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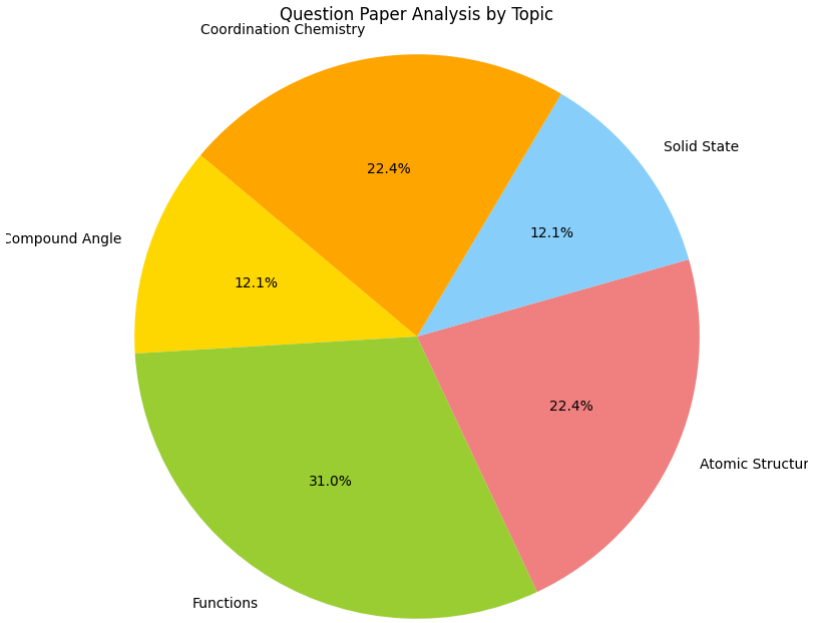
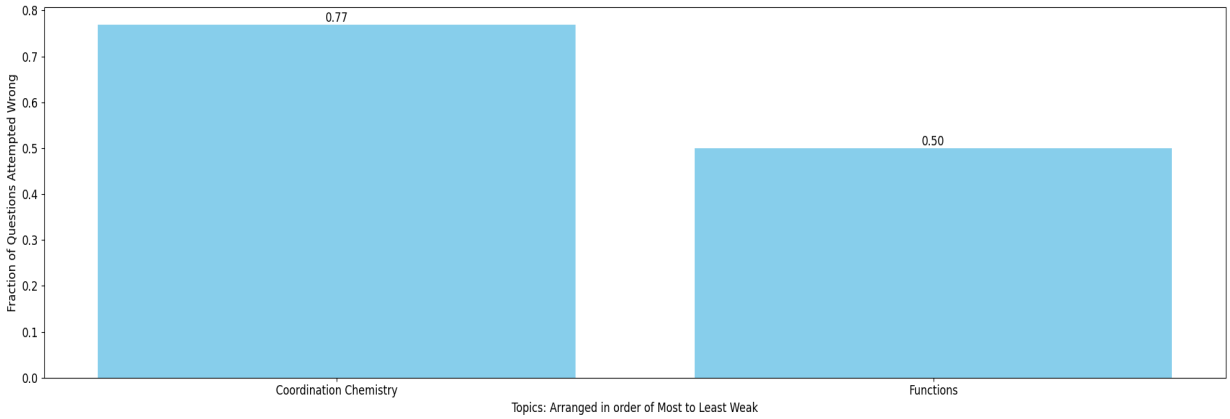
Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Coordination Chemistry:

12. The number of donor sites in dimethyl glyoxime, glycinato, diethylene triamine and EDTA are respectively:

(A) 2, 2, 3 and 4 (B) 2, 2, 3 and 6 (C) 2, 2, 2 and 6 (D) 2, 3, 3 and 6

80. The correct order of the spin-only magnetic moments of the following complexes is : **[JEE MAIN 2020]**

(I) $[Cr(H_2O)_6]Br_2$ (II) $Na_4[Fe(CN)_6]$

(III) $Na_3[Fe(C_2O_4)_3](\Delta_0 > P)$ (IV) $(Et_4N)_2[CoCl_4]$

(1) (III) > (I) > (II) > (IV) (2) (III) > (I) > (IV) > (II)

(3) (I) > (IV) > (III) > (II) (4) (II) ≈ (I) > (IV) > (III)

15. $[Mn(CO)_5]$ can attain more stability by :

(A) Oxidation of itself (B) Reduction of itself

(C) Dimerization (D) Both (B) and (C)

25. The magnetic moment (spin only) of $[NiCl_4]^{2-}$ is :- **[AIEEE–2011]**

(1) 2.82 BM (2) 1.41 BM (3) 1.82 BM (4) 5.46 BM

56. The IUPAC name of Xe $[Pt F_6]$ is

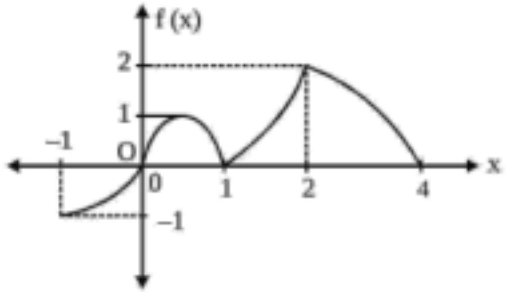
(A) Hexafluoridoplatinate (VI) xenon (B) Xenon hexafluoridoplatinate (V)

(C) Xenon hexafluoridoplatinate (VI) (D) Xenonium hexafluoridoplatinum (V)

VBT

Functions:

8. If graph of a function f(x) which is defined in $[-1,4]$ is shown in the adjacent figure then identify the correct statement(s).



(A) domain of $f(|x|-1)$ is $[-5,5]$ (B) range of $f(|x|+1)$ is $[0,2]$

(C) range of $f(-|x|)$ is $[-1,0]$ (D) domain of $f(|x|)$ is $[-3,3]$

πx

21. Let $A = \{x \in R: x \text{ is not a positive integer }\}$. Define a function $f: A \to R$ as $f(x) = \frac{2x}{x-1}$, then f is

[JEE - Main 2019]

(A) injective but not surjective (B) not injective

(C) surjective but not injective (D) neither injective nor surjective

(5)

37. Let a function $f: N \to N$ be defined by. **[JEE - Main 2022]**

$$f(x)=\begin{cases} 2n, & n=2,4,6,8,..... \\ n-1, & n=3,7,11,15,..... \\ \frac{n+1}{2}, & n=1,5,9,13,..... \end{cases}$$ then f is

(A) One-one but not onto (B) Onto but not one-one

(C) Neither one-one nor onto (D) one-one and onto

7. Let $f(x) = \frac{9^x}{9^x+3}$ then find the value of the sum $f\left(\frac{1}{2006}\right) + f\left(\frac{2}{2006}\right) + f\left(\frac{3}{2006}\right) + \cdots + f\left(\frac{2005}{2006}\right)$

1. Find the domains of definitions of the following functions :

(Read the symbols $[*]$ and $\{^*\}$ as greatest integers and fractional part functions respectively.)

(i) $f(x) = \sqrt{\cos\ 2x} + \sqrt{16 - x^2}$

(ii) $f(x) = \log_7 \log_5 \log_3 \log_2 (2x^3 + 5x^2 - 14x)$

(iii) $f(x) = \ln\left(\sqrt{x^2 - 5x - 24} - x - 2\right)$

(iv) $f(x) = \sqrt{\frac{1-5^x}{7^{-x}-7}}$

(v) $y = \log_{10} \sin(x - 3) + \sqrt{16 - x^2}$

(vi) $f(x) = \log_{100x}\left(\frac{2\log_{10} x+1}{-x}\right)$

(vii) $f(x) = \sqrt{x^2 - |x|} + \frac{1}{\sqrt{9-x^2}}$

(viii) $f(x) = \sqrt{(x^2 - 3x - 10) \cdot \ln^2(x - 3)}$ (ix) $f(x) = \sqrt{(5x - 6 - x^2)[\{\ln\{x\}\}]} +$

$$\sqrt{(7x - 5 - 2x^2)} + \left(\ln\left(\frac{7}{2} - x\right)\right)^{-1}$$

(x) $f(x) = \log_{\left[x+\frac{1}{x}\right]} |x^2 - x - 6| + {}^{16-x}C_{2x-1} + {}^{20-3x}P_{2x-5}$