



CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: Chemistry

Chapter Name : *Biomolecules* (Chapter : 10)

Total : 7 Marks (expected) [MCQ(1)-1 Mark, Assertion-Reason(1)-1 Mark or VSA(1)-1 Mark, SA(2)-1, LAQ(3)-1]

Level - 2(Higher Order)

MCQ Type Questions: (1 mark)

- Which of the following statement is correct?
 - Fibrous proteins are generally soluble in water
 - Albumin is an example of fibrous proteins
 - In fibrous proteins, the structure is stabilised by hydrogen bonds and disulphide bonds
 - pH does not affect the primary structure of protein
- Which of the following is polysaccharide?
 - Glucose
 - Maltose
 - Glycogen
 - Lactose
- Which one of the following statement is correct about sucrose?
 - It can reduce Tollen's reagent however cannot reduce Fehling reagent.
 - It undergoes mutarotation like glucose and fructose.
 - It undergoes inversion in the configuration on hydrolysis
 - It is laevorotatory in nature.
- In the following reaction, identify *A* and *B*
$$\begin{array}{ccc} \text{C}_6\text{H}_{12}\text{O}_6 & \xrightarrow{\text{Acetic anhydride}} & \text{A} \\ \downarrow \text{conc. nitric acid} & & \\ \text{B} & & \end{array}$$
 - $\text{A} = \text{COOH}-(\text{CH}_2)_4-\text{COOH}$,
 $\text{B} = \text{OHC}-(\text{CHOCOCH}_3)_4-\text{CH}_2\text{OCOCH}_3$
 - $\text{A} = \text{COOH}-(\text{CH}_2)_4-\text{CHO}$,
 $\text{B} = \text{OHC}-(\text{CHOCOCH}_3)_4-\text{CH}_2\text{OCOCH}_3$
 - $\text{A} = \text{OHC}-(\text{CHOCOCH}_3)_3-\text{CH}_2\text{OCOCH}_3$,
 $\text{B} = \text{COOH}-(\text{CH}_2)_4-\text{CHO}$
 - $\text{A} = \text{OHC}-(\text{CHOCOCH}_3)_4-\text{CH}_2\text{OCOCH}_3$,
 $\text{B} = \text{COOH}-(\text{CH}_2)_4-\text{COOH}$
- Which one of the following reactions is not explained by the open chain structure of glucose?
 - Formation of penta-acetate of glucose with acetic anhydride
 - Formation of addition product with 2,4-DNP reagent
 - Silver mirror formation with Tollen's reagent
 - Existence of α and β forms of glucose

[Hints: Q 1 to 5, CBSE 2021-22, Term I]

Assertion-Reason based questions (1 mark)

Read the two statements carefully and select the correct option given below.

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

B: Both (A) and (R) are correct but (R) is not the correct explanation of (A).

C: (A) is correct and (R) is incorrect.

D: (A) is incorrect and (R) is correct.

6. Assertion (A): Glucose reacts with hydroxylamine to form an oxime and also adds a molecule of hydrogen cyanide to give cyanohydrin.

Reason (R): The carbonyl group is present in the open chain structure of glucose.

Ⓐ A

Ⓑ B

Ⓒ C

Ⓓ D

[Hints: CBSE 2020]

Very Short Answer Type Questions (1 mark)

7. What are the products of hydrolysis of sucrose? [All India 2013, 2010]
8. What is a glycosidic linkage? [Delhi 2013]
9. Name two components of starch. [Delhi 2013]
10. What is meant by invert sugars? [Delhi 2010]

Short Answer Type Questions (2 marks)

11. Account for the following.
(i) There are 5—OH groups in glucose.
(ii) Glucose is a reducing sugar.
12. What happens when D-glucose is treated with the following reagents? [CBSE 2023]
(i) Bromine water (ii) HNO_3
13. Explain what is meant by
(i) pyranose structure of glucose?
(ii) glycosidic linkage? [Delhi 2012]
14. Write such reactions and facts about glucose which cannot be explained by its open chain structure. [All India 2011]
15. What is essentially the difference between the α -form of glucose and β -form of glucose? Explain. [Delhi 2011]

Long Answer Type Questions (3 marks)

16. What happens when D-glucose is treated with the following reagents? [All India 2019]
(i) Br_2 water (ii) HCN (iii) $(\text{CH}_3\text{CO})_2\text{O}$
17. Give three reactions of glucose which cannot be explained by its chain structure.
- Or**
- Enumerate the reaction of D-glucose which cannot be explained by the open chain structure.
18. What is essentially the difference between α -glucose and β -glucose? What is meant by pyranose structure of glucose?
19. What is glycogen? How is it different from starch? How is starch structurally different from cellulose?

ANSWER

1. Ⓓ 2. Ⓒ 3. Ⓒ 4. Ⓓ 5. Ⓓ 6. Ⓐ