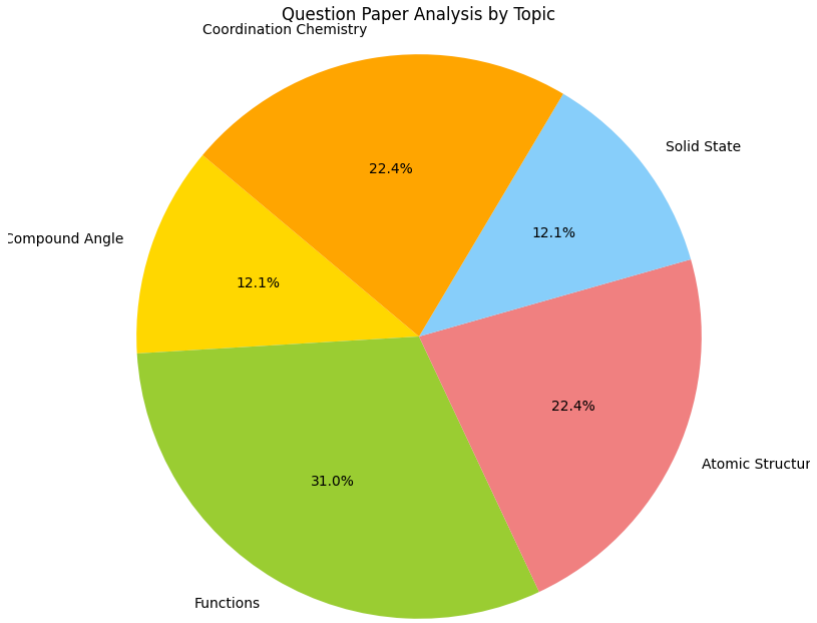
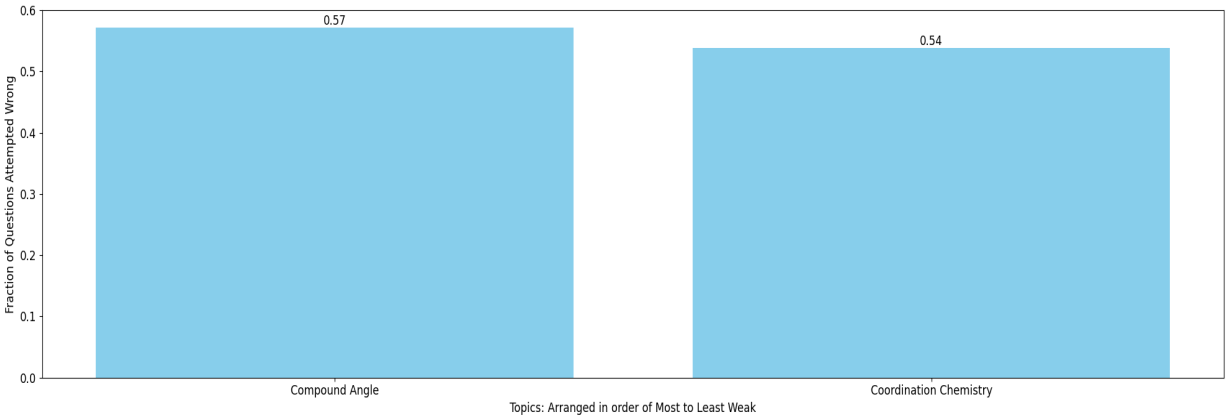
Dishika Singh Total
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Compound Angle:

6. A tower stands at the centre of a circular park. A and B are two points on the boundary of the park such that AB (= a) subtends an angle of 60° at the foot of the tower, and the angle of elevation of the top of the tower from A or B is 30°. The height of the tower is **[AIEEE 2007]**

(A) $\frac{a}{\sqrt{3}}$ (B) $a\sqrt{3}$ (C) $\frac{2a}{\sqrt{3}}$ (D) $2a\sqrt{3}$

12. In a $\triangle PQR$, if $3\sin P + 4\cos Q = 6$ and $4\sin Q + 3\cos P = 1$, then the angle R is equal to **[AIEEE 2012]**

(A) $\frac{5\pi}{6}$ (B) $\frac{\pi}{6}$ (C) $\frac{\pi}{4}$ (D) $\frac{3\pi}{4}$

10. The value of expression $\frac{\cos 68^\circ}{\sin 56^\circ \cdot \sin 34^\circ \cdot \tan 22^\circ}$ is equal to

(A) 1 (B) 2 (C) 3 (D) 4

15. If $\cot\left(7\frac{1}{2}\right)^\circ = \sqrt{p} + \sqrt{q} + \sqrt{r} + \sqrt{s}$, where $p, q, r, s \in N$, such that, $p < q < r < s$, then $(p + s) - (q + r)$ equals:

(A) -1 (B) 0 (C) 1 (D) 2

5. If $3\tan\left(\frac{x+y}{2}\right) = 5\tan\left(\frac{x-y}{2}\right)$ then $\frac{\sin x}{\sin y}$ is equal to

(A) 2 (B) 3 (C) 4 (D) 5

Coordination Chemistry:

21. Crystal field stabilization energy for $[CoF_6]^{3-}$ is

(A) 0.6 + P (B) – 0.4 + P (C) 1.2 + 2P (D) 2.4 + 4P

[P is pairing energy]

15. The IUPAC name of $[Ni(NH_3)_4]^{+2}[NiCl_4]^{-2}$ is **[JEE 2008]**

(A) Tetrachloronickel (II)-tetraamminenickel (II)

(B) Tetraamminenickel (II)-tetrachloronickel (II)

(C) Tetraamminenickel (II)-tetrachloronickelate (II)

(D) Tetrachloronickel (II)-tetraamminenickelate (0)

89. Number of complexes which will exhibit synergic bonding amongst, $[Cr(CO)_6]$, $[Mn(CO)_5]$ and $[Mn_2(CO)_{10}]$ is_____. **[JEE MAIN 2022]**

Ans. (3)

10. Which of the following statement(s) is/are incorrect

(A) In $[CoBrCl(en)_2]^+$ geometrical isomerism exists, while optical isomerism does not exist

(B) Potassium aquadicyanidosuperoxidoperoxidochromate(III) is IUPAC name for $K_2[Cr(CN)_2O_2(O_2)(H_2O)]$

(C) There are 3 geometrical isomers and 15 stereoisomers possible for $[Pt(NO_2)(NH_3)(NH_2OH)(py)]^+$ and [PtBr C*l* I $(NO_2)(NH_3)(py)]$ respectively

(D) cis and trans forms are not diastereomers to each other

47. When concentrated HCl is added to an aqueous solution of $CoCl_2$, its colour changes from reddish pink to deep blue. Which complex ion gives blue colour in this reaction ?:-

[J-MAIN–2015, Online]

(1) $[Co(H_2O)_6]^{2+}$ (2) $[CoCl_6]^{3-}$ (3) $[CoCl_4]^{2-}$ (4) $[CoCl_6]^{4-}$