

JEE MAIN COORDINATION COMPOUNDS — STEREOISOMERISM IN COORDINATION COMPOUNDS — PYQS

Max. Marks: 24

Questions: 6

Section A (MCQ) — 3 questions

Q.1 Given below are two statements:

Statement-I: A homoleptic octahedral complex, formed using monodentate ligands, will not show stereoisomerism.

Statement-II: cis- and trans-platin are heteroleptic complexes of Pd.

In the light of the above statements, choose the **correct** answer from the options given below:

[JEE Main 2025 (Online) 8th April Evening Shift]

- (1) Statement-I is true but Statement-II is false
 (2) Both Statement-I and Statement-II are true
 (3) Both Statement-I and Statement-II are false
 (4) Statement-I is false but Statement-II is true

Scan or tap for the full solution



Q.2 Number of stereoisomers possible for the complexes, $[\text{CrCl}_3(\text{py})_3]$ and $[\text{CrCl}_2(\text{ox})_2]^{3-}$ are respectively (py = pyridine, ox = oxalate)

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) 3 & 3 (2) 2 & 3 (3) 1 & 2 (4) 2 & 2

Scan or tap for the full solution



Q.3 The complex that shows Facial - Meridional isomerism is :

[JEE Main 2025 (Online) 23rd January Morning Shift]

- (1) $[\text{Co}(\text{en})_2\text{Cl}_2]^+$ (2) $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$
 (3) $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$ (4) $[\text{Co}(\text{en})_3]^{3+}$

Scan or tap for the full solution



Section B (Numerical) — 3 questions

Q.4 X is the number of geometrical isomers exhibited by $[\text{Pt}(\text{NH}_3)(\text{H}_2\text{O})\text{BrCl}]$.

Y is the number of optically inactive isomer(s) exhibited by $[\text{CrCl}_2(\text{ox})_2]^{3-}$.

Z is the number of geometrical isomers exhibited by $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$.

The value of $X + Y + Z$ is _____.

[JEE Main 2026 (Online) 28th January Morning Shift]

Scan or tap for the full solution



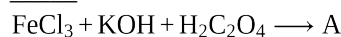
Q.5 A metal complex with a formula $\text{MCl}_4 \cdot 3\text{NH}_3$ is involved in sp^3d^2 hybridisation. It upon reaction with excess of AgNO_3 solution gives 'x' moles of AgCl . Consider 'x' is equal to the number of lone pairs of electrons present in the central atom of BrF_5 . Then the number of geometrical isomers exhibited by the complex is _____.

[JEE Main 2025 (Online) 4th April Evening Shift]

Scan or tap for the full solution



Q.6 The number of optical isomers exhibited by the iron complex (A) obtained from the following reaction is _____.



[JEE Main 2025 (Online) 3rd April Morning Shift]

Scan or tap for the full solution



ANSWER KEY

Section A (MCQ) — 3 questions

Ques.	1	2	3								
Ans.	1	2	2								

Section B (Numerical) — 3 questions

Ques.	4	5	6								
Ans.	6	2	2								