



CHEMISTRY

BOOKS - ACCURATE PUBLICATION

BIOMOLECULES

Multiple Choice Questions 1 Mark

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

A. chiral bases

B. chiral phosphate ester units

C. D-sugar component

D. L-sugar component

Answer: C



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2. Which one of the following is an amine hormone ?

A. Thyroxine

B. Oxypurin

C. Insulin

D. Progesterone

Answer: A



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3. In DNA, the complimentary bases are :

A. adenine and thymine, guanine and cytosine

B. adenine and thymine, guanine and uracil

C. adenine and guanine, thymine and cytosine

D. uracil and adenine, cytosine and guanine

Answer: A



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4. In which part of the plant does the process of transpiration occurs?



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5. Which of the following hormones contains iodine ?

A. Testosterone

B. Adrenaline

C. Thyroxine

D. Insulin

Answer: C



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6. At which place of a magnet, its magnetic force is maximum?



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7. Which of the following cannot reduce Tollen's reagent?

A. enolisation of fructose followed by conversion to glucose (having aldehydic group) by the base present in Tollen's reagent

B. asymmetric carbons

C. primary alcoholic group

D. secondary alcoholic group

Answer: A



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8. Which of the following statements is not true?

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

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

C. (+) Lactose is a reducing sugar and does not exhibit mutarotation.

D. None

Answer: C



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9. what happens when a north pole of a magnet is brought near the north pole of a suspended magnet?



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10. How a magnet can be demagnetized?



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11. Deficiency of vitamin B1 causes the disease



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12. Which of the following acids does not exhibit optical isomerism ?

- A. Maleic acid
- B. α -amino acids
- C. Lactic acid
- D. Tartaric acid

Answer: A



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13. Fill in the blanks

A virus differs from bacterium as it contains DNA or RNA as genetic material with noorganisation.

- A. ribose sugar and thymine
- B. ribose sugar and uracil
- C. deoxyribose sugar and thymine
- D. deoxyribose sugar and uracil.

Answer: B



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14. Complete hydrolysis of cellulose gives



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15. It is advised to keep the magnets away from television, computer and CD players. Explain why?



16. Identify the correct statement regarding enzymes :

A. enzymes are specific biological catalysts

that cannot be poisoned

B. enzymes are normally heterogeneous

catalysts that are very specific in their

action

C. enzymes are specific biological catalysts that can normally function at very high temperatures (t-1000 k)

D. enzymes are specific biological catalysts that possess well-defined active sites

Answer: D



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17. How will you determine the poles of magnet if you cut the bar magnet into pieces?



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18. which gas present in the atmosphere is most important for human beings and animals?



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

A. Riboflavin

B. Insulin

C. Fats

D. Hormones

Answer: B



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20. The formula of glucose is $C_6H_{12}O_6$.

Calculate its molecular mass.

A. enantiomers of glucose

B. isomers of glucose that differ in configuration at carbon one (C - 1)

C. isomers of glucose that differ in configurations at carbons one and four (C - 1 and C - 4)

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

Answer: B



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21. The pyrimidine bases present in DNA are

- A. cytosine and thymine
- B. cytosine and uracil
- C. cytosine and adenine
- D. cytosine and guanine

Answer: A



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22. Explain secondary structure of proteins.

- A. fixed configuration of the polypeptide backbone
- B. alpha-helical backbone
- C. hydrophobic interactions
- D. sequence of alpha-amino acids.

Answer: B



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23. When you bring water to boil, you see tiny bubbles inside the vessel. What you conclude by this observation?



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24. The two functional groups present in a typical carbohydrate are :

A. $-CHO$ and $-COOH$

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

C. $- OH$ and $- CHO$

D. $- OH$ and $- COOH$

Answer: C



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25. Biuret test is not given by

A. carbohydrates

B. polypeptides

C. urea

D. proteins

Answer: A



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26. The presence or absence of hydroxyl group on which carbon atom of sugar differentiates RNA and DNA ?

A. 1st

B. 2nd

C. 3rd

D. 4th

Answer: B



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27. Out of the following gases, which gas is used by the plants - Nitrogen, oxygen, carbon dioxide?



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28. Which one of the following statements is correct:

A. All amino acids except lysine are optically active

B. All amino acids are optically active

C. All amino acids except glycine are optically active

D. All amino acids except glutamic acids are optically active

Answer: C



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

A. 18 molecules of ATP

B. 10 molecules of ATP

C. 8 molecules of ATP

D. 6 molecules of ATP

Answer: A



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

A. racemisation

B. asymmetric induction

C. fluxional isomerism

D. mutarotation

Answer: D



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31. Which one the following is a disaccharide :

Starch, Maltose, Fructose, Glucose?

A. Tollen's reagent

B. Fehling's solution

C. Benedict's solution

D. All of these

Answer: D



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32. From which source, we get oxygen in the atmosphere?



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33. Oxygen cylinders are needed by the persons who are going to climb the mountain.

Explain why?



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34. what is the percentage of nitrogen in the air?



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35. Violet colour is obtained when dilute CuSO_4 is added in alkaline solution of protein.

This test is known as



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36. What is the percentage composition of oxygen in the atmosphere?



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37. What is the importance of nitrogen?



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

A. TACGAACT

B. TCCGAACT

C. TACGTACT

D. TACGTAGT

Answer: A



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39. which metal is present in vitamin B_{12} or cyanocobalamin?

A. Manganese

B. Iron

C. Cobalt

D. Copper

Answer: C



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40. What is the source of carbon dioxide in the atmosphere?



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41. Name the major gas present in exhaled air and inhaled air?



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42. Which are the necessary conditions for an iron piece to get rusted?



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43. Vitamin D is also known as

A. sunshine vitamin

B. ascorbic acid

C. growth vitamin

D. reproductive vitamin

Answer: A



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44. Riboflavin is vitamin

A. B6

B. B1

C. B2

D. B12

Answer: C



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45. Vitamin which contains cobalt is

A. B12

B. B6

C. A

D. E

Answer: A



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46. The pigment used for photosynthesis in plants is called-



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47. Deficiency of vitamin E causes

A. loss of fertility

B. impaired clotting

C. scurvy

D. night blindness

Answer: A



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48. vitamins absorbed from intestine along with fats are



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49. A vitamin that contains both N and P is

A. Vitamin C

B. Vitamin K

C. Vitamin B12

D. Vitamin D

Answer: C



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50. What is litmus paper and what is the use of litmus paper?



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51. Oleic, stearic and palmitic acids are

A. nucleic acids

B. amino acids

C. fatty acids

D. none of these

Answer: C



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52. What happens if the percentage of carbon dioxide is increased in the atmosphere?



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53. Why it is advised to cover the person with blanket during an incident of fire?



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54. A triglyceride can have how many different acyl groups ?

A. 3

B. 2

C. 1

D. 4

Answer: A



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55. Oils are converted into fats by

A. hydration

B. decarboxylation

C. hydrogenation

D. dehydrogenation

Answer: C



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56. Saponification of coconut oil yields glycerol and

- A. palmitic acid
- B. sodium palmitate
- C. oleic acid
- D. stearic acid

Answer: B



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57. Iodine value is related to

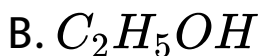
- A. fats and oils
- B. alcohols
- C. esters
- D. hydrocarbons

Answer: A

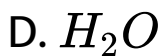


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58. The best solvent for removing butter stain from cloth is



C.



Answer: A



59. Lipids are

- A. nucleic acids occurring in plants
- B. proteins occurring in animals
- C. carbohydrates occurring in plants
- D. fats of natural origin

Answer: D



60. Explain the term- air? What components are present in the air?



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61. Which of the following is not an amino acid ?

A. Glycine

B. Adenine

C. Histidine

D. Benzidine

Answer: D



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62. 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



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63. Define the term-Digestion.



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64. The structural feature which distinguishes proline from natural amino acids ?

- A. Proline is optically inactive
- B. Proline contains aromatic group
- C. Proline is a dicarboxylic acid
- D. Proline is a secondary amine

Answer: D



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65. Which amino acid is achiral ?

A. alanine

B. valine

C. proline

D. None of these

Answer: D



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66. Which is not true about polymers ?

- A. α - carbon of α -amino acid is asymmetric
- B. all proteins are found in L-form
- C. human body can synthesize all proteins they need
- D. at $\text{pH}=7$ both amino acids and carboxylic groups exist in the ionised form

Answer: B



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67. Why do HCl , HNO_3 etc, show acidic characters in aqueous solutions while solutions of compounds like alcohol and glucose do not show acidic character?

- A. acetic acid
- B. benzoic acid
- C. formic acid
- D. α -aminoacetic acid

Answer: D



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68. Amino acids are the building blocks of

A. carbohydrates

B. vitamins

C. fats

D. proteins

Answer: D



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69. What are blue bins and green bins used for?



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70. The main structural feature of proteins is

- A. ester linkage
- B. ether linkage
- C. peptide linkage
- D. All of these

Answer: C



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71. Which gas from the atmosphere is inhaled by the plants and exhaled by the animals?



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72. 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



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73. Which of the following is not true

A. Nail formation

B. Skin formation

C. Muscle formation

D. Providing energy for metabolism.

Answer: D



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74. Insulin, a hormone, chemically is a

A. fat

B. steroid

C. protein

D. carbohydrate

Answer: C



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75. Which one of the following is not a protein

?

A. Wool

B. Nail

C. Hair

D. DNA

Answer: D



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

A. H-bonding

B. van der Waals forces

C. ionic bond

D. peptide bond

Answer: A



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77. What is denaturation of proteins ?

A. formation of amino acids

B. loss of primary structure

C. loss of both primary and secondary structures

D. loss of both secondary and tertiary structures

Answer: D



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78. Lack of essential amino acids in the diet leads to the disease called

- A. Night blindness
- B. Pernicious anaemia
- C. Kwashiorkor
- D. Sickel cell anaemia

Answer: C



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79. The base adenine occurs in

A. DNA only

B. RNA only

C. DNA and RNA both

D. Protein

Answer: C



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80. Purine derivative among the following bases is

A. thymine

B. uracil

C. guanine

D. cytosine

Answer: C



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81. Which substance is not present in nucleic acids ?

A. Cytosine

B. Adenine

C. Thymine

D. Guanidine

Answer: D



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82. Adenosine is an example of

A. nucleotide

B. nucleoside

C. purine base

D. pyrimidine base

Answer: B



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83. A nucleotide consists of

A. carbon sugar

B. nitrogen containing base

C. phosphoric acid

D. All of these

Answer: D



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84. DNA has deoxyribose, a base and the third compound is

A. phosphoric acid

B. ribose

C. adenine

D. thymine

Answer: A



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

A. Guanine

B. Cytosine

C. Adenine

D. Tyrosine

Answer: D



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86. The two strands of the double helix of DNA are held together at definite distances through

- A. hydrogen bonds
- B. ionic bonds
- C. phosphate groups
- D. oxygen linkages

Answer: A



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87. State whether the following statement is true or false- Nitric acid turns red litmus to blue.



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88. Chargaff's rule states that in an organism

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

- B. amount of adenine (A) is equal to that of cytosine (C) and the amount of thymine (T) is equal to that of guanine (G)
- C. amount of adenine (A) is equal to that of thymine (T) and the amount of guanine (G) is equal to that of cytosine (C)
- D. amount of all bases are equal

Answer: C



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89. Fill in the blanks:

The double helix model of DNA was proposed by.....and..... .

A. Watson and Crick

B. Meichers

C. Emil Fischer

D. Khorana

Answer: A



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True And False 1 Mark

1. Both glucose and fructose are reducing sugars.



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2. Lecithin is an alpha amino acid.



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3. Starch has a component amylose and amylopectin.



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4. Write a balanced chemical equation with state symbols for the following reaction :
Heated iron metal reacts with steam to iron oxide (Fe_3O_4) and hydrogen.



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5. Uracil occurs in DNA and not in RNA.



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6. What are the final products of photosynthesis?



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7. Glycogen is a polymer of Glucose unit.



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8. Alpha amino acid shows basic character due to $-COO^-$ group and acidic character due to $-NH^{3+}$ group.



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9. Through which experiment we can determine presence of glucose/ starch in leaves?



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10. Translate the following statements into chemical equation and balance the equations :
hydrogen sulphide gas burns in air to give water and sulphur dioxide.



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11. Keratin, fibrin and collagen are fibrous proteins.



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12. Deficiency of Vitamin D causes



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13. Write chemical name of Vitamin B_2 .



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1 Mark Questions

1. Name the enzyme which converts glucose into alcohol.



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2. Name the enzyme which converts maltose into glucose.



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3. Name the enzyme which converts sucrose into glucose and fructose.



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4. Name the enzyme which converts starch into maltose.



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5. Which sugar molecule is present in DNA molecule ?



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6. Which sugar molecule is present in RNA molecule ?



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7. Write chemical name of Vitamin C.



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8. What is muta-rotation ?



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9. Write chemical name of Vitamin B_2 .



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



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



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



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13. Describe the role or functions of vitamin A in our body.



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14. Describe the role or functions of vitamin C in our body.



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15. Describe the role or functions of vitamin D in our body .



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



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17. Write the chemical name of vitamin B_1 and the disease caused by its deficiency.



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18. Write two sources of vitamin A and disease caused by its deficiency.



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19. Write two sources of vitamin C and disease caused by its deficiency.



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20. Write two sources of vitamin B and disease caused by its deficiency.



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21. Write the chemical name of vitamin B_1 and the disease caused by its deficiency.



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22. Soft soaps are potassium salts of higher fatty acids.



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23. What are nucleosides ?



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24. Name two important polysaccharides of D-glucose.



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25. What are Carbohydrates ? Why are these main sources of energy?



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26. Write one function and two sources of vitamin D.



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27. What are Enzymes ? What are their characteristics (properties)?



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28. Which enzyme is used for the hydrolysis of cellulose ?



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



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



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31. What are nucleic acids ? What is the base unit of such acids ?



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32. What are enzymes ? How many enzymes have been identified ?



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2 Mark Questions

1. What is mutarotation ?



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2. What are monosaccharides ?



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3. What are disaccharides ?



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4. What are polysaccharides ?



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5. What is peptide bond ? Give one example.



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6. What is Denatured Protein ? Give example.



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7. Why are carbohydrates generally optically active ?



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8. What is the difference between globular and fibrous protein ?



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9. Difference between Enzyme and Catalyst.





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10. Write six differences between DNA and RNA.



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11. What is the difference between nucleoside and nucleotide ?



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12. Write zwitter ion structure of glycine.



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13. Explain isoelectric point of α -amino acids.



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



[Watch Video Solution](#)

15. Draw the pyranose structure of $\alpha - D - glu\ cosine$.



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16. Draw the pyranose structure of $\alpha - D - glu\ cosine$.



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17. What is the difference between Sugar and Non-sugar Carbohydrates ?



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18. Write two differences between hormones and vitamins.



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19. Distinguish between

Essential and non-essential amino acids



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20. Differentiate between reducing and non-reducing sugars.



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21. What are α -amino acids ?



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22. What is the basic difference between starch and cellulose ?



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23. What are proteins? Give important functions of proteins in living organism.



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24. What is peptide bond ? Give one example.



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25. What do you mean by inversion of cane sugar ?



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26. Write two sources of vitamin-K and two diseases caused by its deficiency:





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27. What do you mean by Amphoteric nature of α -amino acid ?



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28. Explain primary and secondary structure of proteins in brief.



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29. Give difference between polypeptides and proteins.



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