



# 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 - 2** (Higher order)

**MCQ Type :**

1. The formula of the coordination compound tetraammineaquachloridocobalt (III) chloride is

- (A)  $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})\text{Cl}]\text{Cl}_2$  (B)  $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})\text{Cl}]\text{Cl}_3$   
(C)  $[\text{Co}(\text{NH}_3)_2(\text{H}_2\text{O})\text{Cl}]\text{Cl}_2$  (D)  $[\text{Co}(\text{NH}_3)_4(\text{H}_2\text{O})\text{Cl}]\text{Cl}$

**(Hints : CBSE SQP 2021)**

2. Ambidentate ligands like  $\text{NO}_2^-$  and  $\text{SCN}^-$  are

- (A) unidentate (B) didentate (C) polydentate (D) has variable denticity

**(Hints : CBSE SQP 2021)**

3. The coordination number of 'Co' in the complex  $[\text{Co}(\text{en})_3]^{3+}$  is

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

**(Hints : All India 2020)**

4. The pair  $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Br}_2$  and  $[\text{Co}(\text{NH}_3)_4\text{Br}_2]\text{Cl}_2$  will show

- (A) linkage isomerism (B) hydrate isomerism (C) ionisation isomerism (D) coordination isomerism

**(Hints : All India 2020)**

5. Which of the following is the most stable complex?

- (A)  $[\text{Fe}(\text{CO})_5]$  (B)  $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$  (C)  $[\text{Fe}(\text{F}_2\text{O}_4)_3]^{3-}$  (D)  $[\text{Fe}(\text{CN})_6]^{3-}$

**(Hints : All India 2020)**

**(II) Very Short Answer (VSA) :**

6. What is the IUPAC name of the complex  $[\text{Ni}(\text{NH}_3)_6]\text{Cl}_2$  ?

**(Hints : Delhi compartment 2015)**

7. What type of isomerism is exhibited by the complex  $[\text{Co}(\text{NH}_3)_5\text{NO}_2]^{2+}$  ?

8. Write the IUPAC name of  $[\text{Pt}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}_2$ .

9. Write IUPAC name of  $[\text{Cr}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$

10. Give an example of linkage isomerism.

**(Hints : Delhi 2010)**

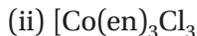
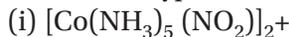
**(III) Short Answer (SA) :**

11. Write the IUPAC name of the following.

- (i)  $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$  (ii)  $[\text{NiCl}_4]^{2-}$  (iii)  $\text{K}_3[\text{Fe}(\text{CN})_6]$

**(Hints : All India 2015)**

12. Indicate the types of isomerism exhibited by the following complex.

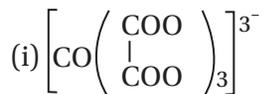


[where, en = ethylene diamine]



**(Hints : Delhi 2015)**

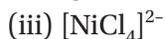
13. Write the IUPAC name and draw the structure of each of the following complex entities.



(Atomic no. of Cr = 25, Co = 27, Pt = 78)

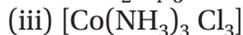
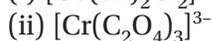
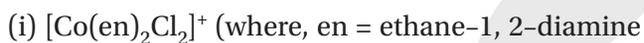
**(Hints : All India 2014)**

14. Write down the IUPAC name for each of the following complexes.



**(Hints : (Hints : Delhi 2014 C)**

15. Name the following coordination entities and draw structures of their stereoisomers.



(Atomic no. of Cr = 24, Co = 27)

**(Hints : All India 2010)**

16. Write the structures and names of all the stereoisomer of the following compounds.



**(Hints : All India 2012)**

**ANSWER**

1. (A)
2. (A)
3. (B)
4. (A)
5. (C)