

CBSE EXAMINATION PAPER-2023

CHEMISTRY

(Solved)

Time allowed : 3 hours

Maximum Marks : 18

General Instructions :

Read the following instructions carefully and follow them :

- This question paper contains **18 questions**. All questions are **compulsory**.
- This question paper is divided into **3 sections**.
- Section A** – questions number **1 to 15** are multiple choice questions Each question carries **1 marks**.
- Section B** – questions number **16 to 17** are very short answer Each question carries **2 marks**.
- Section C** – questions number **18 to 18** are case based questions
- There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.
- Use of calculator is NOT allowed.

Section A

Question 1.

A compound undergoes complete tetramerization in a given organic solvent. The van'ts Hoff factor 'i' is:

[1 Marks]

(A) 0.25

(B) 0.125

(C) 4.0

(D) 2.0

Question 2.

Which of the following structures represents -D-glucose ?

[1 Marks]

(A)

(B)

(C)

(D)

Question 3.

The ions of metals of Group 12 (Zn, Cd and Hg) have completely filled d orbitals and so they:

[1 Marks]

(A) are very high melting solids

(B) behave like superconductors

(C) do not behave like transition metals

(D) behave like semiconductors

Question 4.

$[\text{Co}(\text{NH}_3)_5\text{NO}_3]\text{SO}_4$ and $[\text{Co}(\text{NH}_3)_5\text{SO}_4]\text{NO}_3$ exhibit:

[1 Marks]

(A) ionization isomerism

(B) optical isomerism

(C) linkage isomerism

(D) coordination isomerism

Question 5.

Reaction of 1-phenyl-2-chloropropane with alcoholic KOH gives mainly:

[1 Marks]

- (A) 3-phenylpropene
- (B) 1-phenylpropan-3-ol
- (C) 1-phenylpropan-2-ol
- (D) 1-phenylpropene

Question 6.

The reduction of ethanenitrile with sodium and alcohol gives:

[1 Marks]

- (A) Ethanamide
- (B) 1-aminoethane
- (C) 1-aminopropane
- (D) Ethanoic acid

Question 7.

How many Faradays are required to reduce 1 mol of MnO_4^- to Mn^{2+} ?

[1 Marks]

- (A) 3
- (B) 5
- (C) 6
- (D) 4

Question 8.

In a reaction, the initial concentration of the reactants increases four fold and the rate becomes sixteen times its initial value. The order of the reaction is:

[1 Marks]

- (A) 3.5

(B) 1.5

(C) 2.5

(D) 2.0

Question 9.

On hydrolysis, which of the following carbohydrates gives only glucose?

[1 Marks]

(A) Maltose

(B) Sucrose

(C) Lactose

(D) Galactose

Question 10.

Deficiency of which of the following vitamins causes Pernicious anaemia?

[1 Marks]

(A) Vitamin B₂

(B) Vitamin B₁

(C) Vitamin B₁₂

(D) Vitamin B₆

Question 11.

This reaction is known as:

[1 Marks]

(A) Cannizzaro's reaction

(B) Aldol condensation

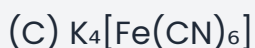
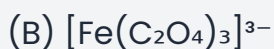
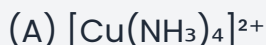
(C) Friedel-Crafts reaction

(D) Cross-Aldol condensation

Question 12.

In which of the following does the central atom exhibit an oxidation state of +3?

[1 Marks]



Question 13.

Assertion (A) : When NaCl is added to water, a depression in freezing point is observed.

Reason (R) : The lowering of vapour pressure of a solution causes depression in the freezing point.

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

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

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

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

Question 14.

Assertion (A) : Zr and Hf have almost identical radii.

Reason (R) : Both Zr and Hf exhibit similar properties.

[1 Marks]

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

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

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

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

Question 15.

Assertion (A) : Monobromination of aniline can be conveniently done by protecting the amino group by acetylation.

Reason (R) : Acetylation decreases the activating effect of the amino group.

[1 Marks]

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

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

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

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

Section B

Question 16.

What type of deviation from Raoult's Law is shown by a mixture of ethanol and acetone ? Give reason.

[2 Marks]

Question 17.

Define Azeotrope. What type of azeotrope is formed by negative deviation from Raoult's law? give an example .

[2 Marks]

Section C

Question 18. Living systems are made up of various complex biomolecules like carbohydrates, proteins, nucleic acids, lipids, etc. Carbohydrates are optically active polyhydroxy aldehydes or ketones or molecules which provide such units on hydrolysis. They are broadly classified into three groups monosaccharides, oligosaccharides and polysaccharides. Monosaccharides are held together by glycosidic linkages to form disaccharides like sucrose, maltose or polysaccharides like starch and cellulose. Another biomolecule: proteins are polymers of α -amino acids which are linked by peptide bonds.

Ten amino acids are called essential amino acids. Structure and shape of proteins can be studied at four different levels i.e. primary, secondary, tertiary and quaternary, each level being more complex than the previous one.

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