Class 12 Chemistry Chapter 14 Biomolecules MCQs

1. A disaccharide is formed when two monosaccharides are bonded together by a bond.

a) glycosidic

b) peptide

c) ionic

d) phosphodiester

Answer: a

Explanation: When two monosaccharide units come together, they lose a molecule of water and form an oxide bond. The glycosidic linkage is a bond formed by an oxygen atom between two monosaccharide molecules.

2. Sucrose is a chemical, and the hydrolysis product combination is in nature.

a) dextrorotatory; dextrorotatory

b) laevorotatory; laevorotatory

c) laevorotatory; dextrorotatory

d) dextrorotatory; laevorotatory

Answer: d

Explanation: Sucrose is a dextrorotatory sugar that produces a combination of dextrorotatory glucose and laevorotatory fructose when hydrolyzed. The resultant mixture is laevorotatory because the specific rotation of fructose is larger than that of glucose.

3. Which of the following statements about maltose is incorrect?

a) It consists of two glucopyranose units

b) It is a disaccharide

c) Glycosidic bond between C1 of one unit and C4 of the other unit

d) It is a non-reducing sugar

Answer: d

Explanation: The free aldehyde group, which has reducing capabilities, can be formed at the C1 carbon of the second -D-glucose unit in solution. As a result, it decreases sugar.

4. Which of the following statements about starch is incorrect?

a) It gives blue colour with iodine

b) It is a polymer of α-D-glucose

c) It is a reducing carbohydrate

d) It consists of branched chains

Answer: c

Explanation: Because it does not decrease Fehling's solution or Tollen's reagent, starch is a non-reducing saccharide. This means that all hemiacetal hydroxyl groups of glucose units are linked by glycosidic bonds and are not free.

5. RNA lacks the nitrogen base of _____

a) Thymine

b) Cytosine

c) Uracil

d) Adenine

Answer: a

Explanation: DNA contains the pyrimidine Uracil, whereas DNA contains Thymine. In RNA, Adenine forms two hydrogen bonds with Uracil, but in DNA, Adenine forms two hydrogen bonds with Thymine.

6. Lysine is an example of a polar but uncharged amino acid,

a) Serine

b) Aspartate

c) Lysine

d) Arginine

Answer: a

Explanation: The amino acids Lysine and Arginine are polar and positively charged. Aspartate, on the other hand, is a polar and negatively charged amino acid. Serine is an uncharged, polar amino acid.

7. Which of the following chemical classes does not belong to the vast group of carbohydrates?

a) Polyhydroxy ketones

b) Polyhalo aldehydes

c) Polyamino aldehydes

d) Polyhydroxy carboxylic acids

Answer: a

Explanation: The OH group is absent from polyamino and polyhalo aldehydes. There is no CHO or keto group in polyhydroxy carboxylic acids. When they are hydrolyzed, they do not form OH substituted compounds.

8. Which of the following statements about metabolism is false?

a) It is due to this process that biomolecules do not have a turnover

b) It involves the formation of biomolecules

c) It involves the breaking down of biomolecules

d) It involves various chemical reactions

Answer: a

Explanation: Metabolism entails the breakdown of biomolecules as well as the creation of new ones. It entails a number of chemical processes. It is in charge of the biomolecule turnover.

9. How can we make an amine from an amino acid?

a) Addition of carbon dioxide

b) Removal of ammonia

c) Addition of ammonia

d) Removal or carbon dioxide

Answer: d

Explanation: The elimination of a molecule of carbon dioxide transforms an amino acid into an amine. This is an example of a metabolic reaction that involves the conversion of one biomolecule into another.

10. When converting a disaccharide to monosaccharides, which bond is hydrolyzed?

a) Disulfide bond

b) Glycosidic bond

c) Phosphodiester bond

d) Hydrogen bond

Answer: b

Explanation: A disaccharide is a molecule that consists of two monosaccharides joined by a glycosidic bond. The disaccharide's glycosidic bond is hydrolyzed to release the constituent monosaccharides.