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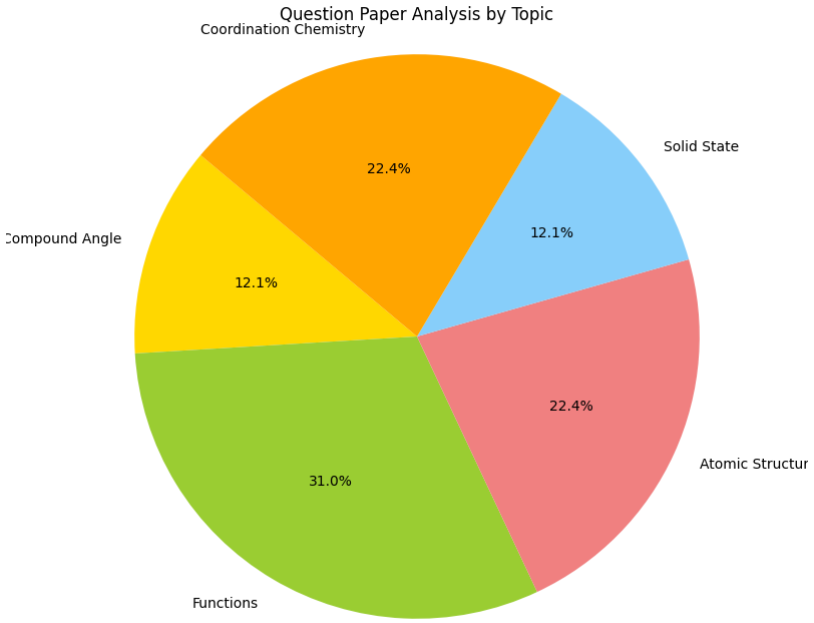
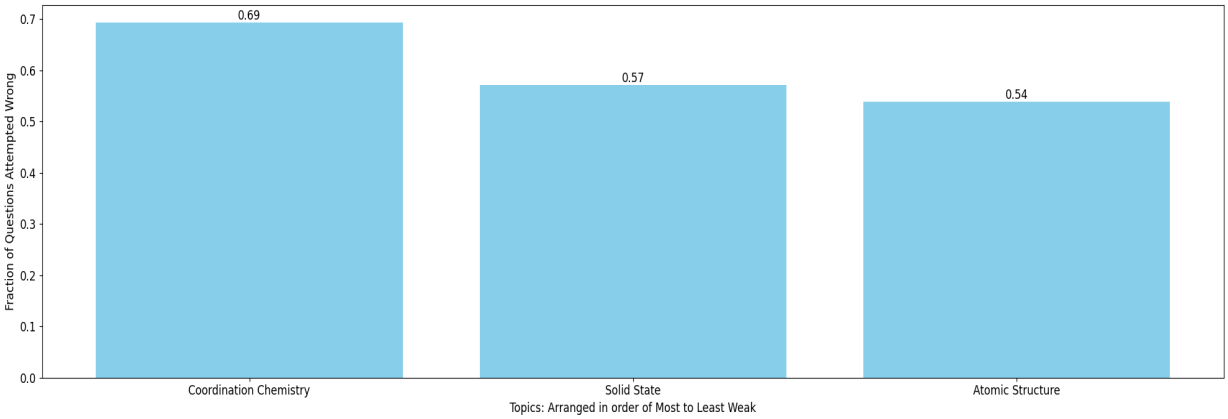
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Coordination Chemistry:

14. Which of the following ligands is called π-acceptors ?

CO	CN^-	NO^+
(I)	(II)	(III)

(A) I, II, III only correct. (B) I, II only correct

(C) II, III only correct (D) III only correct

93. The d-electronic confi guration of $[CoCl_4]^{2-}$ in tetrahedral crystal field is $e^m t_2^n$. Sum of "m" and "number of unpaired electrons" is **[JEE MAIN 2023]**

Ans. (7)

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9. Which one of the following complexes is an outer orbital complex :- **[AIEEE–2004]**

(1) $[Co(NH_3)_6]^{3+}$ (2) $[Mn(CN)_6]^{4-}$

(3) $[Fe(CN)_6]^{4-}$ (4) $[Ni(NH_3)_6]^{2+}$

(Atomic number: Mn=25 ; Fe=26 ; Co=27 ; Ni = 28)

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20. The compound(s) that exhibit(s) geometrical isomerism is (are) : **[JEE 2009]**

(A) $[Pt(en)Cl_2]$ (B) $[Pt(en)_2]Cl_2$ (C) $[Pt(en)_2Cl_2]Cl_2$ (D) $[Pt(NH_3)_2Cl_2]$

22. Which of the following has an optical isomer? **[AIEEE–2009]**

(1) $[Co(H_2O)_4(en)]^{3+}$ (2) $[Co(en)_2(NH_3)_2]^{3+}$

(3) $[Co(NH_3)_3Cl]^+$ (4) $[Co(en)(NH_3)_2]^{2+}$

Solid State:

33. A solid has 'bcc' structure. If the distance of nearest approach between two atoms is

8. Which of the following are the correct axial distances and axial angles for rhombohedral system?

(A) $a = b = c, \alpha = \beta = \gamma \neq 90^{\circ}$ (B) $a = b \neq c, \alpha = \beta = \gamma = 90^{0}$

(C) $a \neq b = c, \alpha = \beta = \gamma = 90^{0}$ (D) $a \neq b \neq c, \alpha \neq \beta \neq \gamma \neq 90^{0}$

20. An element crystallises in FCC lattice having edge length 400 pm. Calculate the maximum diameter which can be placed in interstitial sites without disturbing the structure.

[JEE 2005]

48. Which of the following oxides shows electrical properties like metals?

(A) SiO_2 (B) MgO (C) $SO_2(s)$ (D) CrO_2

37. Diamond belongs to the crystal system:

(A) Cubic (B) triclinic (C) tetragonal (D) hexagonal

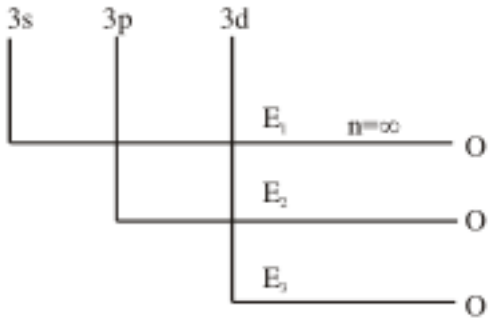
Atomic Structure:

61. Which quantum number is not related with Schrodinger equation

(A) Principal (B) Azimuthal

(C) Magnetic (D) Spin

62. For H atom, the energy required for the removal of electron from various sub-shells is given as under:-



The order of the energies would be :-

(A) $E_1 > E_2 > E_3$ (B) $E_3 > E_2 > E_1$ (C) $E_1 = E_2 = E_3$ (D) None of these

47. What will be de-Broglie wavelength of an electron moving with a velocity of 1.2×10^5 ms^{-1}:

(A) 6.068×10^{-9} m (B) 3.133×10^{-37} m (C) 6.626×10^{-9} m (D) 6.018×10^{-7} m

41. The quantum number of four electrons are given below : **[JEE Main (April) 2019]**

I. $n = 4, l = 2, m_l = -2, m_s = -\frac{1}{2}$ II. $n = 3, l = 2, m_l = 1, m_s = +\frac{1}{2}$

III. $n = 4, l = 1, m_l = 0, m_s = +\frac{1}{2}$ IV. $n = 3, l = 1, m_l = 1, m_s = -\frac{1}{2}$

(1) I < III < II < IV (2) IV < III < II < I (3) I < II < III < I (4) IV < II < III < I

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16. The energy required to break one mole of Cl–Cl bonds in Cl_2 is 242 kJ mol^{-1}. The longest wavelength of light capable of breaking a single Cl–Cl bond is

($C = 3 \times 10^8$ ms^{-1} and $N_A = 6.02 \times 10^{23}$ mol^{-1}) **[AIEEE-2010]**

(1) 494 nm (2) 594 nm (3) 640 nm (4) 700 nm