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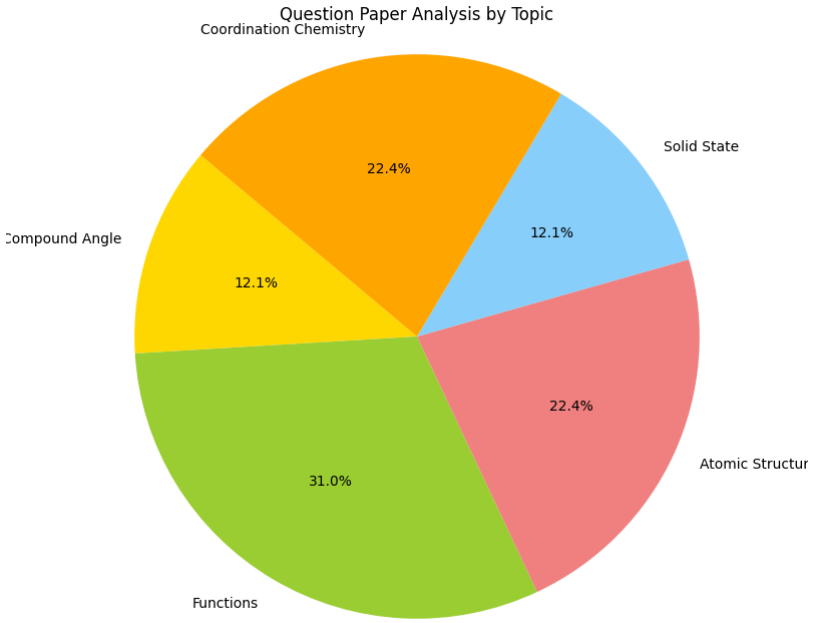
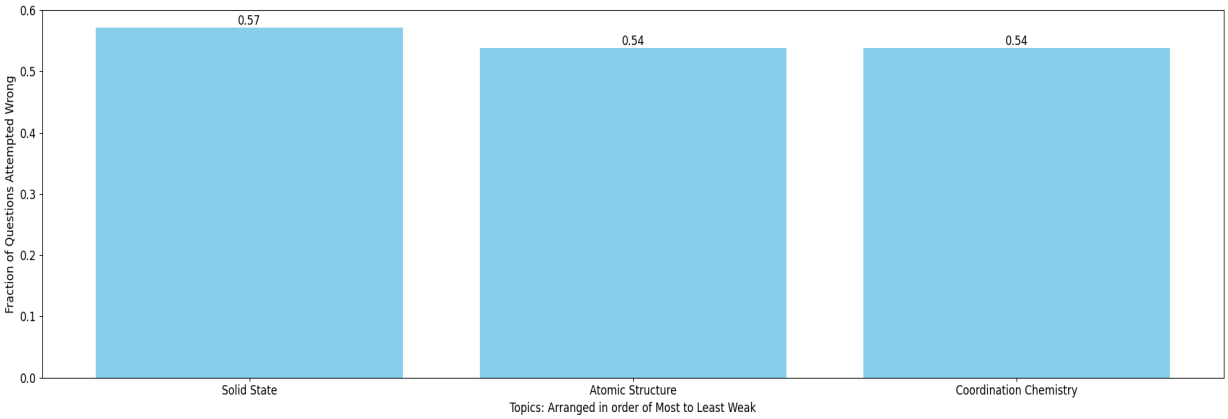
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Solid State:

6. Which of the following statement is not true about amorphous solids?

(A) On heating they may become crystalline at certain temperature.

(B) They may become crystalline on keeping for long time.

(C) Amorphous solids can be moulded by heating.

(D) They are anisotropic in nature.

26. **Column I** **Column II**

[Distance in terms of edge length of cube (a)]

24. A crystal of lead (II) sulphide has NaCl structure. In this crystal the shortest distance between Pb^{+2} ion and S^{2-} ion is 297 pm. What is the length of the edge of the unit cell in lead sulphide? Also calculate the unit cell volume.

r. l

30. If NaCl is dopped with 10^{-3} mol % $SrCl_2$, what is the numbers of cation vacancies per mole of NaCl?

37. The edge length of a face centered cubic cell of an ionic substance is 508 pm. If the radius of the cation is 110 pm, the radius of the anion is: **[AIEEE-10]**

(A) 144 pm (B) 288 pm (C) 398 pm (D) 618 pm

Atomic Structure:

42. The wavelength associated with a golf weighing 200g and moving at a speed of 5m/h is of the order

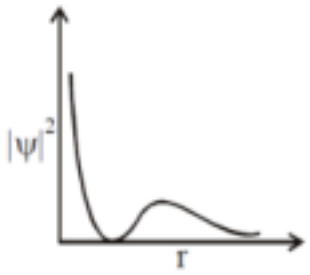
(A) 10^{-10}m (B) 10^{-20}m (C) 10^{-30}m (D) 10^{-40}m

44. A particle X moving with a certain velocity has a de–Broglie wavelength of 1Å. If particle Y has a mass of 25% that of X and velocity 75% that of X, de–Broglies wavelength of Y will be :

(A) 3Å (B) 5.33 Å (C) 6.88 Å (D) 48Å

45. The graph between $|\psi|^2$ and r(radial distance) is shown below. This represents:

[JEE Main (April) 2019]



(1) 1s orbital (2) 3s orbital (3) 2s orbital (4) 2p orbital

8. Which of the following sets of quantum number is correct for an electron in 4f orbital ?

[AIEEE-2004]

(1) $n = 3, l = 2, m = -2, s = +\frac{1}{2}$ (2) $n = 4, l = 4, m = -4, s = -\frac{1}{2}$

(3) $n = 4, l = 3, m = +1, s = +\frac{1}{2}$ (4) $n = 4, l = 3, m = +4, s = +\frac{1}{2}$

9. The wavelength of the radiation emitted, when in a hydrogen atom electron falls from infinity to stationary state 1, would be (Rydberg constant = $1.097\times 10^7\ m^{-1}$) : **[AIEEE-2004]**

(1) 9.1×10^{-8} nm (2) 192 nm (3) 406 nm (4) 91 nm

Coordination Chemistry:

25. Geometrical shapes of the complexes formed by the reaction of Ni^{2+} with Cl^-, CN^- and H_2O respectively, are - **[JEE 2011]**

(A) octahedral, tetrahedral and square planar (B) tetrahedral, square planar and octahedral

(C) square planar, tetrahedral and octahedral (D) octahedral, square planar and octahedral

22. $Ti^{3+}(aq)$ is violet while $Ti^{4+}(aq)$ is colourless because -

(A) There is no crystal field effect in Ti^{4+}

(B) There energy difference between t_2g and e_g of Ti^{4+} is quite high and does not fall in the visible region.

(C) Ti^{4+} has d^0 configuration.

(D) Ti^{4+} is very small in comparison to Ti^{3+} and hance does not absorb any radiation.

37. The formula of the complex hydridotrimethoxidoborate(III) ion is:

(A) $[BH(OCH_3)_3]^{2-}$ (B) $[BH_2(OCH_3)_3]^{2-}$ (C) $[BH(OCH_3)_3]^-$ (D) $[BH(OCH_3)_3]^+$

95. Which of the follwoing electronic arrangement gives the highest value of the magnetic moment?

(A) d^6, strong field (B) d^7, high spin

(C) d^4, weak field (D) d^2, strong field

12. Among the following metal carbonyls, the C–O bond order is lowest in **[JEE 2007]**

(A) $[Mn(CO)_6]^+$ (B) $[Fe(CO)_5]$ (C) $[Cr(CO)_6]$ (D) $[V(CO)_6]^-$