

QB365  
Important Questions - Biomolecules  
12th Standard CBSE

**Chemistry**

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

**Section - A**

- 1) Antibodies are 1  
(a) Carbohydrates (b) Proteins (c) Lipids (d) Enzymes.
- 2) Dinucleotide is obtained by joining two nucleotides together by phosphodiester linkage. Between which carbon atoms of pentose sugars of nucleotides are these linkages present ? 1  
(a) 5' and 3' (b) 1' and 5' (c) 5' and 5' (d) 3' and 3'
- 3) Which of the following compounds be detected by Molisch's test 1  
(a) Sugars (b) Amines (c) Primary alcohols (d) Nitro compounds
- 4)  $\alpha$  - Maltose consists of 1  
(a) one  $\alpha - D$  - glucopyranose unit and one  $\beta - D$  - glucopyranose unit by 1,2-glycosidic linkage  
(b) one  $\alpha - D$  - glucopyranose units with 1,2-glycosidic linkage  
(c) two  $\beta - D$  - glucopyranose units with 1, 4-glycosidic linkage  
(d) two  $\alpha - D$  - glucopyranose units with 1, 4-glycosidic linkage
- 5) Which of the following is an essential amino acid ? 1  
(a) Methionine (b) Tyrosine (c) Proline (d) Glycine (e) Alanine
- 6) Which of the following statements about  $\alpha$ -amino acids are true? 1  
(a) In  $\alpha$ -amino acids, the acidic group is  $-\overset{+}{N}H_3$  while the basic group is  $-\text{COO}^-$ .  
(b) All the  $\alpha$ -amino acids which constitute proteins have D-configuration  
(c) The isoelectric point of glycine is 6.1 (d) Valine is an essential amino acid
- 7) Purine and pyrimidine bases present in both DNA and RNA are 1  
(a) Uracil (b) Thymine (c) Cytosine (d) Adenine
- 8) Milk sugar is called ..... in which ..... is present in the reducing form while ..... is present in the non-reducing form. 1
- 9) Exposure of body to sun rays produces ..... 1
- 10) DNA undergoes ..... but ..... usually does not. 1

**Section - B**

- 11) Give reasons for the following statements (i) Amino acids are amphoteric in nature. (ii) Amino acids have comparatively higher melting points than the corresponding haloacids. 2

- 12) Glucose does not give 2,4-DNP test, schiff's test or does not give sodium bisulphite adduct. Give reasons or  
Despite having an aldehyde group, glucose not give 2,4-DNP test ? what does this indicate ? 2
- 13) Write two main function of carbonyhydrate in plants. 2
- 14) What is the difference between a nucleoside and a nucleotide ? 2
- 15) Why must vitamin C be supplied regularly in diet ? 2

### Section - C

- 16) Coagulation of egg white on boiling is an example of denaturation of protein. Explain it in terms of structural changes. 3
- 17) Explain the following terms (i)Mutarotation (ii)Avitaminosis 3
- 18) Define the following and give one example of each: 3
- (a)Isoelectric point
- (b)Mutarotation
- (c)Enzymes
- 19) How are the carbohydrates classified? 3
- 20) (a) A non reducing disaccharide 'A' on hydrolysis with dilute acid gives an equimolar mixture of D-(+)-glucose and D-(-)-Fructose. 3
- $$A + H_2O \xrightarrow{HCl} C_6H_{12}O_6 + C_6H_{12}O_6$$
- $[\alpha] = +66.5^\circ + 52.5^\circ - 92.4^\circ$
- Identify A. What is the mixture of D-(+)-glucose and D-(-)-Fructose known as ? Name the linkage that holds the two units in the disaccharide.
- (b)  $\alpha$  -amino acids have relatively higher melting points than the corresponding halo acids. Explain.

### Section - D

- 21) Give reason for the following : (i) On electrolysis in acidic solution, aminoacids migrate towards cathode while in alkaline solution these migrate towards anode. (ii) The mononamino monocarboxylic acids have two pK values. 5
- 22) In 1985, a British chemist Alec Jeffreys developed a technique called DNA finger printings. We know the every individual has unique fingerprints. They appear as circles on the tips of fingers and are used for the identification of individuals. It is arranged that every person has its own sequence of bases in DNA. It can not match with those of any other person. 5
- (i) What is the full form of DNA?
- (ii) Which base is present in DNA and not in RNA ?
- (iii) Which base is present in RNA and not in DNA?
- (iv) What value does Alec Jeffreys have?

23) Carbohydrates form a group of naturally occurring organic compounds and are a major source of energy for our body. Some common examples are of cane sugar, glucose etc. Chemically these are either polyhydric aldehydes or polyhydric ketones and are classified as monosaccharides, oligosaccharides and polysaccharides.

(i) Name the carbohydrates which has maximum sweeteners.

(ii) Which carbohydrate is present in milk?

(iii) Why is sucrose a non-reducing sugar ?

(iv) How do carbohydrates (starch in particular) act as a source of energy for our body?

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