



CHEMISTRY

JEE (MAIN AND ADVANCED) CHEMISTRY

BIOMOLECULES



1. Can all the trioses are optically active ?



2. A disaccharide 'X' on hydrolysis gives two C-epimeric monosaccharides 'Y' and 'Z'. Then what is 'X'?



Why?

6. There are three disaccharides A, B and C. The hydrolysis products of 'A'are functional isomers and of 'B'are epimers. But the hydrolysis products of 'C' are neither epimers nor functional isomers. Then what are A, B and C?

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7. Why sucrose is called invert sugar?



8. Mutarotation is observed maltose and lactose. Why?



9. Both sucrose and lactose possess the same molecular formula, but sucrose is a non-reducing sugar and lactose is a reducing sugar. Why?

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- 10. Which is more stable among lpha-D- glucose and
- $eta D {
 m glucose}$? Why?

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11. Glycine is optically inactive. Why?

12. Is it possible to get original egg after boiling?

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13. What is called a 3.6_{13} helix of protein ?
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14. What is meant by avitaminosis?
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15. Who needs more vitamins, either elders or youngsters ?

16. What is the difference between animal and plant hormones?

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17. Can all the trioses are optically active ?



18. A disaccharide 'X' on hydrolysis gives two C-epimeric monosaccharides 'Y' and 'Z'. Then what is 'X'?

19. Can all the disaccharides are reducing sugars ?

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20. Though fructose is a keto hexose, it is a reducing sugar.

Why?

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21. Starch and cellulose possess the same molecular formula,

but starch is water soluble and cellulose is water insoluble.

Why?

22. There are three disaccharides A, B and C. The hydrolysis products of 'A'are functional isomers and of 'B'are epimers. But the hydrolysis products of 'C' are neither epimers nor functional isomers. Then what are A, B and C?

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23. Why sucrose is called invert sugar?

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24. Mutarotation is observed maltose and lactose. Why?

25. Both sucrose and lactose possess the same molecular formula, but sucrose is a non-reducing sugar and lactose is a reducing sugar. Why? Watch Video Solution **26.** Which is more stable among $\alpha - D - \beta$ glucose and $\beta - D -$ glucose? Why? Watch Video Solution

27. Why glucoses called dextrose andfructose is called laevulose ?



28. Glycine is optically inactive. Why?



31. Why adenine always pairs with thymine and guanine with

cytosine ?





32. Why DNA finger printing is useful for indentifying criminals ?

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33. What is meant by avitaminosis?



34. Who needs more vitamins, either elders or youngsters ?

35. What is the difference between animal and plant hormones?



36. Progesterone

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Subjective Exercise 1 Short Answer Questions

1. What are di, tri and oligo saccharides? Give examples.



2. What is the difference between starch and cellulose?

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3. What is meant by $d - 1 - and D, L - notations among monosaccharides?$
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4. What is animal starch? Why is it called so?



5. Define reducing and non-reducing sugars.

6. Give the structures of α -Glucopyranose and β – Glucopyranose.

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7. Starch is soft but cellulose is hard and rigid. Explain?

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8. What is mutarotation? Discuss with respect to van Ekenstein's rearrangement.

9. What is the basic structural difference between starch and

cellulose?



10. Why hydrolysis of sucrose is called inversion of sucrose ?

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11. Explain the cyclic structures of glucose and fructose.



12. Write the linkage present between the monomers of the

following disaccharides:





sugar, Why?

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14. How many stereomers are possible for aldohexose and

ketohexose?



15. What are the hydrolysis products of sucrose, maltose and

lactose ?



16. How can you say that in the pentaacetate of D-Glucose,

there is no free aldehydic group ?



17. Give two main functions of carbohydrates in plants.

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Subjective Exercise 2 Short Answer Questions

1. What are petides ? Give example ?

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2. What is the main component present in purine and		
pyramidine ?		

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3. Which sugars are present in DNA and RNA ? Give these structures.



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5. Explain the structures of DNA and RNA.
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6. Write the structures of purine and pyrimidine bases.
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7. What are essential and non-essential amino acids?



8. Differentiate between nucleoside and nucleotide.

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9. What is	Glycoside	bond	? Wł	nere'N'	glycoside	bond	is
present ?							

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10. What is meant by denaturation and renaturation?



11. What is a peptide bond? How is the sequence of amino

acids taken?

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12. Write the structures of purines.
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13. Write the structures of pyrimidine bases.

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14. Draw the structures of ribose and deoxyribose sugars.





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

• Watch Video Solution 19. Explain that the two strands of DNA are not identical, but are complementary.

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Subjective Exercise 3 Short Answer Questions

1. What are hormones and how are they classified ?



2. What are stereoidal and non steroidal hormones ? Give

examples.

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3. What are the deficiencies caused by vitamins A, D, E and K? What are the characteristics of vitamins ? Write the sources of vitamins.

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4. Write the formula and function of vitamin A.

5. Write the deficiency defects of vitamins B_1, B_2, B_6 and B_{12}



6. Write two plant hormones.

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7. What are water soluble and fat soluble vitamins ?



8. Write the role of thyroxin.





11. What are the deficiencies caused by vitamins . A, D, E and

K?



1. Which one of the following is a pentose sugar?

A. Ribose

B. Arabinose

C. Lyxose

D. All the three

Answer: D



2. Monosaccharides contain

A. Six carbon atoms only

B. Five carbon atoms only

C. Four carbon atoms only

D. May contain 3 to 7 carbon atoms.

Answer: D



3. Raffinose on hydrolysis gives

A. glucose, fructose and lactose

B. glucose, fructose and galactose

C. fructose, glucose and erithrose

D. glucose, fructose and mannose

Answer: B

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4. Which of the following is not an oligosac charide ?

A. Xylose

B. Maltose

C. Raffinose

D. Sucrose

Answer: A

5. A Laevorotatory sugar present in fruits is

A. Glucose

B. Fructose

C. Sucrose

D. Lactose

Answer: B



6. Glucose is not

A. a hexose

B. a carbohydrate

C. an oligosaccharide

D. an aldose

Answer: C

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7. On heating glucose with Fehling solution, we get a precipitate whose colour is

A. Orange

B. Red

C. Black

D. White

Answer: B



8. Glucose gives silver mirror test with Tollen's reagent. It shows the presence of

A. Carboxylic group

B. Alcoholic group

C. Ketonic group

D. Aldehydic group

Answer: D



9. The reagent which forms crystalline osazone derivatives with glucose is

A. Fehling solution

B. Phenyl hydrazine

C. Benedict's solution

D. Hydroxylamine

Answer: B

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10. When glucose is heated with nitric acid the product is

A. Lactic acid

B. Saccharic acid

C. Glycollic acid

D. Oxalic acid

Answer: B



11. Glucose when heated with CH_3OH in presence of dry HCl gas gives a and B methyl glycosides because it contains

A. a -CHO group

B. a $-CH_2OH$ group

C. a ring structure

D. Five -OH groups

Answer: C

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12. When hemiacetal reacts with alcohol the product is

A. dihemiacetal

B. alcohol

C. acetal

D. Peptide

Answer: C

13. Freshly prepared a-D-glucose solution has specific rotation

 $+111^{\,\circ}\,$ and after sometime it becomes

A. $+52^{\circ}$

 $\mathrm{B.}+99^{\circ}$

 ${\sf C.}-92^\circ$

D. None

Answer: A

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14. Which does not show mutarotation?

A. Glucose
B. Fructose

C. Maltose

D. Sucrose

Answer: D



15. Ring structure of glucose is due to formation of hemiacetal and ring formation is in between

A. C_1 and C_5

 $B. C_1$ and C_4

 $\mathsf{C}. C_1$ and C_3

 $D. C_2$ and C_4

Answer: A

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16. The wrong statement about glucose is

A. It has one $1^{\circ}-$ alcoholic group

B. It has four 2° - alcoholic group

C. It has one aldehydic group

D. It has one $3^\circ\,-\,$ alcoholic groups

Answer: D

17. Fructose contains

A. 3 Secondary alcoholic groups

B. One ketonic group

C. 2 Primary alcoholic groups

D. All the above

Answer: D

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18. The fischer projection of glyceraldehyde representing correct configuration in terms of D & L, R & S and d & 1

designations respectively



A. D, R, d

B. D, R, I

C. D, S, d

D. D, S, I

Answer: A





19. Which of the following is called as Laevulose?

A. Glucose

B. Fructose

C. Lactose

D. Maltose

Answer: B



20. The sweetest sugar among the following is

A. Fructose

B. Glucose

C. Sucrose

D. lactose

Answer: A



21. For naturally occurring fructose, the configuration and sign of specific rotation respectively

A.
$$D, -$$

- $\mathsf{B.}\,D,\ +$
- $\mathsf{C}.\,L,\ -$

D. L. +

Answer: A

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22. Glyceraldehyde and Dihydroxy acetone are a pair of

A. Anomers

B. Enantiomeres

C. Functional isomers

D. Epimers

Answer: C

23. According to CIP rules, the configuration of (+) -glyceraldehyde can be designed as

B. S C. D

A.R

D. L

Answer: A

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24. Accroding to CIP rules, the configuration of chiral carbon atoms in $D - (+) - \,$ glucose are

A. 2S, 3S, 4R, 5R

B. 2S, 3R, 4S, 5R

C. 2R, 3R, 4S, 5S

D. 2R, 3S, 4R, 5R

Answer: D

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25. Glucose and cane sugar can't be distinguished by

A. Fehling's solution

B. Baeyer's reagent

C. Tollens' reagent

D. Benedict's solution

Answer: B

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26. In which of the following all are disaccharides?

A. Maltose, Sucrose, Lactose

B. Maltose, Lactose, Glucose

C. Glycogen, Lactose, Sucrose

D. Starch, Maltose, Lactose

Answer: A



27. A disaccharide on hydrolysis gives

A. Two molecules of the same mono saccharide

B. Two differnt monosaccharides

C. Three molecules of the same mono saccharide

D. Two molecules of the same or different monosaccharides

Answer: D

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28. Change in optical rotation of sucrose solution due to hydrolysis is called

A. Specific rotation

B. Inversion

C. Rotatory motion

D. Mutarotation

Answer: B

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29. Inverted sugar is

A. Optically inactive form of sugar

B. Equimolecular mixture of glucose and fructose

C. Mixture of glucose and fructose

D. A variety of cane sugar

Answer: B

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30. Which of the following is not a reducing sugar?

A. Glucose

B. Sucrose

C. Lactose

D. Maltose

Answer: B

31. Explain the classification of carbohydrates.

A. Link between two carbon atoms in a carbohydrate by a

covalent bond

B. Link between a carbon atom and an oxygen atom

C. Link between carbon atoms in a carbo hydrate through

an oxygen atom formed by elimination of water

D. None of these

Answer: C



32. Identify the one which does not belong to the class to which the other three belong based on hydrolysis

A. Sucrose

B. Fructose

C. Lactose

D. Maltose

Answer: B

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33. Which among the following does not give a silver mirror

test with Tollen's reagent?

A. Fructose

B. Glucose

C. Galactose

D. Sucrose

Answer: D

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34. Sucrose molecule contains

A. a glucopyranose and a fructopyranose units

B. a glucopyranose and a fructofuranose units

C. a glucofuranose and a fructopyranose units

D. a glucofuranoseand a fructofuranose units

Answer: B

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35. Maltose consists of

A. Only lpha - D glucose units

B. α - and B - D Glucose units

C. Glucose and fructose

D. Fructose only Polysaccharides

Answer: A

36. Which of the following is animal polysaccharide?

A. Amylopectin

B. Glycogen

C. Amylose

D. Cellulose

Answer: B



37. Amylose consists of

A. Branched chain of $lpha - D - \,$ glucose units

B. Unbranched chain of $\beta - D - \,$ glucose units

C. Units of sucrose

D. Unbranched chain of $lpha - D - \,$ glucose units

Answer: D

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38. Amylopectin is a polymer of

A. $\beta - D$ glucose

B. $\alpha - D$ glucose

C. $\beta - D$ fructose

D. $\alpha - D$ fructose

Answer: B



39. In Amylpectin the linkage absent is

A. $C_1\&C_4$

B. $C_1 \& C_6$

 $\mathsf{C}.\,C_1\&C_2$

D. Both $C_1 \& C_6$ and $C_1 \& C_4$

Answer: C

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40. Directconversion of starch into glucose may be carried

out by

A. fermentation with diastase

B. fermentation with zymase

C. heating it with dil HCI

D. fermentation with maltase

Answer: C

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41. The intermediate compound in the conversion of starch to

glucose is

A. Lactose

B. Maltose

C. Fructose

D. Sucrose

Answer: B



42. Starch is turned to disaccharide in presence of

A. Maltase

B. Zymase

C. Diastase

D. Lactase

Answer: C



43. Which one of the following statements about starch is correct?

A. It occurs in the cell wall of plants

B. It is a disaccharide

C. It gives a dark blue colour with iodine solution

D. It gives an orange red precipitate on boiling with

Fehling's solution

Answer: C



44. Which of the following carbohydrates is the essential

constituent of cell wall?

A. Starch

B. Maltose

C. Cellulose

D. Sucrose

Answer: C

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45. Cellulose is

A. L- fructose

B. D-fructose

C. D-glucose

D. Amylose

Answer: C

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46. Cellulose is

A. hydrogen Bonding

B. $\beta(1.4)$ glycosidic linkage

C. cell wall material

D. vegetable matter

Answer: A

47. Which of the following can exist as food storages and structural materials?

A. Monosaccharides

B. Disaccharides

C. Oligosaccharides

D. Polysaccharides

Answer: D

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48. The carbohydrates are stored in animal bodies as

A. Starch

B. Amylum

C. Glycogen

D. Cellulose

Answer: C

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49. Which of the following is a branched chain polysaccharide?

A. Cellulose

B. Raffinose

C. Amylose

D. Glycogen

Answer: D

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50. Which of the following antiseptic is a carbohydrate ?

- A) Streptomycin
- B) Gentamycin
- C)Neomycin
 - A. A, B
 - B. A, C
 - C. B, C

D. A, B, C

Answer: D



51. (A) Glucose shows mutarotation

(R) Glucose is in pyranose form and has free anomeric hydroxyl group.

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: A

52. (A) Sucrose is not a reducing sugar.

(R) In sucrose, glucose is in pyranose form and fructose is in furanose form.

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: B

53. (A) Fructose is the sweetest naturally occuring sugar.

(R) Fructose is a functional isomer of glucose.

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: B



54. (A) Cellulose is not digested by human beings.

(R) Human beings are not having cellulose digestable enzymes.

A. Both A & R are true and R is the correct explanation of

A

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: A

55. (A) In a sucrose molecule, glucose is present in the furanose form and fructose is present in the pyranose form.(R) Pyranose and furanose are homocyclic ring compounds.

A. Both A & R are true and R is the correct explanation of

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: B

А

56. (A) Reducing sugars undergo mutarotion.

(R) During mutarotation, one pure anomer is converted into an equilibrium mixture of two anomers

A. Both A & R are true and R is the correct explanation of

Α

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: A

57. (A) Galactose is the C_4 epimer of glucose.

(R) Glucose and galactose differ in configura- tion at C_4 .

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: A



58. (A) Sucrose is an example of reducing sugar.

(R) Sucrose gives silver mirror test with Tollens reagent.

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: B


59. (A): Lactose on hydrolysis gives glucose and gallactose.

(R): Lactose is an example of disaccharide.

A. Both A & R are true and R is the correct explanation of

А

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: **B**



60. (A) Cellulose is not digested by human beings.

(R) Human beings are not having cellulose digestable enzymes.

A. Both A & R are true and R is the correct explanation of

A

B. Both A & R are true, but R is not the correct explanation

of A

C. A is true, R is false

D. A is false, R is true

Answer: A

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61. The peptide linkage is

A.
$$-\overset{|}{C}H - COO - NH$$

B. $-\overset{|}{C}H - CO - NH -$
C. $-\overset{|}{C}H - CH_2 - CO - NH_2$
D. $-\overset{|}{C}H - NH - NH - CO -$

Answer: B



62. Which of the following contains nitrogen ?

A. Fats

B. Proteins

C. Carbohydrates

D. Hydrocarbons

Answer: B

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63. The building unit of all proteins are

A. Monosaccharides

B. lipids

C. amino acids

D. primary amines

Answer: C



64. Number of peptide linkages in the artificial sweetner "aspartame" is

A. 3 B. 2 C. 6

Answer: B

D. 4

D Watch Video Solution

65. The structural feature which distinguishes proline from lpha

- amino acids is that

A. It is optically inactive

B. It contains aromatic group

C. It is a dicarboxylic acid

D. It is a secondary amine

Answer: D

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66. Which of the following amino acids possesses a non polar

side chain

A. isoleucine

B. serine

C. cysteine

D. glutamic acid

Answer: A

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67. Which of the following amino acids contains a thiol group

in the side chain

A. methionine

B. cysteine

C. valine

D. serine

Answer: B

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68. The amino acid which contain a hydroxy group in the side chain

A. cysteine

B. glutamine

C. serine

D. Leucine

Answer: C



69. Essential amino acid among the following is

A. Glycine

B. Tryptophan

C. Alanine

D. Proline

Answer: B



70. The number of amino acids found in proteins that a human body can synthesize is

A. 20

B. 10

C. 5

Answer: B



71. Which one of the following is not an essential anino acid?

A. Valine

B. Leucine

C. Lysine

D. Alanine

Answer: D



72. Among the following the basic amino acid is

A. Glycine

B. Argenine

C. Proline

D. Cysteine

Answer: B

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73. Which of the following statement is not correct ?

A. proteins are polyamides formed from amino aicds

B. except glycine, all other amino acids show optical

activity

C. natural proteins are made up of L -isomers of amino

acids

D. in α amino acids, $-NH_2$ and -COOH groups are

attached to different carbon atoms

Answer: D

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74. For an aminoacid 'X', the isoelectric point is 6.1. Then 'X' is

A. Acidic amino acid

B. Basic amino acid

- C. Neutral amino acid
- D. Acidic or basic amino acid

Answer: C

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75. Which of the following statements is not correct

A. amino acid can exist as inner salt

B. each polypeptide has one C-terminal and other N-

terminal

- C. enzymes are naturally occurring simple proteins
- D. the union of two amino acids produces two peptide

linkages

Answer: D

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76. The primary structure of a protein tells about

A. 3D arrangement of all atoms

B. shape of poly peptide chain

C. specific sequence of amino acids

D. 3D arrangement of oligo peptide chains

Answer: C

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77. The dipeptide glyclalanine contains

A. glycine as C-terminal residue

B. glycine as N-terminal residue

C. alanine as N-terminal residue

D. either (1) or (2)

Answer: B

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78. β - pleated structure of proteins is

A. Primary structure

B. Secondary structure

C. Tertiary structure

D. Quaternary structure

Answer: B

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79. The back bone for different segments in a protein is in the

following form.

A. $lpha-{\sf helix}$

B. α -pleated

C. Coil

D.1 or 3

Answer: D



80. The helical structure of proteins is stabilized by

A. H-bonding

B. van der Waals' forces

C. ionic bond

D. peptide bond

Answer: A



81. Secondary structure of protein refers to

A. Mainly denatured proteins and structure of prosthetic

groups

B. Three-dimensional structure, especially the bondbetween amino acid residues that are distinct fromeach other in the polypeptide chainC. Linear sequence of amino acid residues in the

polypeptide chain

D. Regular folding patterns of continuous portions of the

polypeptide chain

Answer: D



82. The bond that determines the secondary structure of a protein is

A. Co-ordinate bond

B. Covalent bond

C. Hydrogen bond

D. Ionic bond

Answer: C

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83. Which of the following is a globular protein ?

A. Collagen

B. Myoglobin and Haemoglobin

C. Myosin

D. Enzymes

Answer: B



84. Tertiary structure of a protein will lead the polypeptide chains to get the following shapes

A. linear, octahedral

B. angular, tetrahedral

C. fibrous, globular

D. fibrous, planar

Answer: C Watch Video Solution

85. Maximum possible hydrogen bonds are present in

A. 3.6^{13} Helix

B. Keratin

C. Silk fibroin

D. β -D - fructose

Answer: A

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86. Mark the wrong statement about denaturation of proteins

A. The primary structure of the protein does not change

B. Globular proteins are converted into fibrous proteins

C. Fibrous proteins are converted into globular proteins

D. The biological activity of the protein is not cancelled

Answer: D

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87. The restriction of the biological nature and activity of proteins by heat or chemical agent is called

A. dehydration

B. denaturation

C. deoxidation

D. denitrogenation

Answer: B



88. Addition of an electrolyte such as sodium dodecyl sulphate causes

A. renaturation of proteins since it stabilises hydrophobic

interactions

B. denaturation of proteins since it disturbs hydrophobic

interactions

C. renaturation of proteins since it maintains necessary

isoelectric point

D. denaturation of proteins since it causes cleavage of

O = C - N - H bonds

Answer: B

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89. Which of the following is an example of "irreversible denaturation" of a protein ?

A. boiling egg

B. change of amino acid

C. enzymatic action

D. its synthesis

Answer: A



90. Enzymes are

A. Complex nitrogenous substances produced in living

cells

B. Steroids

C. Living organisms

D. Dead organisms

Answer: A
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91. Nuclear types of proteins based on molecular shape .
A. 1
В. 2.
C. 3
D. 4
Answer: C
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92. Structure that gives the sequence of amino acids of a protein

A. Primary

B. Secondary

C. Tertiary

D. Quaternary

Answer: A

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

A. transport oxygen

B. provide immunity

C. catalyse biochemical reactions

D. provide energy

Answer: C

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94. Which one of the following is not a protein ?

A. Wool

B. Nail

C. Hair

D. DNA

Answer: D

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95. Enzymes belong to which class of compounds ?

A. Polysaccharides

B. Polypeptides

C. Polynitro heterocyclic compounds

D. Hydrocarbons

Answer: B

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96. Enzymes are made up of

A. Edible proteins

B. Proteins with specific structure

C. Nitrogen containing carbohydrates

D. Carbohydrates

Answer: B

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97. Regarding enzymes, incorrect statement is

A. an enzyme is generally a protein

B. an enzyme may be a conjugated protein

C. enzyme gets deactivated during reactions

D. enzyme gets activated during reactions

Answer: D

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98. Which of the following constitutes the genetic material of

the cell ?

A. Nucleic acids

B. Proteins

C. Lipids

D. Carbohydrates

Answer: A



99. Nuclic acids are called acids mainly because of the presence of

- ${\rm A.}-COOH~{\rm group}$
- B. -OH group of sugar unit
- C. -OH group of the heterocyclic base
- D. OH group of phosphate unit

Answer: D



100. Which of the following is not a pyrimidine base

A. Uracil

B. Thymine

C. Cytosine

D. Guanine

Answer: D

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101. The following does not belong to either purines or pyrimidines

A. Tryptophan

B. Cytosine

C. Uracil

D. Adenine

Answer: A

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102. Purine without ketonic group is

A. adenine

B. adenosine

C. cytidine

D. thymidine

Answer: A



103. The purine base present in RNA is

A. Guanine

B. Thymine

C. Cytosine

D. Uracil

Answer: A



104.6 - amino purine is

A. Adenosine

B. Adenine

C. Cytosine

D. Thymine

Answer: B

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105. The bases that are common in both RNA and DNA are

A. adenine, guanine, cytosine

B. adenine, guanine, thymine

C. adenine, uracil, cytosine

D. guanine, uracil, thymine

Answer: A




106. Adenosine monophosphane (AMP) is a

A. nucleotide

B. nucleoside

C. insecticide

D. antibacterial

Answer: A

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107. The 3.-5. phosphodiester linkages inside a polynucleotide

chain serve to join

A. 5' and l' carbons

B. 5' and 3' carbons

C. 1' and 5 carbons

D. 3' and 5' carbons

Answer: B

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

A. adenine

B. ribose

C. cytosine

D. guanine

Answer: B

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109. The pentose sugar in DNA and RNA has

A. Open chain structure

B. Pyranose structure

C. Furanose structure

D. None of the above

Answer: C

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110. Adenosine is an example of a

A. Nucleotide

B. Nucleoside

C. Purine base

D. Pyridine base

Answer: B

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111. Nucleoside on hydrolysis gives

A. Pentose sugar and purine base

B. Pentose sugar, phosphoric acid, purine or pyrimidine

base

C. Pentose sugar and a heterocyclic base

D. Heterocyclic base and phosphoric acid

Answer: C

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112. In nucleic acids, the sequence is represented as

A. Phosphate - base - sugar

B. Sugar - base - phosphate

C. Base - sugar - phosphate

D. Base - phosphate - sugar

Answer: C

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113. In nucleic acids, the nucleotides are linked to one another through

A. Hydrogen bond

B. Peptide bond

C. Glycosidic linkage

D. Phosphate groups

Answer: D

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114. In a nucleotide the phosphate linkage is generally attached to

A. C - 1 of sugar

B.C-2 of sugar

C. C - 5 of sugar

D. N- of base

Answer: C

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115. Adenine pairs with thymine through

A. two hydrogen bonds

B. one hydrogen bond

C. three hydrogen bonds

D. four hydrogen bonds

Answer: A



116. Primary and secondary structures of nucleic acid reveals

A. Nucleotide sequence & Single or double helix

structure

B. Amino acid sequence & 3D-folding

C. Amino acid sequence & shape of protein

D. Single/double helix structure and Nucleotide sequence.

Answer: D

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117. Hydrolysis of adenosine triposphate involves rupture of

A. Base-sugar bond

B. Sugar-phosphate bond

C. P - O - P bond

D. P - N - P bond

Answer: C

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118. The base present in Cytidine :









Answer: D

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119. The backbone of a nucleotide strand contains the following sequence of arrangement

A. Base-Sugar

B. Sugar-Phosphate

C. Base-Phosphate

 $D. Base_1 - Base_2$

Answer: B

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120. The couplings between base units of DNA is through

A. Hydrogen bonding

B. Electrostatic bonding

C. Covalent bonding

D. vander Waals forces

Answer: A

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121. The main role of DNA in a living system is

A. It is the structural material of cell walls

B. It is an enzyme

C. It carries the hereditary characteristics of the organism

D. It participates in cellular respiration

Answer: C



122. Synthesis of identical copies of DNA is called

A. transcription

B. replication

C. translation

D. reverse transcription

Answer: B

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123. (A) Guanine unites with Cytosine but not with Thymine.(R) Guanine and Cytosine are purine bases while Thymine is a pyrimidine base.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



124. (A) Adenine pairs up with thymine but not with cytosine.(R) With cytosine, no hydrogen bonds are possible for adenine.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



125. (A): Proteins are made up of a -amino acids

(R) : During denaturation, secondary and tertiary structures of proteins are destroyed.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



126. (A) The pyrimidine base thymine is present in RNA.

(R) DNA controls the synthesis of proteins

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: D



127. (A) The simplest α -amino acid is optically inactive.

(R) Simplest α amino acid has no chiral carbon centre.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



128. (A) The folding of polypeptide chains leads to globular proteins.

(R) Globular structure is a part of secondary structure of protein.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C

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129. (A): All DNA and RNA molecules contain adenine, guanine and cytosine base molecules(R): Adenine, guanine and cytosine molecules are examples of the same base type

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C

130. (A) Enzymes are globular proteins.

(R) Enzymes provide active site to substrate.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: C



131. Water soluble vitamins are

A. A,D

B. E,K

C. DE

D. CB

Answer: D

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132. Which of the following is not a source of vitamina-A

A. Milk

B. Liver

C. Yeast

D. Egg

Answer: C

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133. Night blindness is due to the deficiency of

A. Vitamin A

B. Hormones

C. Vitamin B_{12}

D. Riboflavin

Answer: A

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134. The chief source of vitamin D is

A. Fish liver oil

B. Spinach

C. Cow dung

D. Citrous fruit

Answer: A



135. Antiricketic Vitamin is

A. Vitamin A

B. Vitamin B_{12}

C. Vitamin C

D. Vitamin D

Answer: D

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136. Dificiency of Vitamin E leads to

A. Neurosis of heart muscles

B. Degeneration of lacrymal gland

C. Beri - Beri

D. Dermatitis.

Answer: A





137. In all green leaves and vegetables which of the following

vitamin is avialable ?

A. Vitamin A

B. Vitamin D

C. Vitamin K

D. Vitamin B_{12}

Answer: C



138. Which of the following vitamin is Naphtha-quinone derivative ?

A. A

B. B

C. D

D. K

Answer: D

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139. Anti haemorrhagic vitamin is

B. B

C. D

D. K

Answer: D



140. Deficiency of Vitamin B_{12} leads to

A. Bow legs

B. Cheilosis

C. Pellegra

D. Vision ions

Answer: B

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141. The following vitamin plays a role in transportation of amino acids across the cell membrane.

A. B_1

 $\mathsf{B}.\,B_2$

 $\mathsf{C}.B_3$

 $\mathsf{D}.\,B_6$

Answer: D

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142. Convulsion is due to deficiency of vitamin

A. B_1

 $\mathsf{B.}\,B_2$

 $C. B_5$

D. B_6

Answer: D



143. Which of the following is not a source of vitamina-A

A. Fish oils

B. Carrots

C. Yeast

D. Milk

Answer: D

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144. Vitamin B_{12} is rich in

A. Sewage sludge

B. Liver of pig

C. Egg

D. all

Answer: B





145. Ascorbic acid resembles the structure of

A. Vitamin A

B. Glucose

C. Cellulose

D. Vittamin D

Answer: B

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146. Deficiency of Vitamin "C" leads to

A. gum swelling

B. blead easily and teetch become loose

C. delay in would healing

D. all

Answer: C



147. Dark red tongue, fissuring at corners of mouth and lips are the symptoms of the deficiency of which vitamin

A. C

B.A

 $\mathsf{C}.B_2$

D. D

Answer: C

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148. Vitamin B_6 is known as

A. Pyridoxine

B. Thiamine

C. Tocopherol

D. Riboflavin

Answer: A

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149. Vitamin D is called

A. Ascorbic acid

B. Calciferol or ergocalciferol

C. Thiamine

D. Riboflavin

Answer: B



150. Which of the following vitamins is not soluble in water?

A. C

 $\mathsf{C}.\,B_2$

D. D

Answer: D

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151. The best source of vitamin C is

A. Cod liver oil

B. Egg yolk

C. Citrous fruits

D. Fish liver oil

Answer: C





152. The deficiency of vitamin K causes

A. Haemorrhage

B. Lengthening time of blood clotting

C. Inflammation of tongue

D. Both (1) and (2)

Answer: D

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153. Nervousness anaemia is caused by the deficiency of

vitamin
A. B_1

 $\mathsf{B}.\,B_2$

 $\mathsf{C}.\,B_6$

D. B_{12}

Answer: D

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154. Deficiency of vitamin E causes

A. Scurvy

B. Loss of appetite

C. Loss of sexual power and reproduction

D. Beri Beri

Answer: C

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155. Which of the following is a fat soluble vitamin?

A. Vitamin A

B. Riboflavin

C. Pyridoxine

D. Thiamine

Answer: A

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

A. Iron

B. Manganese

C. Cobalt

D. Magnesium

Answer: C



157. The deficiency of which of the following vitamins adversely affects eye sight?

B. D

 $\mathsf{C}.\,B_{12}$

D. E

Answer: A



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158. Match List - I with List - II and select the correct answer

using the codes given below.

List - I	List - II
I) Anti - beriberi factor	A) Vitamin C
II) Pancreas	B) Glycerides
III) Palm oil	C) Vitamin B_1
IV) L(+) -Ascorbic acid	${ m D})$ Insulin

A. I - C, II - D, III - B , IV - A

B. I - C, II - D, III- A, IV - B

C. I -A, II - B, III - D, IV - C

D. I - A,II - B, III - C, IV - D

Answer: A

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159. Match the following

- List I List II
- A) B_1 I) Riboflavin
- B) B_2 II) Retinol
- C) A III) Ascorbic acid
- D) C IV) Thiamine

The correct match is

A.
$$A$$
 B C D IV I III II II B. A B C D IV III I II C. A B C D III IV II I I

D.
$$\begin{array}{cccc} A & B & C & D \\ \hline IV & I & II & III \end{array}$$

Answer: D



160. Match List - I (name of vitamin) with List - II (deficiency

result/disease) and select the correct answer using the codes

given below -

List - I	List - II
I) Ascorbic acid	A) Beri - Beri
II) Retinol	B) Cracked lips
III) Thiamine	C) Scurvy
IV) Thiamine	D) Night blindness

A. I- B, II -A, III-C, IV-D

B. I-A,II-B,III-C,IV-D

C. I-D, II-C,III-B,IV-A

D. I-C,II-D,III-B,IV-A

Answer: D

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161. Which of the following substance acts as stimulator?

A. Vitamin

B. Enzyme

C. Hormone

D. Carbohydrate

Answer: C



162. Receptors of hormones are generally

A. Carbohydrates

B. Vitamins

C. Lipids

D. Protiens

Answer: D



163. Steroid hormones are produced by the

(a) Adrenal cortex

(b) Pancreas

(c) Thyroid

(d) Testis

(e) Pitutiary

A. a and d

B. a, b, and c

C. c, d

D.d,e

Answer: A

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164. Substances produced by endocrine glands are

A. Vitamins

B. Harmones

C. Herb

D. Drug

Answer: B

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165. Which of the following is a derivative of amino acid ?

A. Thyroxin

B. Estradiol

C. Estrogene

D. Progesterone

Answer: A



166. Total number of carbon atoms present in steroid nucleus.

A. 24 B. 17 C. 10

D. 20

Answer: B

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167. Which of following hormone is produced by testis ?

A. Progesterone

B. Estradiol

C. Testosterone

D. Estrone

Answer: C



168. Harmone containing only ketonic functional group is

A. Estradiol

B. Progresterone

C. Testosterone

D. Insulin

Answer: B

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169. Phosphorylation of glucose is increased by

A. Auxins

B. Insulin

C. Ethylene

D. Trausmatic acid

Answer: B

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170. Thyroxin is

A. Protein type vitamin

B. Aminoacid type nucleic acid

C. Protein type hormone

D. Aminoacid type hormone

Answer: D

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171. (A) Vitamin 'C' is ascorbic acid.

(R) All acids are vitamins

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A.

C. A is true, R is false

D. A is false, R is true

Answer: C



172. (A): All hormones are proteins

(R): All hormone receptors are proteins

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A.

C. A is true, R is false

D. A is false, R is true

Answer: D

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173. (A) Vitamins are important in diet.

(R) Deficiency of vitamins causes diseases.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A.

C. A is true, R is false

D. A is false, R is true

Answer: A

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1. Which of the following monosaccharides is a pentose

A. Glucose

B. Frutose

C. Ribose

D. Galactose

Answer: C



List - I Chemical property of Glucose A) Acetylation

2. B) Reaction with HCN

C) Reaction with HI/P 3) Presence of

D) Oxidation with HNO_3

Correct match is



Answer: B

List - II Structure elucidation of Glucose 1) Presence of carbonyl group 2) Six carbon atoms straight chain. 3) Presence of 1° – alcohol group 4) Presence of

5 - OH groups



3. Fructose gives the silver mirror test because it

A. Contains an aldehyde group

B. Contains a keto group

C. Undergoes rearrangement under the alkaline

conditions of the reagent to form a mixture of glucose

and mannose

D. It has pyranose structure

Answer: C

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4. Reactants \rightarrow products $\Delta G = + 63 K J \, \mathrm{mole}^{-1}$. This reaction is made to take place by coupling with

A.
$$ATP \xrightarrow{H_2O} ADP$$

B. $ATP \xrightarrow{H_2O} A$
C. $ATP \xrightarrow{H_2O} AMP$
D. $ADP \xrightarrow{H_2O} A$

Answer: B

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5. Which of the following reagents can not be used to distinguish between glucose and fructose?

A. Tollens' reagent

B. Fehling's solution

C. Benedict's solution

D. All of these

Answer: D

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6. Oxidation of glucose with Ag_2O gives

A. D-Gluconic acid

B. L-Glucaric acid

C. L-Gluconic acid

D. L-Glucaric acid

Answer: A Watch Video Solution

7. In an aquose solution of D-Glucose the percentage of α and β anomers at equilibrium condition are respectively

A. 80 and 20

B. 20 and 80

C. 36 and 64

D. 64 and

Answer: C

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8. $\alpha - D - \beta$ Glucose and $\beta - D$ glucose differ from each

other due to difference in one carbon with respect to its?

A. Size of hemiacetal ring

B. Number of OH groups

C. Configuration

D. Conformation

Answer: C



9. Which of the following statements is correct about D-

Glucose & D-Galactose compounds?

A. They are diastereomers

B. Both are components of lactose

C. They are C - 4 epimers

D. All the above are correct

Answer: D



10. The number of chiral centers in the open chain structure

of glucose is_____

A. 1

B. 4

C. 5

D. 6

Answer: B

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11. The specific rotation of a freshly prepared solution of $\alpha - D - G$ lucose changes from a value of x° to a constant value of y° . The values of x and y are respectively

A. 19° , 52.5°

 $\mathsf{B}.\,111^\circ\,,\,52.5^\circ$

C. 52.5° , 19°

D. 52.5° , 111°

Answer: B



12. With how many molecules of acetic anhydride does not molecule of glucose react?

B. 4 C. 5

A. 3

Answer: C

D. 6



13. Which one of the following statements is not true for glucose?

A. $\alpha - D(+) -$ glucose undergoes mutarotation

B. It has four asymmetric carbons in Fischer projection

formula

C. It gives saccharic acid with Tollen's reagent

D. It reacts with hydroxyl amine

Answer: C

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14.

- List I
- A) α and βD Glucose
- B) (+) and (-) Glucose 2) Enantiomers
- C) D- and L-notation
- D) α form $\rightleftharpoons \beta$ form

- List II
- 1) Mutarotation
- 3) Anomers
- 4) Configurational isomers



Answer: C

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15. D -Glucose shows mutarotation because,

A. it is dextrorotatory

B. it undergoes inter conversion between its Pyranose

structure and furanose structure

C. it undergoes interconversion between its a and $\beta(+)$

Glucopyranose structures

D. it undergoes interconversion with D(-) fructose

Answer: C



16. The number of chiral centres in the cyclic hemiacetal form

of Glucose is

A. 3

B. 4

C. 5

D. 6

Answer: C

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17. The end product (B) formed in the reaction sequence.

Glucose $\xrightarrow{HCN}_{H_3O^-} A \xrightarrow{HI,P}{\Delta} B.$

A. hexanoic acid

B. hexane

C. heptane

D. heptanoic acid Di and polysaccharides

Answer: C

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

A.
$$-COH$$
 and $-COOH$

$$\mathsf{B.} > C = O \ \text{and} \ -OH$$

C. - OH and $- NH_2$

D. - OH and -COOH

Answer: B

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19. Incorrect statements among the following

(A) Sucrose is reducing sugar

(B) Two $lpha - D - \,$ glucose units in maltose are linked by 1,4-

linkage

(C) eta - D glucose and eta - D fructose units are linked by 1,

4-linkage in lactose

(D) All polysaccharides are reducing nonsugars

A. Only A, B

B. A, B, C, D

C. A, C, D only

D. A, B, C only

Answer: C



20. Regarding lactose some statements are given below

(A) On hydrolysis lactose gives eta - D - galactose and

eta - D-glucose

In lactose C_1 of $\beta - D - \beta$ galactose has acetal structure and C_1 of $\beta - D$ -glucose has hemiacetal structure (C) In lactose molecule $\beta - D$ -galactose is a nonreducing unit and $\beta - D - \beta$ glucose is a reducing unit The correct statements are

A. A, C

B. A, B

C. B, C

D. A, B, C

Answer: D

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21. The end products of protein hydrolysis are

A. Peptides

- B. Monosaccharides
- C. Lipids
- D. a Amino acids

Answer: D



22. IUPAC name of Glycine is

A. 2-amino propanoic acid

B. 2-amino butanoic acid

C. amino ethanoic acid

D. 2-amino pent-1, 5-dioic acid

Answer: C

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23. D-Alanine differs from L - Alanine with respect to

A. configuration

B. chemical formula

C. number of -NH groups

D. number of -COOH groups

Answer: A





24. Which of the following does not exit as a zwitter ion ?

A. Glycine

B. Alanine

C. Sulphanilic acid

D. Picric acid

Answer: D

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25. Nature of aqueous solutions of two different amino acids

X and Y are acidic and basic. Now X and Yare
A. Alanine and Valine

B. Aspartic acid and Aspargine

C. Glutamine and Glutamic acid

D. Aspartic acid and Lysine

Answer: D



26. If the amino group of Glycine and carboxylic acid group of Alanine undergo elimination of wter molecule, the name of the compound thus formed is

A. Alanylglycine(dipeptide)

B. Glycyl alanine(tri peptide)

- C. Glycyl alanine(dipeptide)
- D. Alanineglycine (dipeptide)

Answer: A

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27. Number of peptide linkages in the artificial sweetner "aspartame" is

A. 2

B. 21

C. 1

D. 1

Answer: C



28. Regarding secondary structure of a protein, correct statement(s) is/are

(A) peptide bonds possess regional planarity

(B) C = O and -NH - of different peptide chains are held

by Van der Waal attarctions

(C) closely packed arrangement so as to minimise repulsion between "R" groups.

A. only C

B. only B

C. A and B only

D. A and C only

Answer: D

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29. Choose the correct statement from the following

A. All amino acids have comon isoelectric point

B. All naturally occurring a - amino acids are optically

acitive except glycine

C. At pH = 0 all amino acids are present as their anions

D. In strongly basic solutions, all amino acids are present

as their cations

Answer: B

30. The secondary structure of a protein refers to

A. hydrophobic interactions

B. sequence of a-amino acids

C. fixed configuration of the polypeptide backbone

D. lpha- helical backbone

Answer: D

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31. The following group/linkage is absent in Adenine but present in Guanine

A. $-C\equiv N$

 $B. - NH_2$

 $\operatorname{C} . C = O$

 $D. - CONH_2$

Answer: C

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32. Cytosine, Thymine and Uracil are similar with respect to

A. C = O at 2nd position in pyrimidine ring

B. NH_2 group at 4th carbon in pyrimidine ring

C. C = O at 4th position in pyrimidine ring

D. absence of C = O group at 2nd position in pyrimidine

ring

Answer: A

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33. Phosphate ester of X is called a nucleotide. X is

A. adenine

B. guanine

C. nucleoside

D. thymine

Answer: C



34. In the nucleotide namely adenosine-5'-tri phosphate, the sequence of linkages among N(base), C(sugar) and P(phosphate) is

A.
$$C - P - N - P - P$$

- B. N C P P P
- $\mathsf{C}.\,P-C-N-P-P$
- $\mathsf{D}.\, P-P-P-C-N$

Answer: B



35. Combination of proteins with nucleic acids gives

A. enzymes

B. polypeptides

C. nucleo proteins

D. Dipeptides

Answer: C

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36. Vitamin D deficiency causes

A. Sterility

B. Xerophthalmia

C. Rickets

D. Beriberi

Answer: C

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37. The vitamin which is water soluble and acts as antioxidant

is

A. A

B. B

C. D

D. C

Answer: D



38. Which one of the following statements is true regarding vitamin ?

A. Vitamins are needed in large amounts to maintain

good health

- B. Vitamins are secreted by ductless glands
- C. Vitamins A,D,E,K are fat soluble and vitamins B complex

and C are water soluble

D. All vitamins are synthesised in human body

Answer: D



39. Which one of the vitamin is syntbesised in. our body by using sun rays ?

A. A

B. B complex

C. C

D. D

Answer: C

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40. Which one of the following statements is incorrect regarding vitamins ?

A. Vitamin A is essential for growth and vision

B. Vitamin D is essential for development of bones

C. A red coloured carotene in the body breaks into vitamin

С

D. Vitamin K is essential for blood coagulation

Answer: C



41. Curd'contain the following vitamin

A. Vitamin B_{12}

B. Vitamin B_6

C. Vitamin A

D. Vitamin

Answer: D



42. Vitamin E is also called

A. Cyanocobalamin

B. Tocopherol

C. Lactoflavin

D. Ascorbic acid

Answer: B



43. Milk contains vitamins

A. A, D and E

 $B.A, B_{12}$ and D

C.C,D and K

 $D.B_1, B_2$ and D

Answer: D

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44. Which of the following is not an example of phytohormones ?

A. Cytokinins

B. Ethylene

C. Auxins

D. Insulin

Answer: D



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- List I
- (1) Steriod hormone
- **45.** (2) None steroid hormone (b) Estrogens
 - (3) Plant hormone
 - (4) Peptide hormone

The correct match is

A. 1-b, 2-b, 3-c, 4-d

B. 1 - b, 2 - a, 3 - d, 4 - c

List - II

- (a) Cytokinins
- (c) Auxins
 - (d) Insulin

C. 1-b, 2-a, 3-c, 4-d

D. 1-c, 2-a, 3-d, 4-b

Answer: C

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46. Which of the following maintains constant sugar level in

blood ?

A. Gibberlins

B. Insulin

C. Glucogen

D. Estrone

Answer: B



47. Which of the following hormones contains iodine ?

A. Insulin

B. Thyroxine

C. Adrenaline

D. Testosterone

Answer: B



48. The hormone which controls the uterine cycle in women is

A. Estrone

B. Androsterone

C. Progesterone

D. Testosterone

Answer: C

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Practice Exercise

1. Which of the following amino acids does not correspond to the general formula given below $R-CH(NH_2)-COOH$

A. Cysteine

B. Proline

C. Argenine

D. Glutamic acid

Answer: B



2. Among Valine, Leucine, Isoleucine, Lysine and phenyl alanine, odd member is

A. Leucine since others are acidic .

B. Valine since others are basic

C. Isoleucine since others are optically active

D. Lycine since others are neutral

Answer: D

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3. In L-Phenyl alanine the amino group lies at

A. right side to chiral centre

B. left side to chiral centre

C. para position to -COOH in benzene ring

D. ortho position to -COOH in benzene ring

Answer: B

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4. The pH at which an amino acid carries no net charge is called it's

A. isoelectric point

B. inversion point

C. neutralisation poin

D. triple point

Answer: A

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5. For a neutral amino acid (X), isoelectric point is 5.8. Now its

solubility at this point in water is

A. maximum

B. minimum

C. zero

D. unpredictable

Answer: B

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6. Which of the following molecule is capable of forming zwitter ion ?

A. $CH_3 - CHOH - NH_2$

 $\mathsf{B.}\, NH_2CH_2COOH$

 $\mathsf{C.}\,CH_3-COOH$

D.
$$CCI_3 - NO_2$$

Answer: B



7. RNA differs from DNA with respect to the following

A. type of base unit

B. type of sugar unit

C. type of H-bond

D.1 and 2

Answer: D



8. The number of tripeptides formed by three different amino

acids having three different amino acids is

A. Three

B. Four

C. Five

D. Six

Answer: D

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9. Proteins contain the following chemical linkages in addition to -CO - NH - linkages

A. NH - - - - - O = C

 $\mathsf{B.}-HS=SH$

D. - O - O - O

Answer: B

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10. In a protein ,the different type of attractions that exist are

(A) H bonding

(B) hydrophobic

(C) ionic

(D) covalent

A. B, C and D only

B. A, C and D only

C. A, B and C only

D. A, B, C and D

Answer: C



11. 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 & quaternary structures

D. Loss of both secondary and tertiary structures

Answer: D

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12. Number of C = O groups in thymine and in X are equal.

Now, X is

A. cytosine

B. uracil

C. adenine

D. guanine

Answer: B

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13. The sugar unit present in the nucleotides of RNA is

- A. $D \beta ribose$
- B. $L \beta ribose$
- C. D $-\alpha$ ribose
- D. $L \alpha$ ribose

Answer: A



14. In nucleosides, math N-atom of pyrimidine base is joined to n" C-atom of ribose sugar moiety. Here m and n are respectively B. 1, 4

C. 1, 2

D.1, 5

Answer: A



15. Sterol, the basic unit of vitamin D, consists of 4 rings they are

A. Three 6-carbon rings one five carbon ring

B. Three 5-carbon rings one six carbon ring

C. Four 6-carbon rings only

D. Four 5-carbon rings only

Answer: A

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16. Match items List - I with those in List - II from the

combinations shows :

List - I (I) Saliva (II) Nucleic acid (III) Ascorbic acid (IV) Testosterone (E) Vitamin List - II (A) Genetic material (B) Digestive enzyme (C) Antibiotic

A. I - B, II - A, III - C, IV - E

 $\mathsf{B}.\,I-B,II-A,III-E,IV-D$

C. I - A, II - B, III - E, IV - C

 $\mathsf{D}.\,I-C,II-B,III-A,IV-D$

Answer: B

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17. Vitamin B_1 deficiency causes

A. Beriberi

B. Night blindness

C. Rickets

D. Sterility

Answer: A

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18. Vitamin A deficiency causes

A. Beriberi

B. Night blindness

C. Rickets

D. Sterility

Answer: B



19. The condition of vitamin deficiency is known as

A. Vitaminosis

B. Avitaminosis

C. Both 1 and 2

D. Anemea

Answer: B

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20. Which one of the following is Retinol?

A. Vitamin A

B. Vitamin C

C. Vitamin B_1

D. Vitamin B_6

Answer: A





21. Proteins cannot be denatured by the addition of

A. water

B. acids

C. detergents

D. heat

Answer: A

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22. For artificial ripening of fruit which of the following is

used ?

A. Testosterone

B. Insulin

C. Ethylene

D. Estrogen

Answer: C

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23. In insulin molecule S - S linkage is in between

A. Cysteine-Glycine

B. Cysteine - Cysteine

C. Cysteine-Valanine

D. Proline - Cysteine
Answer: B

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24. Optically active polyhydroxy aldehydes or ketones are

known as

A. Amino acids

B. Proteins

C. Lipids

D. Carbohydrates

Answer: D

25. The product formed in the oxidation of glucose with bromine water is

A. Glucaric acid

B. Gluconic acid

C. Glucuronic acid

D. Sorbitol

Answer: B



26. The formation of gluconic acid in the oxidation of glucose

with bromine water indicates the presence of

A. Keto group

B. Aldehydic group

C. Hydroxyl group

D. Primary alcohol group

Answer: B



27. The specific rotation of aqueous sucrose is

 $\mathsf{A.}+52.50$

B. - 92.40

 $\mathsf{C.}+66.50$

 ${\rm D.}+20\,^\circ$

Answer: C

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28. Which one of the following statements is incorrect regarding sucrose ?

A. It is a disaccharide of lpha-D- glucose and eta-D-

fructose

B. It is a dextrorotatory sugar

C. It is a reducing sugar

D. Hydrolysis of sucrose yields invert sugar

Answer: C

29. Which one of the following statements is incorrect regarding amylopection

A. It is a linear polysaccharide

B. It does not react with I_2 solution

C. It is the constituent of starch

D. 1,4-and 1,6-glycosidic linkages are present

Answer: A



30. An example for indigestible (in humans) linear polysaccharide is ?

A. Cellulose

B. Glycogen

C. Amylopection

D. Amylose

Answer: A



31. Match the following

L	ist –	I		1	.ist -	- П				
A) St	icros	e	1)	3 - 1.	4 -	glyc	osidi	ic lin	kage	
			b	elwee	m ga	lact	ose a	ind`		
			g	lucos	e					
B) M	altos	c	2) (x - 1	. 4 -	lin	kage	bety	veen	
			g	lucos	e un	ifs	_			
C) La	ctos	e	3)	Linka	ge b	etwe	en C	-1 o	эf	
			(xD	glue	ose	and	C2	of	
			ß	}- D-	-fruc	tose	1			
D) Ce	lluk	se	4) p	5 ~ 1	- 4	link:	age t	etw	een	
			g	lucos	c un	its	_			
			5) (α - Ι	. 4 .	and	1.6-1	ìnka	ge	
			b	etwee	n gl	ucos	e un	its.		
The co	nrrec	t m	atch	is						
A	в	С	Ð			Α	в	С	D	
1) 2	3	1	-4		2)	3	2	ι	4	
3) 1	5	3	4		4)	4	2	1	3	

32. Which one of the following statements is not true regarding cellulose ?

A. It is a colourless amorphous solid

B. It is a branched chain polysaccharide

C. It does not reduce the Tollen's reagent

D. It contains eta-1,4- glycosidic linkages between

glucose units.

Answer: B



33. Statement-1: Glucose is in pyranose form and has free anomeric hydroxyl group

Statement-1: In sucrose, glucose is in pyranose form and fructose is in furanose form.

A. Both I and II are true

B. I is true, but II is false

C. I is false, but II is true

D. Both I and II are false

Answer: A

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34. Fructose is a functional isomer of glucose.

A. glucose

B. sucrose

C. lactose

D. ribose

Answer: A

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35. Which of the following statements are correct regarding

glucose?

A) It is a dextrose

B) It forms osazone

C) It forms gluconic acid with bromine - water

D) It is a ketohexose

A. A,D

B.B,D

C. C,D

D. A,B,C

Answer: D

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36. Glucose fails to react with

A) $NaHSO_3$

B) Schiff's reagent

C) $PhNHNH_2$

D) Br_2 . H_2O

A. A,B

B. A,C

C. B,D

Answer: A



37. Which of the following statements is/are not true regarding glycogen ?

- A) It is non reducing sugar
- B) It has $lpha-1, 4-\,$ glycosidic linkages only
- C) It is an animal starch
 - D) The monomer units are glucose and mannose

A. A, B

B. A, B, C

C. B, D

D. A, B, D

Answer: C



38. On treating with dilute acidic solution sucrose gives

A. glucose only

B. fructose only

C. a mixture of glucose and fructose

D. a mixture of glucose and galactose

Answer: C



1. What are di, tri and oligo saccharides? Give examples.

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2. What is the difference between starch and cellulose?



3. What is meant by d - 1 - and D, L - notations

among monosaccharides?

1. What is animal starch? Why is it called so?

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2. Define reducing and non-reducing sugars.
Watch Video Solution

3. Give the structures of lpha -Glucopyranose and eta -

Glucopyranose.



4. Starch is soft but cellulose is hard and rigid. Explain?

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5. What is mutarotation?	Discuss	with	respect	to	van
Ekenstein's rearrangement.					

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6. What is the basic structural difference between starch and

cellulose?



7. Why hydrolysis of sucrose is called inversion of sucrose ?

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8. Explain the cyclic structures of glucose and fructose.	
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9. Write the linkage present between the monomers of the

following disaccharides:

a) Sucrose, b) Maltose and c) Lactose

10. Eventhough fructose contains ketone group, it is reducing

sugar, Why?



11. How many stereomers are possible for aldohexose and

ketohexose?



12. What are the hydrolysis products of sucrose, maltose and

lactose?

13. How can you say that in the pentaacetate of D-Glucose,

there is no free aldehydic group ?



2. What is the main component present in purine and pyramidine ?



3. Which sugars are present in DNA and RNA ? Give these structures.



4. What are the main differences between DNA and RNA?





2. Differentiate between nucleoside and nucleotide.

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3. What is Glycoside bond ? Where'N' glycoside bond is present ?
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4. What is meant by denaturation and renaturation?



5. What is a peptide bond? How is the sequence of amino

acids taken?



8. Draw the structures of ribose and deoxyribose sugars.





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



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Subjective Exercise 3 Short Answer Questions

1. What are hormones and how are they classified ?



2. What are stereoidal and non steroidal hormones ? Give

examples.

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3. What are the deficiencies caused by vitamins A, D, E and K? What are the characteristics of vitamins ? Write the sources of vitamins.

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4. Write the important sources of vitamins.

5. Write the formula and function of vitamin A.

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6.	Write	the	deficiency	defects	of	vitamins
$D_1,$	D_2, D_6 a	and D_{12}				
	Watch	Video S	olution			
Subje	ective Exe	rcise 3 \	/ery Short Ans	swer Questi	ons	

1. Write two plant hormones.



2. What are water soluble and fat soluble vitamins ?

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3. Write the role of thyroxin.
Watch Video Solution
4. What are water soluble and fat soluble vitamins ?
5. Write the effects of deficiency of vitamins B_1, B_2, B_6, B_{12} and C .
Watch Video Solution

6. What are the deficiencies caused by vitamins . A, D, E and K?

Objective Exercise 1 Monosaccharides

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1. Which one of the following is a pentose sugar?

A. Ribose

B. Arabinose

C. Lyxose

D. All the three

Answer: D

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2. Monosaccharides contain

A. Six carbon atoms only

B. Five carbon atoms only

C. Four carbon atoms only

D. May contain 5 to 6 carbon atoms

Answer: D

3. An oligosaccharide contains

A. 1-6 monosaccharides

B. 2-10 monosaccharides

C. 6-3 monosaccharides

D. 10-16 monosaccharides

Answer: B

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4. Which of the following is not an oligosac charide ?

A. Xylose

B. Maltose

C. Lactose

D. Sucrose

Answer: A

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5. A Laevorotatory sugar present in fruits is

A. Glucose

B. Fructose

C. Sucrose

D. Lactose

Answer: B





6. Glucose is not

A. hexose

B. a carbohydrate

C. an oligosaccharide

D. an aldose

Answer: C

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7. On heating glucose with Fehling solution, we get a precipitate whose colour is

A. Orange

B. Red

C. Black

D. White

Answer: B

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8. Glucose gives silver mirror test with Tollen's reagent. It

shows the presence of

A. Carboxylic group

B. Alcoholic group

C. Ketonic group

D. Aldehydic group

Answer: D

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9. Correct statement for a-D Glucose and B-D Glucose I) Enantiomers II) Anomers III) Isomers IV) Not Enantiomers

A. All are correct

B. Only II, III, IV are correct

C. II, III are correct

D. Only II is correct

Answer: B



10. When glucose is heated with nitric acid the product is

A. Lactic acid

B. Saccharic acid

C. Glycollic acid

D. Oxalic acid

Answer: B

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11. When hemiacetal reacts with alcohol the product is

A. Dihemiacetal
B. Alcohol

C. Acetal

D. Peptide

Answer: C

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12. Ring structure of glucose is due to formation of hemiacetal and ring formation is in between

A. C_1 and C_5

 $B. C_1$ and C_4

 $\mathsf{C}. C_1$ and C_3

 $D. C_2$ and C_4

Answer: A

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13. The wrong statement about glucose is

A. It has one 1° - alcoholic group

B. It has four 2° - alcoholic group

C. It has one aldehydic group

D. It has one 3° - alcoholic groups

Answer: D

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14. Fructose contains

A. 3 Secondary alcoholic groups

B. One ketonic group

C. 2 Primary alcoholic groups

D. All the above

Answer: D

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15. The fischer projection of glyceraldehyde representing correct configuration in terms of D & L, R & S and d & 1

designations respectively



A. D,R,d

B. D,R,I

C. D,S,d

D. D,S,I

Answer: A



16. The reaction which suggest that glucose has one carbonyl

group is

I) Glucose + HCN

II) Glucose + NH_2OH

III) Glucose + HI

IV) Glucose + conc. HNO_3

A. All

B. I, II are correct

C. I only

D. I, II, III are correct

Answer: **B**



17. Conc. HNO_3 can be stored in container of

A. $C_6H_6O_{10}$

B. $C_6 H_{10} O_8$

 $\mathsf{C.}\, C_5 H_8 O_9$

D. $C_{6}H_{9}O_{8}$

Answer: B

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18. Glucose \xrightarrow{HI} A then the homologue of A is

A. C_6H_{14}

B. $C_{6}H_{12}$

 $C. C_5 H_{12}$

D. $C_6 H_{10}$

Answer: C



19. The reagents which don't react with glucose are I) Schiff's reagent II) Tollen's reagent III) Fehling reagent IV) $NaHSO_3V)NH_3$

A. All

B. I,IV,V only

C. I,II,III only

D. I,IV,III only

Answer: B



20. Glyceraldehyde and Dihydroxy acetone are a pair of

A. Anomers

B. Enantiomeres

C. Functional isomers

D. Epimers

Answer: C



21. Chemical formula of gluconic acid

A.
$$HOOC - (CHOH)_4 - COOH$$

B. $HOOC - (CHOH)_4 - CH_2OH$
C. $HOOC - (CHOH)_4 - CHO$

D. $HOOC - (CHOH)_3 - COOCH_3$

Answer: B

Watch Video Solution

22. Compound represented by this structure



A. D-threose

B. L-threose

C. D-erythrose

D. L-erythrose

Answer: C



23. Glucose on treating with excess of phenyl hydrazine gives.

A. Gluconic acid

B. Saccharicaed

C. Osazone

D. Sorbitol

Answer: C

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24. In pyranose of glucose oxide (ether) linkage is formed

between

A. C_1 and C_6

 $B.C_2$ and C_6

 $\mathsf{C}. C_1$ and C_5

 $D. C_2$ and C_3

Answer: C



25. Which of the following is called as Laevulose?

A. Glucose

B. Fructose

C. Lactose

D. Maltose

Answer: B

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26. The sweetest sugar among the following is

A. Fructose

B. Glucose

C. Sucrose

D. Galactose

Answer: A

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27. For naturally occurring fructose, the configuration and sign of specific rotation respectively

A. D,-

B. D,+

C. L,-

D. L,+

Answer: A

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28. The two forms of D-Glucopyranoše are called

A. Diastereomers

B. Anomers

C. Epimers

D. Enantiomers Disaccharides

Answer: B

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29. Glucose and cane sugar can't be distinguished by

A. Fehling's solution

B. Baeyer's reagent

C. Tollens' reagent

D. Benedict's solution

Answer: B

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30. In which of the following all are disaccharides?

A. Maltose, Sucrose, Lactose

B. Maltose,Lactose,Glucose

C. Glycogen, Lactose, Sucrose

D. Starch, Maltose, Lactose

Answer: A



31. A disaccharide on hydrolysis gives

A. Two molecules of the same monosaccharide

B. Two differnt monosaccharides

C. Three molecules of the same monosa ccharide

D. Two molecules of the same or different monosaccharides

Answer: D

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32. Inverted sugar is

A. Optically inactive form of sugar

B. Equimolecular mixture of glucose and Equimolecular

mixture of glucose and

C. Mixture of glucose and fructose

D. A variety of cane sugar

Answer: B



33. Which of the following on hydrolysis give similar monosaccharide units

(a) Sucrose

(b) Lactose

(c) Maltose

(d) Amylose

A. A,B

B. A,C

C. A,D

D. C,D

Answer: D

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34. Correct statements regarding sucrose

- A) It is a reducing sugar
- B) It is a disaccharide with C_1-C_2 glycosidic linkage
- C) It posseses two types of rings
- D) It is dextro rotatory

A. A, B, C, D

B. B, C, D

C. A, C, D

D. A, B, C

Answer: B



35. Change in optical rotation of sucrose solution due to hydrolysis is called

A. Specific rotation

B. Inversion

C. Rotatory motion

D. Mutarotation

Answer: B

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36. Which of the following is not a reducing sugar?

A. Glucose

B. Sucrose

C. Lactose

D. Maltose

Answer: B

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37. Identify the one which does not belong to the class to which the other three belong based on hydrolysis

A. Sucrose

B. Fructose

C. Lactose

D. Maltose

Answer: B

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38. Which among the following does not give a silver mirror

test with Tollen's reagent?

A. Fructose

B. Glucose

C. Galactose

D. Sucrose

Answer: D

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39. Sucrose molecule contains

A. a glucopyranose and a fructopyranose units

B. a glucopyranose and a fructofuranose units

C. a glucofuranose and a fructopyranose units

D. a glucofuranose and a fructofuranose units

Answer: B

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40. Maltose consists of

A. Only α -D glucose units

B. α and β D Glucose units

C. Glucose and fructose

D. Frutose only

Answer: A

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41. The glycosidic linkage in carbohydrates is

A. Link between two carbon atoms in a carbohydrate by a

covalent bond

B. Link between a carbon atom and an oxygen atom

C. Link between carbon atoms in a carbo-hydrate through

an oxygen atom formed by elimination of water

D. None of these

Answer: C



42. Match of the following

Group - I	Group - II
(Disaccharide)	(Hydrolysis products)
a) Sucrose	1) Glucose + Glucose
b) Lactose	2) Glucose, Fructose
c) Maltose	3) Glucose + Galactose
	4) Fructose + Fructose

The correct match is

A.	a	b	С
	2	1	3
Β.	a	b	c
	3	2	1
C.	a	b	c
	2	4	3
Р	~	h	C
	a	0	C

Answer: D



43. 18g each of A: maltose B : Sucrose C: Lactose A are separately taken and hydrolysed comple tely. The order of increase in the mass of products formed with each of them.

- A. A > B > C
- $\mathsf{B}.\,B>A>C$
- $\mathsf{C}.\, C > A > A$
- $\mathsf{D}.\, A=B=C$

Answer: D



Objective Exercise 1 Polysaccharides

1. Which of the following is animal polysaccharide?

A. Amylopectin

B. Glycogen

C. Amylose

D. Cellulose

Answer: B



2. In Amylpectin the linkage absent is

A. $C_1\&C_4$

 $\mathsf{B.}\,C_1\&C_6$

 $\mathsf{C}.\,C_1\&C_2$

D. Both $C_1\&C_6$ and $C_1\&C_4$

Answer: C

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3. Amylose consists of

A. Branched chain of α -D-glucose units

B. Unbranched chain of $B\eta - D$ glucose units

C. Units of sucrose

D. Unbranched chain of $\alpha - D -$ glucose units

Answer: D





- 4. Amylopectin is a polymer of
 - A. β -D glucose
 - B. αD glucose
 - C. $\beta-D$ fructose
 - D. αD fructose

Answer: B

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- 5. Which of the following antiseptic is a carbohydrate ?
- A) Streptomycin

B) Gentamycin

C)Neomycin

A. Direct conversion of starch into glucose may be carried

out by

B. fermentation with diastase

C. fermentation with zymase

D. heating it with dil HCI

Answer: D

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6. The intermediate compound in the conversion of starch to

glucose is

A. fermentation with diastase

B. fermentation with zymase

C. heating it with dil HCl

D. fermentation with maltase

Answer: C

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7. The intermediate compound in the conversion of starch to

glucose is

A. Lactose

B. Maltose

C. Fructose

D. Sucrose

Answer: B



8. Regarding amylopectin, the wrong statement is

A. it is a branched chain polysaccharide

B. it is insoluble in water

C. it gives blue colour with iodine solution

D. one molecule may contain 25-30 D-glucose units

Answer: C



9. Regarding starch the wrong statement is

A. It is present in sorghum

B. It is least soluble in hot water

C. It is not oxidised by tollens reagent

D. It can form osozone

Answer: B

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10. Raffinose on hydrolysis gives

A. Glucose, Fructose, Galactose

B. Fructose, Glucose, Maltose

C. Galactose, Fructose, Mannose

D. Maltose, Fructose, Galactose

Answer: A

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11. Which of the following carbohydrates is the essential constituent of cell wall?

A. Starch

B. Maltose

C. Cellulose

D. Sucrose

Answer: C



12. Cellulose is

A. L-fructose

B. D-fructose

C. D-glucose

D. Amylose

Answer: C



13. Which of the following can exist as food storages and

structural materials?
A. Monosaccharides

B. Disaccharides

C. Oligosaccharides

D. Polysaccharides

Answer: D

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14. The carbohydrates are stored in animal bodies as

A. Starch

B. Amylum

C. Glycogen

D. Cellulose

Answer: C

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15. Which of the following is a branched chain polysaccharide?

A. Cellulose

B. Raffinose

C. Amylose

D. Glycogen

Answer: D

Watch Video Solution

16. The glycosidic linkage in carbohydrates is

- A. $C_1 C_4 eta$ linkage
- B. $C_1 C_6 \alpha$ linkage
- C. $C_1 C_6 \beta$ linkage
- D. $C_1 C_4 \alpha$ linkage

Answer: D



Objective Exercise 2 Monosaccharides

1. Fructose gives the silver mirror test because it

A. Contains an aldehyde group

B. Contains a keto group

C. Undergoes rearrangement under the alkaline

conditions of the reagent to form a mixture of glucose

and mannose

D. It has pyranose structure

Answer: C



2. Which of the following monosaccharides is a pentose

A. Glucose

B. Frutose

C. Ribose

D. Galactose

Answer: C



Answer: D

4. Which of the following reagents can not be used to distinguish between glucose and fructose?

A. Tollens' reagent

B. Fehling's solution

C. Benedict's solution

D. All of these

Answer: D



5. Oxidation of glucose with Ag_2O gives

A. D-Gluconic acid

B. L-Glucaric acid

C. L-Gluconic acid

D. L-Glucaric acid

Answer: A



6. In an aquose solution of D-Glucose the percentage of

 $\alpha \; \text{ and } \; \beta$ anomers at equilibrium condition are respectively

A. 80 and 20

B. 20 and 80

C. 36 and 64

D. 64 and 36

Answer: C

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7. $\alpha - D - \beta$ Glucose and $\beta - D$ glucose differ from each

other due to difference in one carbon with respect to its?

A. Size of hemiacetal ring

B. Number of OH groups

C. Configuration

D. Conformation

Answer: C

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8. Which of the following statements is correct about D - Glucose and D - Galactose compounds?

A. They are diastereomers

B. Both are components of lactose

C. They are C - 4 epimers

D. All the above are correct

Answer: D



9. The number of chiral centers in the open chain structure of

glucose is_____

A. 3

B.4

C. 5

D. 6

Answer: B

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$$\textbf{10.} X \xleftarrow{HI} \text{Glucose} \xrightarrow{HNO_3} Y. \text{ What are } X \text{ and } Y?$$

A.XYn-HexaneGluconi acidB.XYGluconic acidSaccharic acidC.XYn-HexanolSaccharic acidD.XYn-HexaneSaccharic acid



11. With how many molecules of acetic anhydride does not molecule of glucose react?

A. 3

B.4

C. 5

D. 6

Answer: B

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12. Which one of the following has two lpha-D- Glucose

units?

A. Maltose

B. Lactose

C. Cellulose

D. Sucrose

Answer: A



13.	Match	the	following	columns		
	List - I	L	ist - II			
	A) a and B- D Gluco	se 1)	Mutarotation			
	B) (+) and (-) Glucose	2)	Enantiomers			
	C) D- and L-notations	3)	Anomers			
	D) α - form $\rightleftharpoons \beta$ -form	n 4)	Configurational isomers			

A.	A	B	C	D	
	2	3	4	1	
Β.	A	B	C	D	
	2	3	1	4	
c					
c	A	B	C	D	
C.	$A \ 3$	$B \ 2$	$C \ 4$	D1	
C.	A 3 A	В 2 В	C 4 C	D 1 D	

Answer: C

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14. The number of chiral centres in the cyclic hemiacetal form

of Glucose is

A. 3 B. 4 C. 5

D. 6

Answer: C

Watch Video Solution

15. Which of the following statements about ribose is incorrect ?

A. It is a polyhydroxy ketone

- B. It is an aldehyde sugar
- C. It has five carbon atoms
- D. It exhibits optical activity

Answer: A



16. Which one of the following is the configu-ration standard

for giving D, L-configuration of sugars?

A. Erythrose

B. Arabinose

C. Glyceraldehyde

D. Glucose

Answer: C

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List – I				$List - \Pi$								
1	A) EpimersB) AnomersC) AldohexoseD) Laevulose				1)	1) Glucose						
1					 Fructose Glucose and mannose α -and β-forms of glucose 							
(
1												
	5) Glucose and fructose											
	The correct match is											
		Α	В	С	D			Α	в	С	D	
	1)	3	4	1	2		2)	4	3	1	2	
	3)	5	3	4	2		4)	5	4	1	3	

The correct match is

Answer: A

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18. When the monosaccharide is converted to D-glyceraldehyde, then which carbon has the same configuration as in D-glyceraldehyde ?

A. Lowest numbered asymmetric carbon

B. Highest numbered asymmetric carbon

C. More oxidised carbon

D. Highest numbered carbon

Answer: B

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19. The mixture of compounds formed when glucose undergoes reversible isomerisation with sodium hydroxide solution

- A. D-Glucose, D-mannose and D-fructose
- B. D-Glucose, D-galactose and D-fructose
- C. D-Galactose, D-glucose and L-fructose
- D. D-Glucose, L-fructose and D-galactose

Answer: A



20. D -Glucose shows mutarotation because,

A. it is dextrorotatory

B. it undergoes inter conversion between its pyranose

structure and furanose structure

C. α and $\beta(+)$ Glucopyranose structures

D. it undergoes interconversion with D(-) fructose

Answer: C



21. The end product (B) formed in the reaction sequence. Glucose $\xrightarrow{HCN}_{H_3O^-} A \xrightarrow{HI,P}{\Delta} B.$ A. hexanoic acid

B. hexane

C. heptane

D. heptanoic acid

Answer: C



22. Glucose
$$\xrightarrow[]{H_2O}{Enzyme} C_2H_5OH + CO_2 + Energy$$

The above reaction is an examples of

A. hydrolysis

B. Saponification

C. Dehydration

D. Fermentation

Answer: D



Answer: A



24. The total number of C atoms in β – D fructofuranose are

A. 6 B. 5 C. 4 D. 7

Answer: A

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25. Which one of the following has two $\alpha - D -$ Glucose units ?

A. Maltose

B. Lactose

C. Cellulose

D. Sucrose

Answer: A



26. Which of the following carbohydrates is the essential constituent of cell wall?

A. starch

B. cellulose

C. maltose

D. sucrose

Answer: B Watch Video Solution

27. Which of the following does not refer to the principle forms of carbohydrate present in our food?

A. fructose

B. sucrose

C. starch

D. cellulose

Answer: C

Watch Video Solution

28. Which of the following does not represent a disaccharide

A. Maltose

?

B. Sucrose

C. Lactose

D. Lactose

Answer: D

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

A. -CHO and -COOH

B. > C = O and -OH

$$\mathsf{C}.-OH$$
 and $-NH_2$

D. - OH and -COOH

Answer: B



30. Incorrect statements among the following

(A) Sucrose is reducing sugar

(B) Two $\alpha - D - \beta$ glucose units in maltose are linked by 1,4-

linkage

(C) eta - D glucose and eta - D fructose units are linked by 1,

4-linkage in lactose

(D) All polysaccharides are reducing nonsugars

A. Only A, B

B. A, B, C, D

C. A, C, D only

D. A, B, C only

Answer: C

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31. Which is incorrect statement?

A. Starch is a polymer of α -D-glucose

B. Amylose is a component of cellulose

C. Structure of galactose has five carbons and one oxygen

in cycle.

D. Fructose is reducing sugar

Answer: B

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32. On hydrolysis with dil. H_2SO_4 , starch and cellulose give

'X' and 'Y'. Then 'X' and 'Y' are a pair of

A. Enantiomers

B. Anomers

C. Functional isomers

D. Homologues

Answer: B

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33. Which of the followng linkage holds the monosaccharide units in disaccharide molecule

A. peptide linkage

B. ionic linkage

C. glycoide linkage

D. H-bonding

Answer: C



34. Sucrose reacts with acetic anhydride to form

A. Pentaacetate

B. Hexaacetate

C. Tetraacetate

D. Octaacetate

Answer: D



35. Consider the statements:

I) Maltose is also known as malt sugar

II) Sucrose is also known as cane sugar

III) Lactose is also known as grape sugar

IV) Starch is also known as Amylum

The correct statement is / are

A. I,II and IV

B. I,II and III

C. II,III and IV

D. I and II

Answer: A



36. The set of chemical reactions by which the various molecules of the cell are synthesized is called

A. Anabolism

B. Catabolism

C. Metabolism

D. Photosynthesis

Answer: A



units?

A. Maltose

B. Lactose

C. Cellulose

D. Sucrose

Answer: A

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38. Which of the following is not a reducing sugar?

A. Glucose

B. Maltose

C. Sucrose

D. Lactose

Answer: C

Watch Video Solution

39. The Glycosidic linkage present in sucrose is between

A. C-1 of eta- glucose and C-4 of $lpha-\,$ glucose

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

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

D. C-1 of lpha - D glucose and C-4 of eta-

Answer: D



40. Which one of the following statements is correct ?

A. 'Starch on complete hydrolysis gives fructose

B. Lactose on hydrolysis gives Glucose and Fructose

C. Glucose on slow oxidation to CO_2 and H_2O by enzyme

does not liberate energy

D. Cellulose is not disgestible in the humarn body

Answer: A

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Objective Exercise 1 Amino Acids And Proteins

1. The peptide linkage is

A.
$$-\overset{|}{C}H - COO - NH$$

B. $\overset{|}{C}H - CO - NH -$
C. $-\overset{|}{C}H - CH_2 - CO - NH_2$
D. $-\overset{|}{C}H - NH - NH - CO$

Answer: B

2. Which of the following contains nitrogen ?

A. Fats

B. Proteins

C. Carbohydrates

D. Hydrocarbons

Answer: B

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3. The building unit of all proteins are

A. monosaccharides
B. lipids

C. amino acids

D. primary amines

Answer: C



4. Number of peptide links in a tripeptide

- A. 3
- B. 2
- C. 6

D. 4

Answer: B

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5. The structural feature which distinguishes proline from α - amino acids is that

A. It is optically inactive

B. It contains aromatic group

C. It is a dicarboxylic acid

D. It is a secondary amine

Answer: D

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6. Which of the following amino acids possesses a non polar

side chain

A. isoleucine

B. serine

C. cysteine

D. glutamic acid

Answer: A



7. Which of the following amino acids contains a thiol group

in the side chain

A. methionine

B. cysteine

C. valine

D. serine

Answer: B



8. The amino acid which contain a hydroxy group in the side

chain

A. cysteine

B. glutamine

C. serine

D. leucine

Answer: C

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9. Essential amino acid among the following is

A. Glycine

B. Tryptophan

C. Alanine

D. Proline

Answer: B

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10. The number of amino acids found in proteins that a human body can synthesize is

A. 20

B. 10

C. 5

D. 14

Answer: B

Watch Video Solution

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

A. Valine

B. Leucine

C. Lysine

D. Alanine

Answer: D



12. Which of the following statement is not correct?

A. proteins are polyamides formed from amino aicds

B. except glycine, all other amino acids show optical

activity

C. natural proteins are made up of L -isomers of amino

acids

D. in lpha amino aicds, $-NH_2$ and -COOH groups are

attached to different carbon atom

Answer: D

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13. The amino acid which contain a hydroxy group in the side

chain

A. Cysteine

B. Glutamine

C. Serine

D. leucine

Answer: C



14. Which of the following is an optically active compound ?

A. Glycine

B. Lysine

C. Isoleucine

D. Aspartic acid

Answer: A



15. Which one of the following amino acid does not contain

heterocyclic ring structure

A. Tryptophan

B. Histidine

C. Proline

D. Valine

Answer: D

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16. Among the following the basic amino acid is

A. Glycine

B. Argenine

C. Proline

D. Cysteine

Answer: B

Watch Video Solution

17. Which of the following is an example of "irreversible denaturation" of a protein ?

A. boiling egg

B. change of amino acid

C. enzymatic action

D. its synthesis

Answer: A

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18. Which of the following statements is not correct?

A. amino acid can exist as inner salt

B. each polypeptide has one C - terminal and other N -

terminal

C. enzymes are naturally occurring simple proteins

D. the union of two amino acids produces two peptide

linkages

Answer: D



19. The dipeptide glyclalanine contains

A. 3D arrangement of all atoms

B. shape of poly peptide chain

C. specific sequence of amino acids

D. 3D arrangement of oligo peptide chains

Answer: C

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20. The dipeptide glyclalanine contains

A. glycine as C-terminal residue

B. glycine as N-terminal residue

C. alanine as N-terminal residue

D. either (1) or (2)

Answer: B

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21. Secondary structure of protein refers to

A. Mainly denatured proteins and structure of prosthetic groups

B. Three-dimensional structure, especially the bond
between amino acid residues that are distinct from
each other in the poly-peptide 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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22. β - pleated structure of proteins is

A. Primary structure

B. Secondary structure

C. Tertiary structure

D. Quaternary structure

Answer: B



23. The bond that determines the secondary structure of a protein is

A. Co-ordinate bond

B. Covalent bond

C. Hydrogen bond

D. Ionic bond

Answer: C



24. Which of the following is a globular protein ?

A. Collagen

B. Myoglobin and Haemoglobin

C. Myosin

D. Enzymes

Answer: B

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25. Tertiary structure of a protein will lead the polypeptide

chains to get the following shapes

A. linear, octahedral

B. angular, tetrahedral

C. fibrous, globular

D. fibrous, planar

Answer: C



26. Mark the wrong statement about denaturation of proteins

A. The primary structure of the protein does not change

B. Globular proteins are converted into fibrous proteins

C. Fibrous proteins do not posses globular structure

D. The biological activity of the protein is not cancelled

Answer: D

27. The restriction of the biological nature and activity of proteins by heat or chemical agent is called

A. dehydration

B. denaturation

C. deoxidation

D. denitrogenation

Answer: B



28. Regarding enzymes, incorrect statement is

A. an enzyme is generally a protein

B. an enzyme may be a conjugated protein

C. enzyme gets deactivated during reactions

D. enzyme gets activated during reactions

Answer: D

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29. Enzymes are made up of

A. Edible proteins

B. Proteins with specific structure

C. Nitrogen containing carbohydrates

D. Carbohydrates

Answer: B

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30. Enzymes are

A. Complex substances produced in cells

B. Steroids

C. Living organisms

D. Dead organisms

Answer: A

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31. Structure that gives the sequence of amino acids of a protein

A. Primary

B. Secondary

C. Tertiary

D. Quaternary

Answer: A

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

A. transport oxygen

B. provide immunity

C. catalyse biochemical reactions

D. provide energy

Answer: C



33. Which one of the following is not a protein ?

A. Wool

B. Nail

C. Hair

D. DNA

Answer: D

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34. Enzymes belong to which class of compounds ?

A. Polysaccharides

B. Polypeptides

C. Heterocyclics

D. Hydrocarbons

Answer: B

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35. According to classification of aminoacids, lysine belongs

to the following

A. Acidic amino acid

B. Basic amino acid

C. Neutral amino acid

D. Non-essential amino acid

Answer: B

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Objective Exercise 1 Nucleic Acids

1. Primary and secondary structures of nucleic acid reveals

A. Nucleotide sequence & Single or double helix structure

B. Amino acid sequence & 3D-folding

C. Amino acid sequence & shape of protein

D. Single/double helix structure and Nucleo- tide

sequence.

Answer: A

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2. Which of the following constitutes the genetic material of

the cell ?

A. Nucleic acids

B. Proteins

C. Lipids

D. Carbohydrates

Answer: A

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3. Nuclic acids are called acids mainly because of the presence

of

- A. COOH group
- B. OH group of sugar unit
- C. OH group of the heterocyclic base
- D. OH group of phosphate unit

Answer: D



4. Which of the following is not a pyrimidine base

A. Uracil

B. Thymine

C. Cytosine

D. Guanine

Answer: D



5. The following does not belong to either purines or

pyrimidines

A. Tryptophan

B. Cytosine

C. Uracil

D. Adenine

Answer: A

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6. Purine without ketonic group is

A. adenine

B. adenosine

C. cytidine

D. thymidine

Answer: A

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7. The purine base present in RNA is

A. Guanine

B. Thymine

C. Cytosine

D. Uracil

Answer: A

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8. The bases that are common in both RNA and DNA are

A. adenine, guanine, cytosine

B. adenine, guanine, thymine

C. adenine, uracil, cytosine

D. guanine, uracil, thymine

Answer: A



9.6 - amino purine is

A. Adenosine

B. Adenine

C. Cytosine

D. Thymine

Answer: B

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10. Adenosine monophosphane (AMP) is a

A. nucleotide

B. nucleoside

C. insecticide

D. antibacterial

Answer: A





11. The phosphodiester linkage in a nucleitde is between

A. 5' and 1' carbons

B. 5' and 3' carbons

C. 1' and 5' carbons

D. 3' and 5' carbons

Answer: B

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

A. adenine

B. ribose

C. cytosine

D. guanine

Answer: B



13. The pentose sugar in DNA and RNA has

A. Open chain structure

B. Pyranose structure

C. Furanose structure

D. None of the above

Answer: C

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14. Adenosine is an example of a

A. Nucleotide

B. Nucleoside

C. Purine base

D. Pyridine base

Answer: B

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15. Nucleoside on hydrolysis gives

A. Pentose sugar and purine base

B. Pentose sugar, phosphoric acid, purine or pyrimidine

base

C. Pentose sugar and a heterocyclic base

D. Heterocyclic base and phosphoric acid

Answer: C

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16. Uracil containing nucleotide differs from thymine containing nucleotide in having
A. Hydroxyl group on 2nd carbon in sugar and presence of

 CH_3 group in nitrogen base.

B. Hydrogen atoms on 2nd carbon in sugar and absence

of CH_3 group in nitrogen base.

C. Hydroxyl group on 2nd carbon in sugar and absence of

 CH_3 group in nitrogen base.

D. Hydrogen atoms on 2nd carbon in sugar presence of

 CH_3 group in nitrogen base

Answer: C



17. In nucleic acids, the sequence is represented as

A. Phosphate - base - sugar

B. Sugar - base - phosphate

C. Base - sugar - phosphate

D. Base - phosphate - sugar

Answer: C



18. Dicyclic nitrogen bases are

- I) Adenine
- II) Cytosine
- Ill) Guanine
- IV) Thymine

A. I and III

B. I and II

C. II and III

D. III and IV

Answer: A



19. In nucleic acids, the nucleotides are linked to one another

through

A. Hydrogen bond

B. Peptide bond

C. Glycosidic linkage

D. Phosphate groups

Answer: D

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20. In a nucleotide the phosphate linkage is generally attached to

A. C - 1 of sugar

B. C - 2 of sugar

C.C-5 of sugar

D. N - of base

Answer: C

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21. Adenine pairs with thymine through

A. two hydrogen bonds

B. one hydrogen bond

C. three hydrogen bonds

D. four hydrogen bonds

Answer: A

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22. Hydrolysis of adenosine triposphate involves rupture of

A. Base-sugar bond

B. Sugar-phosphate bond

C. P-O-P bond

D. P-N-P bond

Answer: C

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23. The backbone of a nucleotide strand contains the following sequence of arrangement

A. Base-Sugar

B. Sugar-Phosphate

C. Base-Phosphate

 $D. Base_1 - Base_2$

Answer: B



24. The couplings between base units of DNA is through

A. Hydrogen bonding

B. Electrostatic bonding

C. Covalent bonding

D. vander Waals forces

Answer: A



25. The main role of DNA in a living system is

A. It is the structural material of cell walls

B. It is an enzyme

C. It carries the hereditary characteristics of the organism

D. It participates in cellular respiration

Answer: C

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26. Synthesis of identical copies of DNA is called

A. transcription

B. replication

C. translation

D. reverse transcription

Answer: B

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27. The pentose sugars in DNA and RNA have the structure of

A. Furanose

B. Open chain

C. Pyranose

D. Four membered ring

Answer: A

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28. Match of the following

A) Replication	1) Formation of RNA from DNA
B) Transcription	2) Synthesis of copy of DNA
C) Translation	3) Single strand of DNA
D) Template	 Synthesis of proteins by RNA

A.	A	B	C	D
	4	3	2	1
Β.	A	B	C	D
	1	2	3	4
c			~	
c	A	B	C	D
C.	A 2	B1	C4	D
C.	A 2 A	В 1 В	C 4 C	D 3 D

Answer: C



29. Which of the following is true with regards to nucleosides

A. Nucleoside is formed from nitrogen base + sugar

B. Nucleoside is formed from nitrogen base + sugar +

phosphoric acid

C. Nucleoside is formed only from nitrogen base

D. Nucleoside is formed from nitrogen base + amino ,acid

Answer: A

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

A. Adenine

B. Guanine

C. Cytosine

D. Uracil

Answer: D



Objective Exercise 2 Amino Acids And Proteins

1. The end products of protein hydrolysis are

A. Peptides

B. Monosaccharides

C. Lipids

D. α -Amino acids

Answer: D



- 2. IUPAC name of Glycine is
 - A. 2-amino propanoic acid
 - B. 2-amino butanoic acid
 - C. Amino ethanoic acid
 - D. 2-amino pent-I, 5-dioic acid

Answer: C



3. D-Alanine differs from L - Alanine with respect to

A. configuration

B. chemical formula

C. number of -NH groups

D. number of -COOH groups

Answer: A

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4. Which of the following does not exit as a zwitter ion ?

A. Glycine

B. Alanine

C. Sulphanilic acid

D. Picric acid

Answer: D

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

A. Alanine and Valine

B. Aspartic acid and Aspargine

C. Glutamine and Glutamic acid

D. Aspartic acid and Lysine

Answer: D







H₃C
$$-$$
 H₂
C. H_3 C $-$ H



Β.



7. More number of peptide bonds are present in

A. 2 B. 5 C. 3 D. 4

Answer: C



8. Which one of the following statements is incorrect regarding stereochemistry of most of the amino acids ?

A. Amino acid containing 3 carbon atoms is optically

active

B. They have L-configuration

C. They have R-configuration

D. Glycine is optically inactive

Answer: C

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9. What are the common types of secondary structure of proteins ?

A. H-bonds

B. Disulphide linkages

C. Ionic bonds

D. Covalent bonds

Answer: A

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10. 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



11. How many tripeptides can be prepared by linking the amino acids glycine, alanine and phenyl alanine?

A. One

B. Three

C. Six

D. Twelve

Answer: C



12. Which compound can exist in a dipolar (zwitter ion) structure ?

A. $C_6H_5CH_2CH(N=CH_2)COOH$

B. $(CH_3)_2 CHCH(NH_2)COOH$

 $\mathsf{C.}\, C_6H_5CONHCH_2COOH$

D. $HOOCCH_2CH_2COCOOH$

Answer: B

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13. which of the following is not a function of proteins?

A. nail formation

B. skin formation

C. muscle formation

D. providing energy for metabolism

Answer: D

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14. The amino acids which cannot be synthsised in the body but must be supplied through diet are

A. Essential amino acids

B. Non-essential amino acids

C. α -Amino acids

D. Acidic amino acids

Answer: A

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15. Mark the wrong statement about enzymes

A. Enzymes are highly specific both in binding with

substrates and in catalysing their reactions

B. Each enzyme can catalyse a number of similar reactions

C. Enzymes catalyse chemical reactions by lowering the

energy of activation

D. Enzymes are needed only in very small amounts for

their action

Answer: B



16. Number of peptide linkages in the artificial sweetner "aspartame" is

A. 2 B. 21

C. 1

D. 11

Answer: C



17. Which one of the following is not affected by the denaturation of protein?

A. Primary structure

B. Tertiary structure

C. Secondary structure

D. Quaternary structure

Answer: A

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18. Among the following, achiral amino acid is'

A. Glycine

B. Alanine

C. Proline

D. Tryptophan

Answer: A



19. If the amino group of Glycine and carboxylic acid group of Alanine undergo elimination of wter molecule, the name of the compound thus formed is

A. Alanylglycine(dipeptide)

B. Glycyl alanine(tri peptide)

C. Glycyl alanine(dipeptide)

D. Alanineglycine(dipeptide)

Answer: A



20. Regarding secondary structure of a protein, correct statement(s) is/are

(A) peptide bonds possess regional planarity

(B) C = O and -NH - of different peptide chains are held

by Van der Waal attarctions

(C) closely packed arrangement so as to minimise repulsion

between "R" groups.

A. Only C

B. Only B

C. A and B only

D. A and C only

Answer: D

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21. The secondary structure of a protein refers to

A. hydrophobic interactions

B. sequence of α -amino acids

C. fixed configuration of the polypeptide backbone

D. α - helical bacbone

Answer: D





22. Identify the correct statement

A. Enzymes are active within a narrow range of pH and T

B. They show low reaction selectivity

C. Work under harsh reaction conditions

D. They work only at high T

Answer: A

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Objective Exercise 2 Nucleic Acids

1. Regarding enzymatic reactions, the 4 steps are shown below

A) E+S
ightarrow E-SB) E-P
ightarrow E+P(C) E-I
ightarrow E-PD) E-S
ightarrow E-I

The correct sequence of the steps is

A. A,D,C,B

B. A,B,C,D

C. D,C,B,A

D. A,C,B,D

Answer: A

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2. The number of hydrogen bonds present in the sequence of

a stretch of a double helical DNA 51 ATGCCTAA 3' is

A. 16

B. 19

C. 24

D. 20

Answer: B



3. The base pairing occurs in double helix of DNA is

A. A to T and G to C

B. A to G and T to C

C. A to C and G to T

D. G to T and A to C

Answer: A



4. The following group/linkage is absent in Adenine but present in Guanine

A. $-C\equiv N$

 $B. - NH_2$

 $\mathsf{C}.\,\rangle C=O$

 $D. - CONH_2$

Answer: C

O Watch Video Solution

5. Phosphate ester of X is called a nucleotide. X is

A. adenine

B. guanine

C. nucleoside

D. thymine

Answer: C

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6. The small pieces of DNA which are synthe- sised discontinuously are joined together by an enzyme called

A. DNA ligase

B. DNA polymerase

C. RNA polymerase

D. Exonuclease

Answer: A

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7. Most important energy carrier in living cell is

A. ADP

B. TTP

C. GTP

D. ATP

Answer: D



8. In the nucleotide namely adenosine-5'-tri phosphate, the sequence of linkages among N(base), C(sugar) and P(phosphate) is

A. C-P-N-P-P

B. N - C - P - P - P

 $\mathsf{C}.\,P-C-N-P-P$

D.
$$P - P - P - C - N$$

Answer: B



9. Combination of proteins with nucleic acids gives

A. enzymes

B. polypeptides

C. nucleo proteins

D. dipeptides

Answer: C


10. In nucleic acids the nucleotide sub units linked by hydrogen bond

b) Nucleic acids control heredity at molecular level

(c) DNA is a dinucleotide and RNA is oligo- nucleotide

The correct statement is

A. all

B.a,c

C. b only

D. a only

Answer: C

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- 11. DNA finger printing is useful for
- A) Identifying the criminals
- B) Determining the paternity of individual
- C) Identifying the dead bodies

A. A,B

B. A,C

C. B,C

D. A,B,C

Answer: D



12. Which one of the following sequence of groups in AMP?

A. Sugar - base - phosphate

B. Base - sugar - phosphate

C. Phosphate - base - sugar

D. Phosphate - acid - sugar

Answer: B



13. The important features of genetic code are

- a) It is universal
- b) It is commaless
- c) It is not degenerate
- d) Third base is not always specific.

A. a only

B.b, c only

C. b, c and d only

D. a, band d only

Answer: D



14. Cytosine, Thymine and Uracil are similar with respect to

A. C =O at 2nd position in pyrimidine ring

B. NH_2 group at 4th carbon in pyrimidine ring

C. C = O at 4th position in pyrimidine ring

D. absence of C = O group at 2nd position in pyrimidine

Answer: A

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15. The bases that are common in both RNA and DNA are

A. Adenine, Guanine, Thymine

B. Adenine, Uracil, Cytosine

C. Adenine, Guanine, Cytosine

D. Guanine, Uracil, Thymine

Answer: C



16. Which of the following is correct about H-bonding in DNA?

A. A - T, G - C B. A - G, T - C C. G - T, A - C

D. A - A, T - T

Answer: A

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17. The base that is not present in DNA is

A. Guanine

B. Uracil

C. Adenine

D. Thymine

Answer: B

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18. Which of the following is true with regards to nucleosides

A. Nucleoside is formed from nitrogen base + sugar

B. Nucleoside is formed from nitrogen base + sugar +

phosphoric acid

- C. Nucleoside is formed only from nitrogen base
- D. Nucleoside is formed from nitrogen base + amino acid

Answer: A

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Objective Exercise 1 Vitamins

- 1. Water soluble vitamins are
 - A. A,D
 - B. E,K
 - C. D,E
 - D. C,B

Answer: D



2. Which one of the following is a source of vitamin "A"" ?

A. Milk

B. Liver

C. Yeast

D. Egg

Answer: C

Watch Video Solution

3. Night blindness is due to the deficiency of

A. Vitamin A

B. Hormones

C. Vitamin B_{12}

D. Riboflavin

Answer: A



4. The chief source of vitamin D is

A. Fish liver oil

B. Spinach

C. Cow dung

D. Citrous fruit

Answer: A

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5. Antiricketic Vitamin is

A. Vitamin A

B. Vitamin B_{12}

C. Vitamin C

D. Vitamin D

Answer: D

Watch Video Solution

List I A) B₁ B) B₂ C) A D) C 6. List II I) Riboflavin II) Retinol III) Ascorbic acid IV) Thiamine

The correct match is

A. $\begin{array}{ccc} A & B & C & D \\ IV & I & III & III \end{array}$ $\mathsf{B}. \begin{array}{ccc} A & B & C & D \\ \overline{IV} & \overline{III} & I & \overline{II} \end{array}$ $A \quad B \quad C \quad D$ C. III IV II I $A \quad B \quad C \quad D$ D. IV I II III

Answer: D

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7. The disease beriberi is caused by the defici- ency of vitamin

B. K

A. A

 $\mathsf{C}.\,B_1$

D. B_{12}

Answer: C

Watch Video Solution

8. Dificiency of Vitamin E leads to

A. Neurosis of heart muscles

B. Degeneration of lacrymal gland

C. Beri-Beri

D. Dermatitis

Answer: A

Watch Video Solution

9. Anti haemorrhagic vitamin is

A. A

B. B

C. D

D. K

Answer: D





10. Deficiency of Vitamin B_{12} leads to

A. Bow legs

B. Cheilosis

C. Pellegra

D. Vision loss

Answer: B

Watch Video Solution

11. The deficiency of which of the following vitamins adversely

affects eye sight?

A. A

B. D

 $\mathsf{C}.\,B_{12}$

D. E

Answer: A

Watch Video Solution

12. Dark red tongue, fissuring at corners of mouth and lips are

the symptoms of the deficiency of which vitamin

A. C

B.A

 $\mathsf{C}.\,B_2$

Answer: C



13. Which of the following is not a source of vitamina-A

A. Fish oils

B. Carrots

C. Yeast

D. Milk

Answer: C



14. Vitamin B_{12} is rich in

A. Meet

B. Fish

C. Egg

D. all

Answer: D

Watch Video Solution

15. Ascorbic acid resembles the structure of

A. Vitamin A

B. Glucose

C. Cellulose

D. Vitamin D

Answer: B

Watch Video Solution

16. The lack of vitamin C leads to

A. beriberi

B. anaemia

C. blindress

D. scurvy

Answer: D



17. Convulsion is due to deficiency of vitamin

A. B_1 B. B_2

 $\mathsf{C}.\,B_5$

 $\mathsf{D}.\,B_6$

Answer: D



18. Vitamin B_6 is known as

A. Pyridoxine

B. Thiamine

C. Tocopherol

D. Riboflavin

Answer: A



19. Vitamin D is called

A. Ascorbic acid

B. Calciferol

C. Thiamine

D. Riboflavin

Answer: B Watch Video Solution 20. Which of the following vitamins is not soluble in water ? A. C $B.B_1$ $\mathsf{C}.B_2$ D. *D* Answer: D Watch Video Solution

21. The best source of vitamin C is

A. Cod liver oil

B. Egg yolk

C. Citrous fruits

D. Fish liver oil

Answer: C

Watch Video Solution

22. The deficiency of vitamin K causes

A. Haemorrhage

B. Lengthening time of blood clotting

C. Inflammation of tongue

D. Both (1) and (2)

Answer: D

Watch Video Solution

23. Nervousness anaemia is caused by the deficiency of vitamin

A. B_1

 $\mathsf{B}.\,B_2$

 $C. B_6$

D. B_{12}

Answer: D



24. Deficiency of vitamin E causes

A. Scurvy

B. Loss of appetite

C. Loss of sexual power and reproduction

D. Beri Beri

Answer: C



25. Which of the following is a fat soluble vitamin?

A. Vitamin A

B. Riboflavin

C. Pyridoxine

D. Thiamine

Answer: A

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

A. Fe

B. Mg

C. Co

D. Mn

Answer: C Watch Video Solution

27. Pick the wrong statement from the following

A. Deficiency of Vitamin B_6 (pyridoxime) results in convulsions

B. Sources of Vitamin are yeast, milk, green vegetables and

cereals

C. Deficiency of vitamin D causes xerophtha- lamia

D. Consumption of citrus fruits and green leafy vegetables

in food prevents scurvy

Answer: C



Objective Exercise 1 Hormones

1. Receptors of hormones are generally

A. Carbohydrates

B. Vitamins

C. Lipids

D. Protiens

Answer: D

Watch Video Solution

2. Which of the following acts as stimulator ?

A. Vitamin

B. Enzyme

C. Hormone

D. Carbohydrate

Answer: C

O Watch Video Solution

3. Hormones are secreted by ductless glands of human body.

Iodine containing hormone is

A. Adrenoline

B. Thyroxine

C. Testosterone

D. Insulin

Answer: B



Objective Exercise 2 Vitamins

1. Vitamin D deficiency causes

A. Sterility

B. Xerophthalmia

C. Rickets

D. Beriberi

Answer: C



2. Which one of the following statements is true regarding vitamin ?

A. Vitamins are needed in large amounts to maintain

good health

B. Vitamins are secreted by ductless glands

C. Vitamins A,D,E,K are 'fat soluble and vitamins B complex

and C are water soluble

D. All vitamins are synthesised in human body

Answer: C Watch Video Solution 3. The vitamin which is water soluble and acts as antioxidant is A. A B.B C. D D. C Answer: D

Watch Video Solution

4. Which one of the vitamin is syntbesised in. our body by using sun rays ?

A. A

B. B complex

C. C

D. D

Answer: D

Watch Video Solution

5. Which one of the following statements is incorrect regarding vitamins ?

A. Vitamin A is essential for growth and vision

B. Vitamin D is essential for development of bones

C. A red coloured carotene in the body breaks into vitamin

С

D. Vitamin K is essential for bloodcoagulation

Answer: C

Watch Video Solution

6. Curd'contain the following vitamin

A. Vitamin B_{12}

B. Vitamin B_6

C. Vitamin A

D. Vitamin C

Answer: A

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7. Vitamin E is also called

A. Cyanocobalamin

B. Tocopherol

C. Lactoflavin

D. Ascorbic acid

Answer: B

Watch Video Solution

8. Milk contains vitamins

A. A, D and E

 $B.A, B_{12}$ and D

C. C, D and K

 $D.A, B_1$ and D

Answer: D

Watch Video Solution

9. Which of the following is stored in liver

A. Vitamin A

B. Vitamin C
C. Vitamin B_2

D. Vitamin B_{12}

Answer: D

Watch Video Solution

10. The one that is synthesized in skin is

A. Vitamin K

B. Vitamin C

C. Vitamin D

D. Vitamin E

Answer: C



11. Defficiency of the following vitamin leads to bleading gums

B. B_2

A. A

 $\mathsf{C}.\,B_5$

D. C

Answer: D

Watch Video Solution

12. The one that is familiar as ascorbic acid is

A. Vitamine A

B. Vitamine B

C. Vitarnine C

D. Vitamine E

Answer: C



13. Which type of chemical is Vitamin K

A. quinone

B. quinol

C. quinal

D. phenol

Answer: A

Watch Video Solution

14. Diseases caused by the deficiency of vitamin D(X) and vitamin $B_2(Y)$ are

A.XYScurvyCheilosisB.XYRicketsCheilosisC.XYRicketsScurvyD.XYScurvyConvulsions

Answer: B



1. Which of the following maintains constant sugar level in blood ?

A. Gibberlins

B. Insulin

C. Glucogen

D. Estrone

Answer: B



2. Which of the following hormones contains iodine ?

A. Insulin

B. Thyroxine

C. Adrenaline

D. Testosterone

Answer: B

Watch Video Solution

3. Number of six membered rings present in a steroid nucleus

is

A. 1

B. 2

C. 3

Answer: C



4. The organic compound that transfer biological information from one group of cells to distant tissues or organs are called as

A. Vitamins

B. Proteins

C. Hormones

D. Carbohydrates

Answer: C



5. Which one of the following sets of vitamins is fat soluble?

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

 $\mathsf{B}.\,A,\,B,\,E,\,K$

 $C. A, D, B_1, B_2$

 $D. D, B_1, B_2, E$

Answer: B

Watch Video Solution

Objective Exercise 3 Previous Neet Aipmt Questions

1. The hormone that helps in conversion of glucose to glycogen is

A. cortisone

B. bile salt

C. adrenaline

D. insulin

Answer: D

Watch Video Solution

2. Thymine is

A. 5-methyluracil

B. 4-methyluracil

C. 3-methyluracil

D. 1-methyluracil

Answer: A



3. Cell membrane is chemically composed by

A. phospholipids

B. fats

C. proteins

D. carbohydrates



4. Which functional group participates in disulphide bond formation in proteins ?

A. Thioether

B. Thiol

C. Thiolactone

D. Thioester

Answer: A

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5. Methyl-lpha-D-glucoside and methyl- `beta-D- glucoside are

A. epimers

B. anomers

C. enantiomers

D. conformational diastereomers

Answer: B

Watch Video Solution

6. Which one of the following is a peptide hormone?

A. Adrenaline

B. Thyroxine

C. Glucogen

D. Testosterone

Answer: B

Watch Video Solution

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

 $\begin{array}{ccc} \text{Proteins} & \xrightarrow{\text{Enzyme-A}} & \text{polypeptides} & \xrightarrow{\text{Enzyme-B}} & \text{amino acids} \end{array}$

are respectively.

A. pepsin and trypsin

B. invertase and zymase

C. amylase and maltase

D. diastase and lipase

Answer: A



8. The human body does not produce

A. Hormones

B. Enzymes

C. DNA

D. Vitamins

Answer: D



9. DNA and RNA are chiral molecules due to the presence of

A. Chiral bases

B. Phosphate ester unit

C. D-sugar component

D. L-sugar component

Answer: C

Watch Video Solution

10. Which salt is water soluble

A. vitamin E

B. vitamin D

C. vitamin K

D. vitamin B

Answer: D

Watch Video Solution

11. In DNA, the complimentary bases are

A. adenine and thymine, guanine and uracil

B. adenine and guanine , thymine and cytosine

C. uracil and adenine, cytosine and guanine

D. adenine and thymine, guanine and cytosine

Answer: D



12. Which of the following hormones contains iodine ?

A. insulin

B. thyroxine

C. testosterone

D. adrenaline

Answer: B

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

A. nucleoside

B. nucleotide

C. Ribose

D. gene

Answer: D

Watch Video Solution

14. Fructose reduces Tollen's reagent due to

A. asymmetric carbons

B. primary alcoholic group

C. secondary alcoholic group

D. enolisation of fructose followed by conversion to

aldehyde by base

Answer: D

Watch Video Solution

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

A. (+) Sucrose

B. (+) Lactose

C. (+) Maltose

D. (-) Fructose

Answer: A



16. Find the hydrolysis product of maltose

A. α -D-glucose + α - D - glucose

B. α - D- glucose + α - D- fructose

C. $\alpha - D$ glucose + $\alpha - D$ galactose

D. lpha D - glucose +lpha - D galacotse

Answer: A

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17. 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 it produces (D) + glucose and D(+) gala

C. (+) Lactose is a β – glycoside formed by the union of

molecule of D(+) glucose and molecule of D(+)

galactose

D. (+) Lactose is a reducing sugar and does not exibit mutarotation

Answer: D

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18. Deficieny of vitamin B_1 causes the disease

A. Cheilosis

B. Sterility

C. Convulsions

D. Beri-Beri

Answer: D



19. Which one of the following sets of monosac- charides forms sucrose ?

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

B. α -D-Glucopyranose and β -D- fructopyranose

C. $\alpha\text{-}\mathrm{D}\text{-}\mathrm{Galactopyranose}$ and α -D-Glucopyranose

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

Answer: D Watch Video Solution

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

$$H = NOH$$

$$H = C - OH$$

$$HO - C - H$$

$$HO - C - H$$

$$HO - C - H$$

$$H - C - OH$$

$$H - C - OH$$

$$H - C - OH$$

$$CH = NOH$$

$$HO - C - H$$

$$HO - C - H$$

$$HO - C - H$$

$$H - C - OH$$

$$CH = NOH$$
$$HO - C - H$$
$$H - C - OH$$
$$HO - C - H$$
$$H - C - OH$$
$$H - C - OH$$
$$C - C - H$$
$$H - C - OH$$
$$C - C - H$$

С.



Answer: D

D.



21. 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

22. 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



23. The correct statement regarding RNA and DNA respectively is

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

B. The sugar component in RNA is 2'-deox- yribose 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

24. Which of the following are non - reducing sugars ?

A. Glucose

B. Sucrose

C. Maltose

D. Lactose

Answer: B



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

A. Amino acids $\
ightarrow r$ Proteins $\
ightarrow \,$ DNA

B. DNA \rightarrow Carbohydrates \rightarrow Proteins

C. DNA \rightarrow RNA \rightarrow Proteins

D. DNA \rightarrow RNA \rightarrow Proteins

Answer: C

Watch Video Solution

26. 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

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27. The correct corresponding order of names of four aldoses

with configuration given below CHOCHOH



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

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

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

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

Answer: D

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28. Which of the following statements is not correct

A. Denaturation makes the proteins more active

B. Insulin maintains sugar level in the blood of a human

body

C. Ovalbumin is a simple food reserve in egg white

D. Blood proteins thrombin and fibrinogen are involved in

blood clotting

Answer: A



29. The difference between amylase and amylo- pectin is

A. Amylopectin have 1 and ~
ightarrow~ 4 lpha - linkage and 1rar6eta -

linkage

B. Amylose have 1
ightarrow 4lpha - linkage and 1
ightarrow 6eta - linkage

C. Amylopectin have 1
ightarrow 4 lpha- linkage and 1
ightarrow 6 lpha -

linkage

D. Amylose is made up of glucose and galactose

Answer: B

Watch Video Solution

30. Which of the following compounds can form a zwitterion

?

A. Benzoic acid

B. Acetanilide

C. Aniline

D. Glycine

Answer: D



Objective Exercise 4 Assertion A Reason R Type Questions

1. (A) Fructose has ketone group and does not reduce Tollen's reagent.

(R) Fructose in Haworth structure has SiX membered ring.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



2. (A) All carbohydrates fit in the general formula $C_x(H_2O)_u$

where x=y

(R) Acetic acid (CH_3COOH) gits into the genral formula

 $C_x(H_2O)_y$ and considered as carbohydrate.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

Watch Video Solution

3. (A) Glucose shows mutarotation

(R) Glucose is in pyranose form and has free anomeric hydroxyl group.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



4. (A) Sucrose is not a reducing sugar.

(R) In sucrose, glucose is in pyranose form and fructose is in

furanose form.
A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



5. (A) When $\alpha - D$ glucose dissolved in water, specific rotation of the solution changes from $+111^{\circ}$ to $+52.5^{2}$ (R) : $\alpha - D$ - glucose when dissolved in water, the equilibrium mixture of $\alpha - D(+)$ Glucose and $\beta - D(+)$ -Glucose is formed

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



6. (A) Fructose is the sweetest naturally occuring sugar.

(R) Fructose is a functional isomer of glucose.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



7. (A) Cellulose is not digested by human beings.

(R) Human beings are not having cellulose digestable enzymes.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

8. (A) Hydrolysis of sucrose is called inversion of cane sugar.(R) Sucrose on hydrolysis gives laevo rotatory glucose and dextro rotatory fructose

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



9. (A) In a sucrose molecule, glucose is present in the furanose form and fructose is present in the pyranose form.(R) Pyranose and furanose are homocyclic ring compounds.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

10. (A) Reducing sugars undergo mutarotion.

(R) During mutarotation, one pure anomer is converted into an equilibrium mixture of two anomers

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



11. (A) Galactose is the C_4 epimer of glucose.

(R) Glucose and galactose differ in configura- tion at C_4 .

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



12. (A) Sucrose is an example of reducing sugar.

(R) Sucrose gives silver mirror test with Tollens reagent.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



13. (A) Two different hexoses may give the same osazone.

(R) Different Hexoses give same osazone if the first and second carbon atoms have same configuration.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

14. (A) α -D (+) Glucose and $\beta - D(+)$ - Glucose are enantiomers.

(R) $\alpha - D(+)$ Glucose and $\beta - D(+)$ - Glucose are mirror images.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



15. (A) Reduction of glucose with sodium borohydride gives sorbitol.

(R) Sodium borohydride can convert a carbonyl group to alcoholic group.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

16. (A) Glucose and fructose give the same osazone.

- (R) Glucose and fructose have same configu- ration at C_{y}, C_{4} and C_{5}
 - A. Both (A) and (R) are true and (R) is the correct explanation of (A)
 - B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



17. (A): Fructose gives positive Tollen's test.

(R) : Fructose is a Ketose.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



18. (A) Cane sugar undergoes inversion in aqueous solution.(R) Cane sugar hydrolyses in water to give two monosaccharides, in which degree of rotation is dominated by fructose than glucose.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



19. (A) $C_6H_{10}O_5$ is a carbohydrates.

(R) Most of the carbohydrates have a general formula of $C_x(H_2O)_y$.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
 - B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

20. (A) Lactose is a reducing sugar.

(R) Lactose contains glucose and galactose units.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



21. (A) Lactose is a reducing Sugar

(R) Lactose if formed by glucosidic link between C_1 of (D) - glucose and C_4 of b- (D) - glucose

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

22. (A) D-Glucose and D-Mannose form identical osazone on reaction with excess of phenyl hydrazine

(R) D-Glucose and D-Mannose are epimers differing in configuration at C-2 only.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



23. (A) Sucrose is reducing sugar where as maltose is non-reducing sugar.

(R) In disaccharides the reducing property does not depend upon the position of linkage between two monosaccharide units.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



24. (A) Glucose gives a reddish-brown ppt with Fehling's solution.

(R) Reaction ofglucose with Fehling's solution gives CuO and gluconic acid.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
 - B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



25. (A) Sucrose is a non-reducing carbohydrate.

(R) In sucrose both the monosaccharides are in acetal form.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

26. (A) Glycogen is known as animal starch.

(R) The structure of glycogen is similar to amylopectin

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



27. (A) Acetic acid fit into $C_x(H_2O)_y$ gneral formula of carbohydrates.

(R) Acetic acid is not a carbohydrate

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

28. (A) Honey has been used for a long time as an instant source of energy by vaids in ayurvedic medicine.

(R) If the body needs glucose, enzymes break the glycogen down to glucose.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



29. (A) Starch gives blue colour with iodine.

(R) Starch form complex with iodine, which is blue in colour.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



30. (A) DNA stores all the hereditary information of a biological species.

(R) A change in the usual sequence of bases of DNA molecule causes mutation.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



31. (A) 2-deoxyribose is reducing sugar.

(R) 2-deoxyribose is constituent of DNA.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



32. (A) Guanine unites with Cytosine but not with Thymine.(R) Guanine and Cytosine are purine bases while Thymine is a pyrimidine base.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

33. (A) Adenine pairs up with thymine but not with cytosine.(R) With cytosine, no hydrogen bonds are possible for adenine.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



34. (A) The pyrimidine base thymine is present in RNA.

(R) DNA controls the synthesis of proteins

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



35. (A) In double helical structure of DNA, cytosine pairs with guanine with three hydrogen bonds.

(R) Cytosine contains one primary amine group, one secondary amine group and one keto group.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



36. (A) Uracil occur in RNA.

(R) RNA controls the synthesis of proteins.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



37. (A) DNA finger printing is used in forensic labs.

(R) Every individual has unique finger prints.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



38. (A) DNA is the chemical basis of heredity and may be regarded as the reserve of genetic information.

(R) The production of DNA from RNA is called semiconservative replecation.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



39. (A) RNA on hydrolysis gives equal content of guanine, cytocine and also give equal content of adenine, uracil. (R) The three types of RNA's perform same function.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D
40. (A) Thymine pairs with adenine whereas cytosine pairs with guanine in DNA molecule.

(R) The hydrogen bonding between bases of two strands is highly specific.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



41. (A) Glutamic acid is acidic amino acid.

(R) Glutamic acid contains two acidic groups and one basic group.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



42. (A) The simplest α -amino acid is optically inactive.

(R) Simplest α amino acid has no chiral carbon centre.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



43. (A) Glycine is essential amino acid.

(R) Glycine is optically active α -amino acid

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



44. (A) The folding of polypeptide chains leads to globular proteins.

(R) Globular structure is a part of secondary structure of protein.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



45. (A) Alpha amino acids generally exists as zwitterions.

(R) The basic amino groups of α -amino acids donates a proton to the carboxylic group.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

46. (A) The melting points and solubility in water of amino acids are generally higher than that of the corresponding halo acids.

(R) Amino group of amino acids can form hydrogen bonds but halogen of halo acids can not form hydrogen bonds.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



47. (A) Enzymes are globular proteins.

(R) Enzymes provide active site to substrate.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



48. (A) Denaturation of a protein can be done on heating or by adding a suitable solvent.

(R) Denaturation of a protein effects its primary structure.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

49. (A) All enzymes are proteins but all proteins are not enzymes.

(R) Keratin is an enzyme.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



50. (A) At isoelectric point an amino acid has highest solubility.

(R) Isoelectric point ofan amino acid is usually at a pH value of

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



51. (A) A protein chain tends to fold in a repeating geometric structure

(R) A protein chain with more number of hydrogen bonds is having less energy.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



52. (A) Entropy increases due to boiling of egg.

(R) Breaking of tertiary structure of protein takes place due to boiling of egg.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

53. (A) Amino acid that can be synthesised by human body is called essential amino acid.

(R) All α -amino acids are essential amino acids.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



54. (A) At isoelectric point, the amino group does not migrate under the influence of electric field.

(R) At isoelectric point, amino acid exists as a zwitter ion.

A.Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

55. (A) Albumin, present in egg white converting into water insoluble fibrous protein on heating.

(R) On heating albumin, present in egg white is denatured.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



56. (A) Rate of the hydrolysis of sucrose in the presence of acid is less when compared with the presence of sucrase enzyme.

(R) Enzyme sucrase reduces the magintude of activation energy for hydrolysis of sucrose.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

57. (A) α -amino acids have high melting point and show unusually high solubility in polar solvents.

(R) The Zwitter ion behaves like a salt.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



58. (A) Proteins are step growth polymers of α - amino acids. (R) α - amino acids are bonded to each other through peptide linkage.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

59. (A) The proteins are synthesised by various RNA molecules in the cell.

(R) The message for the synthesis of a particular protein is present in DNA.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



60. (A) Tertiary structure of proteins represents overall folding i.e. further folding folding of 2° structure.

(R) $2^{\circ} \& 3^{\circ}$ structures of protein stabilized by hydrogen bonds disulphide linkages, vander waals & electrostatic force of attraction.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



61. (A) Valine and Leucine are essential amino acids.

(R) Both valine and Leucine are not synthe-sised by body and must be supplied only through the diet.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

62. (A) Leucine and isoleucine are structural isomers.

(R) Isoleucine has iso butyl group on ex- carbon.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



63. (A) Xerophthalmia is treated with vitamin - B_6

(R) Xerophthalmia is digestive desorders and burning sensation of the skin.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

64. (A) Insulin contains two peptide chains.

(R) Insulin is an example of dipeptide.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



65. (A) Vitamin 'C' is ascorbic acid.

(R) All acids are vitamins

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



66. (A) All hormone receptors are proteins,

(R) All hormones are proteins

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



67. (A) Water soluble vitamins like ascorbic acid must be supplied regularly in diet.

(R) Water soluble vitamins are readily excre- ted in urine and cannot be stored in our body (except vitamin B_{12})

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



68. (A) Vitamins are important in diet.

(R) Deficiency of vitamins causes diseases.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



69. (A) Insulin is a steroidal harmone.

(R) A steroid contains two five membered and two six membered rings.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

70. (A) Vitamins are considered as essential food factors.

(R) Most of the vitamins cannot be synthe- sised in our body and most of the vitamins available in our diet.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



71. (A) Vitamins are to be supplimented to the body as an energy source.

(R) Vitamins on burning give high energy.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

72. (A) Deficiency of vitamin K causes excessive bleeding in injuries.

(R) Vitamin K is anti haemorragic.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



73. (A) Enzyme catalysed hydrolysis of sucrose is faster than acid catalysed hydrolysis.

(R) Activation energy for enzyme catalysed reaction is much lesser than acid catalysed hydrolysis.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false



74. (A) Insulin is a globular protein.

(R) Insulin has two polypeptide chains consist of 51 amino acids joined by two disulphide linkage.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

75. (A) Low level of thyroxine leads to hypo-thyroidism.

(R) Thyroxine is an iodinated derivative of amino acid(tyrosine)

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B


76. (A) Carbohydrate metabolism is controlled by gluco corticoids.

(R) Hormones produced by gonads control the carbohydrate metabolism.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



77. (A) Enzymes are needed in large quantities for the progress of a reaction.

(R) Enzymes increases the magnitude of activation energy.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

Watch Video Solution

78. (A) Hormones are produced by endocrine glands in the body.

(R) Hormones act as inter cellular messengers.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



79. (A) The deficiency of vitamins causes specific diseases.

(R) All vitamins can not be synthesized in our body.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



80. (A) Taking excess vitamin pills are harmless.

(R) All the vitamins are available in our diet.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



81. (A) Vitamins A, D, E and K are stored in liver and adipose tissues.

(R) Vitamins A, D, E and K are insoluble in water.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

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82. (A) 'B' group vitamins except B-12 cannot be stored in our body.

(R) 'B' group vitamins are insoluble in water.

A. Both (A) and (R) are true and (R) is the correct

explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



83. (A) Epinephrine and nm epinephrine are derivatives of polypeptides.

(R) All hormones are d.erivatives of polypeptides.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

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84. (A) B-complex vitamins and vitamin-C are not stored in the body.

(R) B- complex vitamins and vitamin- C are water soluble

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct

explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

