



CBSE NCERT Based Chapter wise Questions (2025-2026)

Class-XII

Subject: CHEMISTRY

Chapter Name : Coordinate Chemistry (Chap : 5)

Total : 6 Marks (expected) [MCQ(1)-2 Mark, VSA-(1)-1 Marks, SA(1)-3 Marks]

Level - 1

MCQ Type (One Correct Answer) :

1. Which of the following is a polydentate ligand ?

- (A) NH_3 (B) $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{NH}_2$ (C) EDTA^{4-} (D) $\text{C}^{2-}\text{O}_4^{2-}$

(Hints : CBSE 2023)

2. The formula of the complex Iron (III) hexacyanido ferrate (II) is

- (A) $\text{Fe}_2[\text{Fe}(\text{CN})_6]_3$ (B) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$ (C) $\text{Fe}[\text{Fe}(\text{CN})_6]$ (D) $\text{Fe}_3[\text{Fe}(\text{CN})_6]_2$

(Hints : CBSE 2023)

3. The formula of the complex dichlorobis (ethane-1, 2, diamine) platinum (IV) nitrate is

- (A) $[\text{PtCl}_2(\text{en})_2(\text{NO}_3)_2]$ (B) $[\text{PtCl}_2(\text{en})_2](\text{NO}_3)_2$ (C) $[\text{PtCl}_2(\text{en})_2(\text{NO}_3)]\text{NO}_3$ (D) $[\text{Pt}(\text{en})_2(\text{NO}_3)_2]\text{Cl}_2$

(Hints : CBSE 2023)

4. The oxidation state of Fe in $[\text{Fe}(\text{CO})_5]$

- (A) +2 (B) 0 (C) +3 (D) 5

(Hints : CBSE 2023)

5. Which of the following ligands is an ambidentate ligand ?

- (A) CO (B) NO_2 (C) NH_3 (D) H_2O

(Hints : Definition of definite integral)

(II) Very Short Answer (VSA) :

6. What is the difference between a complex and a double salt ?

(Hints : All India 2018)

7. Write the coordination isomer of $[\text{Cu}(\text{NH}_3)_4][\text{PtCl}_4]$.

(Hints : All India 2018 C)

8. Write the coordination number and oxidation state of platinum in the complex $[\text{Pt}(\text{en})_2\text{Cl}_2]$.

(Hints : All India 2018)

9. A coordination compound with molecular formula $\text{CrCl}_3 \cdot 4\text{H}_2\text{O}$ precipitates one mole of AgCl with AgNO_3 Solution. Its molar conductivity is found to be equivalent to two ions. What is the structural formula and name of the compound ?

(Hints : CBSE SQP 2018)

10. Write down the IUPAC name of the complex $[\text{Pt}(\text{en})_2\text{Cl}_2]^{2+}$. What type of isomerism is shown by this complex ?

(Hints : Definite integration)

(III) Short Answer (SA) :

11. Write the IUPAC names of the following coordination compounds. (any three)

- (i) $[\text{Co}(\text{NH}_3)_4 \text{Cl}(\text{NO}_2)]\text{Cl}$
- (ii) $[\text{Ni}(\text{NH}_3)_6] \text{Cl}_2$
- (iii) $\text{K}_3[\text{Cr}(\text{C}_2\text{O}_4)_3]$
- (iv) $[\text{Co}(\text{en})_2 \text{Br}_2]^+$

(Hints : CBSE 2024)

12. Write IUPAC names of the following coordination compounds. (any three)

- (i) $\text{K}_3[\text{Fe}(\text{CN})_6]$
- (ii) $[\text{Pt}(\text{en})_2 \text{Cl}]^{2+}$
- (iii) $[\text{Co}(\text{NH}_3)_4 \text{Cl}(\text{ONO})] \text{Cl}$
- (iv) $[\text{Zn}(\text{OH})_4]^{2-}$

(Hints : CBSE 2024)

13. (i) Draw the geometrical isomers of the given complex $[\text{Co}(\text{en})_2 \text{Cl}_2]^+$
 (ii) Write the electronic configuration of d^4 ion if $\Delta_0 > P$.
 (iii) What is a didentate ligand ? Give one example.

(Hints : CBSE 2024)

14. (i) Draw the geometrical isomers of the given complex : $[\text{Pt}(\text{NH}_3)_2 \text{Cl}_2]^{2+}$
 (ii) Write the electronic configuration of d^5 ion if $\Delta_0 < P$.
 (iii) What is an ambidentate ligand ?

(Hints : CBSE 2024)

15. (i) Write the formula for the following coordination compound.
bis(ethane-1, 2-diamine) dihydroxidochromium (III) chloride.
 (ii) Does ionisation isomer for the following compound exist ? Justify our answer. $\text{Hg}[\text{CO}(\text{SCN})_4]$
 (iii) Is the central metal atom in coordination complexes a Lewis acid or a Lewis base ? Explain.

(Hints : CBSE SQP 2024)

ANSWER

1. ©
2. Ⓑ
3. Ⓑ
4. Ⓑ
5. Ⓑ