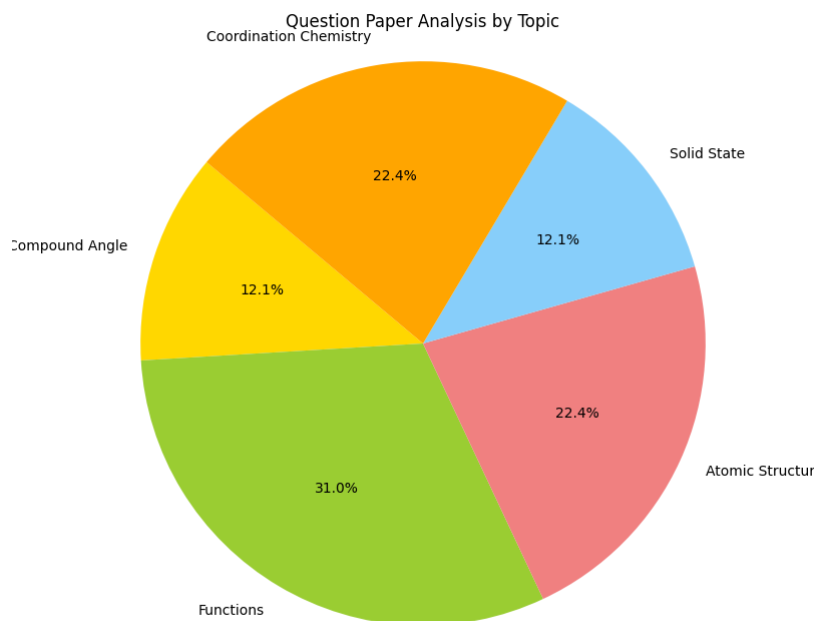
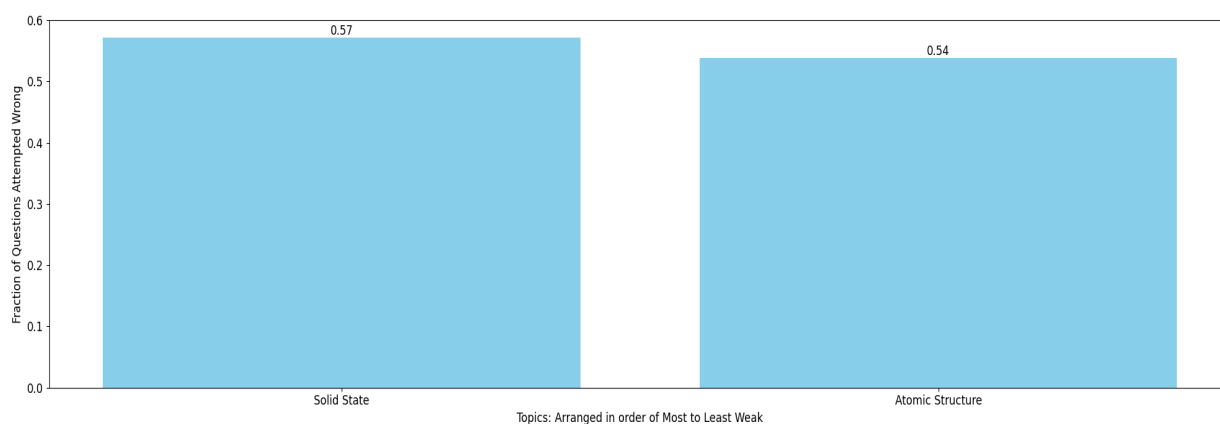


# Supratim Biswas Total MLAssist - Personalised DPP

## Question Paper Analysis:



## Weak Topic Analysis:



### Practice Questions:

#### Solid State:

16. Which type of 'defect' has the presence of cations in the interstitial sites? **[Jee Main, 2018]**  
(A) Metal deficiency defect (B) Schottky defect  
(C) Vacancy defect (D) Frenkel defect
40. Which of the following is the most likely to show schottky defect  
(A)  $\text{CaF}_2$  (B)  $\text{ZnS}$  (C)  $\text{AgCl}$  (D)  $\text{CsCl}$
25. Percentage of void space in AB solid having rock salt structure if  $\frac{r_+}{r_-} = \frac{1}{2}$  having cation anion contact.  
Given  $\pi = 3.15$ .

#### PROBLEMS BASED ON $\text{ZnS}$ , $\text{CsCl}$ STRUCTURE

27. If the length of the body diagonal for  $\text{CsCl}$  which crystallises into a cubic structure with  $\text{Cl}^-$  ions at the corners and  $\text{Cs}^+$  ions at the centre of the unit cells is  $7 \text{ \AA}$  and the radius of the  $\text{Cs}^+$  ion is  $\text{Å}$ .
26. Experimentally it was found that a metal oxide has formula  $\text{M}_{0.98}\text{O}$ . Metal M, is present as  $\text{M}^{2+}$  and  $\text{M}^{3+}$  in its oxide. Fraction of the metal which exists as  $\text{M}^{3+}$  would be:  
**[Jee-Main (offline)-13]**  
(A) 7.01% (B) 4.08% (C) 6.05% (D) 5.08

---

#### Atomic Structure:

57. Assuming Heisenberg Uncertainty Principle to be true what could be the minimum uncertainty in de-Broglie wavelength of a moving electron accelerated by Potential Difference of 6 V whose uncertainty in position is  $\frac{7}{22}$  n.m.  
 (A) 6.25 Å (B) 6 Å (C) 0.625 Å (D) 0.3125 Å
12. The maximum number of electrons that can have principal quantum number,  $n=3$ , and spin quantum number,  $m_s = -1/2$ , is [JEE 2011]
15. Correct statement(s) regarding 3Py orbital is/are  
 (A) Angular part of wave function is independent of angles ( $\theta$  and  $\phi$ )  
 (B) Number of maxima when a curve is plotted between  $4\pi r^2 R^2(r)$  vs  $r$  are '2'  
 (C) 'xz' plane acts as nodal plane  
 (D) Magnetic quantum number must be '-1'

**Assertion and Reason :**

33. An atom has  $x$  energy level, then total number of lines in its spectrum are:-  
 (A)  $1 + 2 + 3 + \dots + (x - 1)$  (B)  $1 + 2 + 3 + \dots + (x^2)$   
 (C)  $1 + 2 + 3 + \dots + (x + 1)$  (D)  $(x + 1)(x + 2)(x + 4)$
17. Ionisation energy of  $\text{He}^+$  is  $19.6 \times 10^{-18} \text{ J atom}^{-1}$ . The energy of the first stationary state ( $n = 1$ ) of  $\text{Li}^{2+}$  is: [AIEEE-2010]  
 (1)  $8.82 \times 10^{-17} \text{ J atom}^{-1}$  (2)  $4.41 \times 10^{-16} \text{ J atom}^{-1}$   
 (3)  $-4.41 \times 10^{-17} \text{ J atom}^{-1}$  (4)  $-2.2 \times 10^{-15} \text{ J atom}^{-1}$
-