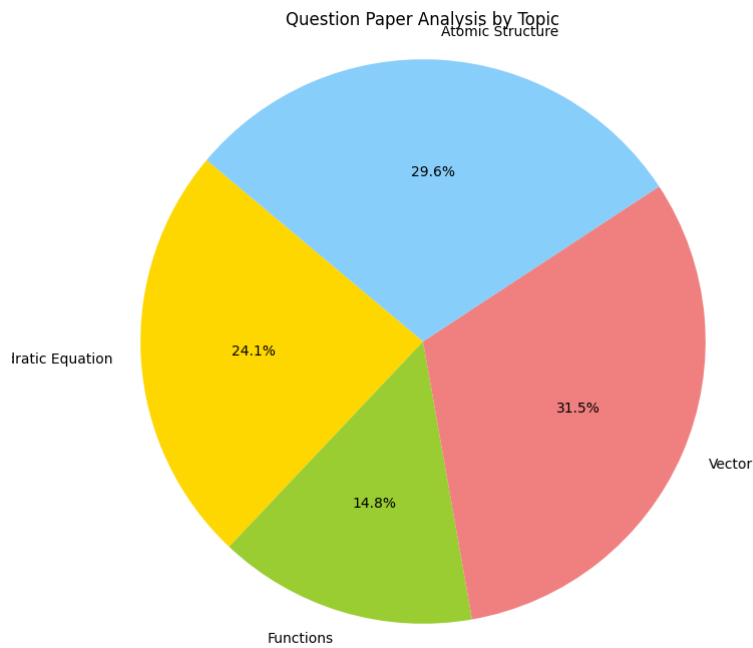
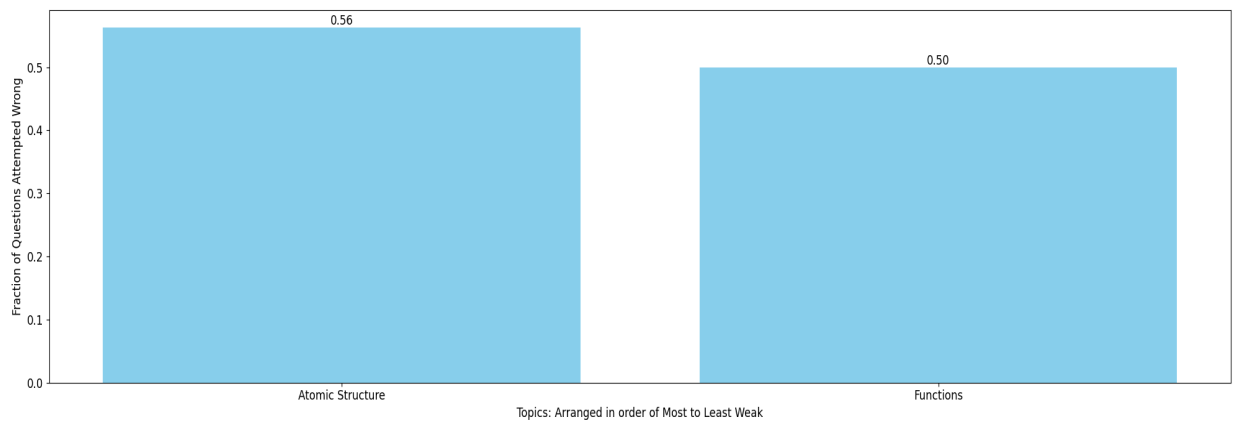


Yatish Kumar Total MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

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 \AA (B) 6 \AA (C) 0.625 \AA (D) 0.3125 \AA
63. In an excited state, a calcium atom has the electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 4d^1$. What is the orbital angular momentum for d electron :-
- (A) $\sqrt{4} h$ (B) $\sqrt{16} h$ (C) $\sqrt{6} h$ (D) $\sqrt{10} h$
18. For the given orbital in Column 1, the only CORRECT combination for any hydrogen- like species is
- (A) (IV) (iv) (R) (B) (II) (ii) (P) (C) (III) (iii) (P) (D) (I) (i) (S)
46. The ratio of the shortest wavelength of two special series of hydrogen spectrum is found to be about 9. The spectral series are : [JEE Main (April) 2019]
- (1) Paschen and Pfund (2) Balmer and Brackett
(3) Lyman and Paschen (4) Brackett and Pfund
18. The binding energy of e^- in ground state of hydrogen atom is 13.6 eV. The energies required to eject out an electron from three lowest states of He^+ ion will be – (in eV)
- (A) 13.6, 10.2, 3.4 (B) 13.6, 3.4, 1.5 (C) 13.6, 27.2, 40.8 (D) 54.4, 13.6, 6

Functions:

2. For the function $f(x) = \frac{e^x + 1}{e^x - 1}$, if $n(d)$ denotes the number of integers which are not in its domain and $n(r)$ denotes the number of integers which are not in its range, then $n(d) + n(r)$ is equal to
 (A) 2 (B) 3 (C) 4 (D) Infinite
9. The set of real values of 'x' satisfying the equality $\left\lfloor \frac{3}{x} \right\rfloor + \left\lfloor \frac{4}{x} \right\rfloor = 5$ (where $\lfloor \cdot \rfloor$ denotes the greatest integer function) belongs to the interval $(a, b/c]$ where $a, b, c \in \mathbb{N}$ and b/c is in its lowest form. Find the value of $a + b + c + abc$.
3. If $f(x) = \sqrt[3]{\frac{x}{\log_2(3-2x)}} - 1$ then the value of 'a' which satisfies $f^{-1}(2a - 4) = \frac{1}{2}$, is
 (A) 4 (B) 3 (C) 2 (D) 1
8. Let 'f' be a function defined in $[-2, 3]$ given as $f(x) = \begin{cases} -(x-1), & 0 \leq x < 1 \\ 2(x-1)^2, & 1 \leq x < 2 \\ -x^2 + 4x - 3, & 2 \leq x \leq 3 \end{cases}$

List-I

- (P) The number of integers in the range of $f(x)$ is
 (Q) The number of integral values of x which are in the domain of $f(1 - |x|)$, is
 (R) The number of integers in the range of $|f(-|x|)|$, is
 (S) The number of integral values of k for which the equation $f(|x|) = k$ has exactly four distinct solutions is

List-II

- (1) 2
 (2) 4
 (3) 6
 (4) 7

Code :

- (A) P-3, Q-3, R-2, S-1 (B) P-4, Q-4, R-2, S-1
 (C) P-3, Q-4, R-2, S-1 (D) P-3, Q-4, R-2, S-2

9. Let f be a one-one function with domain $\{x, y, z\}$ and range $\{1, 2, 3\}$. It is given that exactly one of the following statements is true and the remaining two are false.
 $f(x) = 1; f(y) \neq 1; f(z) \neq 2$. Determine $f^{-1}(1)$
 $r1 = v \quad \text{if } v < 0$