

CBSE EXAMINATION PAPER-2024

CHEMISTRY

(Solved)

Time allowed : 3 hours

Maximum Marks : 17

General Instructions :

Read the following instructions carefully and follow them :

- i. This question paper contains **15 questions**. All questions are **compulsory**.
- ii. This question paper is divided into **4 sections**.
- iii. **Section A** – questions number **1 to 9** are multiple choice questions Each question carries **1 marks**.
- iv. **Section B** – questions number **10 to 10** are very short answer Each question carries **2 marks**.
- v. **Section C** – questions number **11 to 12** are short answer Each question carries **3 marks**.
- vi. **Section D** – questions number **13 to 15** are case based questions
- vii. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.
- viii. Use of calculator is NOT allowed.

Section A

Question 1.

Which of the following ligand forms chelate complex ?

[1 Marks]

(A) $C_2O_4^{2-}$

(B) Cl^-

(C) NH_3

(D) NO_2^-

Question 2.

Anisole reacts with HI to give :

[1 Marks]

(A)

(B)

(C)

(D)

Question 3.

An azeotropic solution of two liquids has boiling point lower than either of them when it :

[1 Marks]

(A) shows positive deviation from Raoult's law

(B) is saturated

(C) shows negative deviation from Raoult's law

(D) show no deviation from Raoult's law

Question 4.

The relative lowering of vapour pressure of an aqueous solution containing non-volatile solute is 0.0225. The mole fraction of the non-volatile solute is :

[1 Marks]

(A) 0.725

(B) 0.0225

(C) 0.15

(D) 0.80

Question 5.

The addition of catalyst during a chemical reaction alters which of the following quantities of the reaction ?

[1 Marks]

(A) Activation energy

(B) Entropy

(C) Enthalpy

(D) Internal energy

Question 6.

For the elementary reaction $P \rightarrow Q$, if the rate of disappearance of P increases by a factor of 8 upon doubling the concentration of P, the order of the reaction with respect to P is

[1 Marks]

(A) 4

(B) 1

(C) 3

(D) 2

Question 7.

Assertion (A) : Aliphatic primary amines can be prepared by Gabriel phthalimide synthesis.

Reason (R) : Alkyl halides undergo nucleophilic substitution with anion formed by phthalimide.

[1 Marks]

(A) Assertion (A) is false, but Reason (R) is true.

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

(C) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

(D) Assertion (A) is true, but Reason (R) is false.

Question 8.

Assertion (A) : Uracil base is present in DNA.

Reason (R) : DNA undergoes self-replication.

[1 Marks]

(A) Assertion (A) is false, but Reason (R) is true.

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

(C) Assertion (A) is true, but Reason (R) is false.

(D) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

Question 9.

Assertion (A) : Diazonium salts of aromatic amines are more stable than those of aliphatic amines.

Reason (R) : Diazonium salts of aliphatic amines show resonance.

[1 Marks]

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

(B) Assertion (A) is true, but Reason (R) is false.

(C) Assertion (A) is false, but Reason (R) is true.

(D) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).

Section B

Question 10.

Why do transition metals have high enthalpy of atomization ? Which element of 3d-series has lowest enthalpy of atomization ?

[2 Marks]

Section C

Question 11.

Write the structures of A, B and C in the following reactions :

[3 Marks]

Question 12.

The vapour pressure of a solvent at 283 K is 100 mm Hg. Calculate the vapour pressure of a dilute solution containing 1 mole of a strong electrolyte AB in 50 moles of the solvent at 283 K (assuming complete dissociation of solute AB).

[3 Marks]

Section D

Question 13. Carbohydrates are essential for life in both plants and animals. Carbohydrates are used as storage molecules as starch in plants and glycogen in animals. Chemically they are polyhydroxy aldehydes or ketones. On the basis of their behaviour on hydrolysis, carbohydrates are classified as monosaccharides, oligosaccharides and polysaccharides. All monosaccharide like glucose is aldohexose and its molecular formula was found to be $C_6H_{12}O_6$. After reacting with different reagents like HI, H_2N-OH , Bromine water, $(CH_3CO)_2O$, etc. its structure was found to contain one aldehyde group, one primary alcoholic group, (CH_2OH) and four secondary alcoholic groups $(CHOH)$. Despite having the aldehyde group, glucose does not give some of the reactions of aldehyde group like Schiff addition. This explains the existence of glucose in two cyclic hemiacetal forms which differ only in the configuration of the hydroxyl group at C 1.

Question 14.

Carbohydrates are essential for life in both plants and animals. Carbohydrates are used as storage molecules as starch in plants and glycogen in animals. Chemically they are polyhydroxy aldehydes or ketones. On the basis of their behaviour on hydrolysis, carbohydrates are classified as monosaccharides, oligosaccharides and polysaccharides. All

Question 15.

Carbohydrates are essential for life in both plants and animals. Carbohydrates are used as storage molecules as starch in plants and glycogen in animals. Chemically they are

polyhydroxy aldehydes or ketones. On the basis of their behaviour on hydrolysis, carbohydrates are classified as monosaccharides, oligosaccharides and polysaccharides. All monosaccharides are reducing sugars, meaning they can be oxidized by Tollens' reagent and Fehling's solution. monosaccharides are reducing sugars, meaning they can be oxidized by Tollens' reagent and Fehling's solution. A monosaccharide like glucose is aldohexose and its molecular formula was found to be $C_6H_{12}O_6$. After reacting with different reagents like HI, $H_2N OH$, Bromine water, $(CH_3CO)_2O$, etc. its structure was found to contain one aldehyde group, one primary alcoholic group, (CH_2OH) and four secondary alcoholic groups ($CHOH$). Despite having the aldehyde group, glucose does not give some of the reactions of aldehyde group like Schiff's test, $NaHSO_3$ addition. This explains the existence of glucose in two cyclic hemiacetal forms which differ only in the configuration of the hydroxyl group at C 1.

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