60. Which one of the following is responsible for maintaining blood sugar level in human body?

A. Riboflavin

B. Insulin

C. Fats

D. Hormones

Answer: B

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61. The bass adenine occurs in

A. DNA only

B. RNA only

C. DNA and RNA both

D. Protein

Answer: C

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62. Complete hydrolysis of DNA/RNA yields

A. a pentose sugar

B. phosphoric acid

C. base (Nitrogen containing heterocyclic compounds)

D. All of the above

Answer: D

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63. Which of the following match is correct?

A. DNA $\rightarrow \beta$ - D-3-deoxyribose

B. DNA $\rightarrow \beta$ - D-1-deoxyribose

C. RNA $\rightarrow \beta$-D-ribose

D. RNA $\rightarrow \beta$-D-3-deoxyribose

Answer: C

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64. How many different codons are possible?

A. 16

B. 32

C. 48

D. 64

Answer: D

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65. Which one of the following does not constitute the nucleic acid?

A. Uracil

B. Ribose sugar

C. Phosphoric acid

D. Guanidine

Answer: D

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66. 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

67. A base sugar phosphate' unit in nucleic acid is known as

A. nucleoside

B. phosphotide

C. nucleotide

D. None of these

Answer: C

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

A. Uracil

B. Thymine

C. Ribose

D. Phosphate

Answer: B

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69. A nucleoside on hydrolysis gives

A. a heterocyclic base and orthophosphoric acid

B. an aldopentose, a heterocyclic base and orthophosphoric acid

C. an aldopentose and a heterocyclic base

D. an aldopentose and orthophosphoric acid

Answer: C

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70. Which of the following is true statement?

A. Nucleoside + phosphoester bond = nucleotide

B. DNA's are nucleotide and RNA's are nucleoside

C. Nucleotide + phosphoester bond = nucleoside

D. None of the above

Answer: A

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71. Which of the following is not present in nucleotide?

A. Cytosine

B. Guanine

C. Adenine

D. Tyrosine

Answer: D

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72. RNA contains

A. ribose sugar and thymine

B. ribose sugar and uracil

C. deoxyribose sugar and uracil

D. deoxyribose sugar and thymine

Answer: B

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73. The main difference between fat and oil,is that

A. oils possess low molecular weights

B. oils are the glycerides of fatty acids

C. oils have low melting point

D. All of the above

Answer: D

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74. The one which has least iodine value is

A. ginger oil

B. ghee

C. groundnut oil

D. sunflower oil

Answer: B

75. A distinctive and characteristic functional group of fat is

A. a peptide group

B. an ester group

C. an alcoholic group

D. a ketonic group

Answer: B

76. Waxes are

A. glycerol

B. long chain alcohols

C. glycerol and fatty acid

D. long chain alcohols and long chain fatty acids

Answer: D

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77. Calorific value is in the order

A. Fats gt Carbohydrates gt Proteins

B. Carbohydrates gt Fats gt Proteins

C. Proteins gt Carbohydrates gt Fats

D. Fats gt Proteins gt Carbohydrates

Answer: A

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78. Adenosine is an example of

A. nucleotide

B. nucleoside

C. purine base

D. pyrimidine base

Answer: B

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79. Lipids are

A. nucleic acids occurring in plants

B. proteins occurring in animals

C. carbohydrates occurring in plants

D. fats of natural origin

Answer: D

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80. Hardening of fat (lipid) is due' to

A. hydrogenation

B. dehydrogenation

C. halogenation

D. dehydrohalogenation

Answer: A

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81. Growth hormones are produced from

A. fatty acid precursors

B. fatty acids

C. amino acids

D. carbohydrates

Answer: C

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82. Which one of the following hormone controls blood pressure?

A. Adrenal

B. Thyroid

C. Thymus

D. Adrenaline

Answer: A

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83. Insulin deficiency produces

A. increased entry of glucose into cells

B. reduced entry of glucose into cells

C. decreased release of glucose from liver

D. no effects on carbohydrate

Answer: A

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84. The hormone thyroxin is involved in

A. control of tissue metabolism

B. regulation of growth

C. inhibits the production of urine

D. effect on growth of body

Answer: A

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

A. Adrenaline

B. Vasopressine

C. Oxytocin

D. Testosterone

Answer: A

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Exercise 2

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

A. Glucose forms pentaacetate

B. Glucose reacts with hydroxylamine to form an oxime

C. Pentaacetate of glucose does not react with hydroxylamine

D. Glucose is oxidised by nitric acid to gluconic acid

Answer: C

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2. Which of the following statement is false about the given structure?

A. These are the isomers of glyceraldehyde

B. Both contain one asymmetric carbon atom

C. Both exists in the two enantiomeric form

D. I $\rightarrow$ (-)-glyceraldehyde said to have L-configuration

II $\rightarrow$ (+)-glyceraldehyde said to have D-configuration

Answer: D

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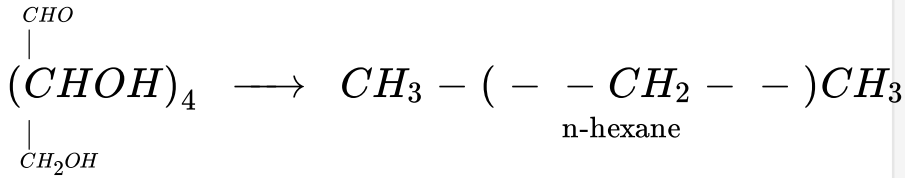
3. Name the reagent following reaction.



Choose the correct option.

A. HF, Δ

B. HCl, Δ

C. HBr, Δ

D. HI, Δ

Answer: D

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4. Consider the following statements: I. Glucose occur freely in nature. II. Glucose occur in the combined form.

lll. Glucose present in sweet fruits and honey.

IV. Ripe grapes contain glucose in large amounts.

Select the correct statement(s) and choose the most appropriate option.

A. I and III

B. II and III

C. IV and I

D. I, II, III and IV

Answer: D

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5. 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

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

A. thiamine

B. ascorbic acid

C. riboflavin

D. pyridoxine

Answer: C

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7. Which one of the following pair is the reducing sugar?

A. Sucrose and maltose

B. Maltose and lactose

C. Lactose and sucrose

D. Sucrose and glucose

Answer: B

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8. A polysaccharide is composed only of β-D-glucose units which are joined by glycosidic linkage between C-1 of one glucose unit and C-4 of the next glucose unit. Name the polysaccharide.

A. Amylase

B. Cellulose

C. Amylopectin

D. Glycogen

Answer: B

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9. What is the product treated with Br_2 water?

A. 

B. 

C. 

D. 

Answer: B

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10. Name the molecule which is eliminated during the formation of peptide bond.

A. Acid

B. Amine

C. Water

D. Alcohol

Answer: C

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11. "When the polypeptide chains run parallel and are held together by hydrogen and disulphide bonds, then fibre like structure is formed. Such proteins are generally insoluble in water."

Name the type of protein which favours the above information.

A. Fibrous protein

B. Globular protein

C. Primary protein

D. Tertiary protein

Answer: A

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12. Which one of the following amino acid has phenyl OH group?

A. Lysine

B. Arginine

C. Proline

D. Tyrosine

Answer: D

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13. A tripeptide is composed equally of L-tyrosine, L-glycine and L-valine (one molecule of each). How many number of tripeptides can be obtained?

A. 3

B. 4

C. 6

D. 8

Answer: C

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14. What is/are the products(s) formed in the anaerobic degradation of glucose?

A. One molecule of pyruvic acid

B. Two molecules of pyruvic acid

C. Three molecules of pyruvic acid

D. Four molecules of pyruvic acid

Answer: B

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15. Which of the following disease(s) is/are caused by the deficiency of the enzyme phenyl ketone urea?

A. Congential disease

B. Albinism disease

C. Both (a) and (b)

D. None of these

Answer: A

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16. Consider the following statements :

I. Vitamins are the organic compounds required in small amounts in the diet but their deficiency causes specific disease.

II. Vitamins cannot be synthesised by plant but our body

can only synthesise them.

III. Some of the vitamins are produced by the bacteria's gut.

IV. Vitamins are necessary to perform the specific biological functions tor the normal maintenance of optimum growth and health of the organism.

Select the false statement about the vitamins and choose the correct option.

A. Only I

B. Only II

C. Only III

D. Only IV

Answer: B

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17. Which one of the following reagent is used to determine the C-terminal end in a polypeptide?

A. Hydrazine

B. 2,4-dinitro phenylhydrazine

C. 2,4-dinitrofluorobenzene

D. 3,5-difluoronitrobenzene

Answer: A

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18. Which of the following product is formed during the oxidation of glucose by Fehling's solution and Benedict's solution?

A. CuO

B. Cu_2O

C. $Cu(OH)_2$

D. Cu

Answer: B

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19.

$$R - \underset{\displaystyle \overset{\displaystyle \overset{+}{N}H_3}{|}}{C}H - COO^- \xrightarrow{pH=12} R - \underset{\displaystyle \overset{\displaystyle \overset{NH_2}{|}}{|}}{C}H - COO^- \xrightarrow{H^+} Z$$

compound Z is

A. $R - \underset{\displaystyle \overset{\displaystyle \overset{NH_2}{|}}{|}}{C}H - COO^-$

B. $R - \underset{\displaystyle \overset{\displaystyle \overset{\overset{+}{N}H_3}{|}}{|}}{C}H - COO^-$

C. $R - \underset{\displaystyle \overset{\displaystyle \overset{\overset{+}{N}H_3}{|}}{|}}{C}H - COOH$

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

Answer: B

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20. Deficiency of biotin causes dermatitis and paralysis, biotin is also known as

A. Vitamin B_1

B. Vitamin H

C. Vitamin B_{12}

D. Vitamin D

Answer: B

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21. What would be the product formed during the reaction?

$$\underset{\text{(Glucose)}}{C_6H_{12}O_6} \xrightarrow[(ii)\,H_2O\,(iii)\,HI]{(i)\,HCN}$$

A. Hexanoic acid

B. Heptanoic acid

C. α - methylcaproic acid

D. None of these

Answer: B

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22. Osazone formation involves only 2 carbon atoms of glucose because of

A. chelation

B. oxidation

C. reduction

D. hydrolysis

Answer: B

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23. 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. 5' and 5'

C. 1' and 5'

D. 3' and 3'

Answer: A

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24. The product of the reaction,

D-glyceraldehyde $\xrightarrow[HCl]{Me_2CO}$ $\xrightarrow{H_2C=CHMgCl}$ $\xrightarrow{O_3}$ is/are ?

A. 

B. 

C. 

D. 

Answer: A

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25. A mixture of two amino acids having pl 9.60 and 5.40 can be separated

A. by adjusting the pH of the solution at 9.60

B. by adjusting the pH of the solution at 5.40

C. by adjusting the pH of the solution at 7.0

D. by adjusting the pH of the solution at 14.0

Answer: B

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26. If K_{a_1} and K_{a_2} are the ionisation constant of $H_3\overset{+}{N}CHRCOOH$ and $H_2NCHRCOO^-$, respectively the pH of the solution at the isoelectric point is

A. $pH = (pK_{a_1} + pK_{a_2})$

B. $pH = (ppK_{a_1} - pK_{a_2})^{\frac{1}{2}}$

C. $pH = (pK_{a_1} + pK_{a_2})^{\frac{1}{2}}$

D. $pH = (ppK_{a_1} + pK_{a_2})^2$

Answer: C

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

A. C_5 and C_1 respectively of the sugar molecule

B. C_1 and C_5 respectively of the sugar molecule

C. C_2 and C_5 respectively of the sugar molecule

D. C_5 and C_2 respectively of the sugar molecule

Answer: A

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28. The tripeptide hormone present in most living cells is

A. glutathione

B. glutamine

C. oxytocin

D. ptyalin

Answer: A

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29. Glucose reacts with methyl alcohol to give

A. α - methyl glucoside

B. β - methyl glucoside

C. Both a and b

D. None of these

Answer: C

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

A. Mannose

B. Galactose

C. Maltose

D. Fructose

Answer: D

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

A. an amino acid

B. a monosaccharide

C. a lipid

D. a protein

Answer: B

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

A. Nitro compounds

B. Sugars

C. Amines

D. Primary alcohols

Answer: B

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33. Which of the following is a simplest aminoacid?

A. Glycine

B. Alanine

C. Leucine

D. Valine

Answer: A

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34. Which ·one of the following statements is correct?

A. All amino acids except lysine are optically active

B. All amino acids are optically active

C. All amino acids except glycine are optically active

D. All amino acids except glutamic acids are optically

Answer: C

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35. Sucrose is not a reducing sugar since

A. it conains no free aldehyde or keto group adjacent to a  group

B. it is built up of a fructose unit

C. it is optically active

D. it is chemically stable

Answer: A

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36. Vitamin B_6 is known as

A. Pyridoxine

B. Thiamine

C. Tocopherol

D. Riboflavin

Answer: A

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

A. Ouinoline

B. Adenine

C. Cytosine

D. Thymine

Answer: A

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38. Which of the following statement is incorrect?

A. Aldose or 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_4 of glucose and C_1 galactose unit

Answer: A

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39. In DNA, the consecutive deoxynucleotides are connected via

A. phosphodiester linkage

B. phosphomonoester linkage

C. phosphotriester linkage

D. amide linkage

Answer: A

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40. Which of the following is incorrect?

A. Chlorophyll is responsible for the synthesis of carbohydrates in plants

B. The compound formed in the addition of oxygen to haemoglobin is called oxyhaemoglobin

C. Acetyl salicylic acid is known as aspirin

D. The metal ion present in vitamin B_{12} is Mg^{2+}

Answer: D

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41. The carbohydrate used as storage molecule in animal is

A. sucrose

B. glycogen

C. maltose

D. glucose

Answer: B

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42. Which of the following amino acid is neutral?

A. Aspartic acid

B. Glycine

C. Lysine

D. Arginine

Answer: B

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

A. 1st

B. 2nd

C. 3rd

D. 4th

Answer: B

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

A. $-OH$ and -COOH

B. $-CHO$ and -COOH

C. 

D. $-OH$ and $-CHO$

Answer: C

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45. The primary structure of a protein refers to

A. α-helical backbone

B. hydrophobic interaction

C. sequence of α-amino acids

D. fixed configuration of the polypeptide backbone

Answer: A

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46. Which one of the following statements about amino acids is false?

A. They are constituents of all proteins.

B. They are all high melting solids.

C. Most naturally occurring amino acids have D-configuration.

D. They are characterised by isoelectric point.

Answer: C

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47. During the process of digestion, the proteins present in food materials are hydrolysed to amino acids. The two enzymes A and B, involved in the process

proteins $\xrightarrow{\text{Enzyme (A)}}$ polypeptides $\xrightarrow{\text{Enzyme (B)}}$ amino acids, respectively are

A. amylase and maltase

B. diastase and lipase

C. pepsin and trypsin

D. invertase and zymase

Answer: C

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

A. eutectic point

B. yielding point

C. isoelectric point

D. effusion

Answer: C

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49. Methyl-α-D-glucoside and methyl-β-D-glucoside are

A. epimers

B. anomers

C. enantiomers

D. conformational diastereomers

Answer: B

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50. How many hydrogen bonds are present between pair of thymine and adenine in DNA?

A. 1-hydrogen bond

B. 2-hydrogen bond

C. 3-hydrogen bond

D. No bonds occur

Answer: B

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51. Which of the following statements is incorrect?

A. Functional isomerism is shown by

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

B.

$$H - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{OH}{|}}{C}} - H \xrightarrow{\text{Conc.}H_2SO_4} H - \overset{\overset{H}{|}}{C} = \overset{\overset{H}{|}}{C} - H + H_2O$$

C. Glucose is a monosaccharide sugar

D. Fructose is a disaccharide sugar

Answer: D

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52. Which one of the following statements is incorrect for the sucrose?

A. It is obtained from cane sugar.

B. It is not reducing sugar.

C. On hydrolysis, it gives equal quantities of D-glucose and D-fructose.

D. It gives aspartame when it Is heated at $210^{\circ} C$.

Answer: D

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53. Which of the following does not form an oxime?

A. Glucose

B. Glucose pentaacetate

C. Arabinose

D. Galactose

Answer: B

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54. Proteins when heated with cone. HNO_3 give a yellow colour. This is

A. oxidising test

B. xanthoprotic test

C. Hoppe's test

D. acid-base test

Answer: B

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55. The enzyme which hydrolysis triglycerides to fatty acids and glycerol is called

A. maltase

B. lipase

C. zymase

D. pepsin

Answer: B

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56. The enzyme pepsin hydrolyses

A. protein to amino acids

B. fats to fatty acids

C. polysaccharides to monosaccharides

D. glucose to ethylalcohol

Answer: A

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57. Enzyme trypsin converts

A. starch into sugar

B. proteins into α-amino acids

C. glucose into glycogen

D. α- amino acids into proteins

Answer: B

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58. Deficiency of vitamin A causes

A. Beri beri

B. Scurvy

C. Night bindness

D. Sterility

Answer: C

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59. Exposure of sunlight help to synthesise which vitamin in our body?

A. A

B. B

C. C

D. D

Answer: D

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60. Cortisone is

A. Steroid

B. Protein

C. Ester

D. Vitamin

Answer: A

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Mht Cet Corner

1. 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

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2. Which of the following amino acid is basic in nature?

A. Valine

B. Tyrosine

C. Arginine

D. Leucine

Answer: C

View Text Solution

3. During conversion of glucose into glucose cyanohydrin, what functional group/atom of glucose is replaced?

A. Hydrogen

B. Aldehydic group

C. Primary alcoholic group

D. Secondary alcoholic group

Answer: B

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4. One mole of stachyose on hydrolysis yields

A. 1 mole of glucose + 1 mole of fructose + 2 moles of galactose

B. 2 moles of glucose + 1mole of fructose + 1 mole of galactose

C. 1 mole of glucose + 2 moles of fructose + 1 mole of galactose

D. 2 moles of glucose + 2 moles of fructose

Answer: A

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5. Deficiency of which vitamin causes degeneration of spinal cord?

A. E

B. K

C. B_{12}

D. A

Answer: C

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6. Glucose on reaction with Br_2 water gives

A. glucaric acid

B. gluconic acid

C. saccharic acid

D. citric acid

Answer: B

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7. The prosthetic group of haemoglobin is

A. porphin

B. globulin

C. haem

D. gelatin

Answer: C

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8. Which of the following is a trisaccharide?

A. Stachyose

B. Sucrose

C. Raffinose

D. Ribose

Answer: C

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9. Glucose on reaction with Fehling solution gives

A. cupric oxide

B. curprous oxide

C. saccharic acid

D. Both (b) and (c)

Answer: B

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10. Stachyose is a

A. monosaccharide

B. disaccharide

C. trisaccharide

D. tetrasaccharide

Answer: D

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

A. four

B. one

C. two

D. three

Answer: D

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12. The compound, which give a positive ninhydrin test arid a negative Benedict's solution test, is

A. a monosaccharide

B. a disaccharide

C. a lipid

D. a protein

Answer: D

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13. Sucrose on hydrolysis gives

A. glucose and maltose

B. glucose and lactose

C. glucose and fructose

D. only glucose

Answer: C

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14. Glucose gives silver mirror with ammoniacal nitrate because it has

A. aldehyde group

B. ester group

C. ketone group

D. alcoholic silver nitrate

Answer: A

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15. Zwitter ion is formed by

A. aniline

B. acetanilide

C. benzoic acid

D. glycine

Answer: D

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16. Fats are ester of

A. sugar

B. glycerol

C. tributyrine

D. polypeptide

Answer: B

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17. Raffinose is

A. trisaccharide

B. disaccharide

C. monosaccharide

D. polysaccharide

Answer: A

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18. Glucose on oxidation gives the acid containing the C-chiral atoms equal to

A. 2

B. 3

C. 4

D. 5

Answer: C

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19. Which of the following contains nitrogen?

A. Proteins

B. Fats

C. Oils

D. Carbohydrates

Answer: A

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20. Fat consists of

A. monohydroxy carboxylic acid

B. monohydroxy aliphatic carboxylic acid

C. monohydroxy, aliphatic, saturated carboxylic acid

D. dihydroxy aliphatic carboxylic acid

Answer: C

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21. Which of the following is a disaccharide?

A. Glucose

B. Ribolose

C. Lactose

D. Arabinose

Answer: C

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22. Glucose has functional group

A. aldehydic

B. aldehydic and alcoholic

C. alcoholic

D. ketonic and alcoholic

Answer: B

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23. The formula of fat is

$CH_2O - CO - C_{16}H_{31}$

|

A. $CHO - CO - C_{16}H_{31}$

|

$CH_2O - CO - C_{16}H_{31}$

$CH_2O - CO - C_{17}H_{33}$

|

B. $CHO - CO - C_{17}H_{33}$

|

$CH_2O - CO - C_{17}H_{33}$

$CH_2O - CO - C_{17}H_{35}$

|

C. $CHO - CO - C_{17}H_{35}$

|

$CH_2O - CO - C_{17}H_{35}$

$CH_2O - CO - C_{15}H_{29}$

|

D. $CHO - CO - C_{15}H_{29}$

|

$CH_2O - CO - C_{15}H_{29}$

Answer: C

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24. Protein gives blue colour with

A. Benedict reagent

B. iodine solution

C. Ninhydrin

D. Biuret reagent

Answer: C

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