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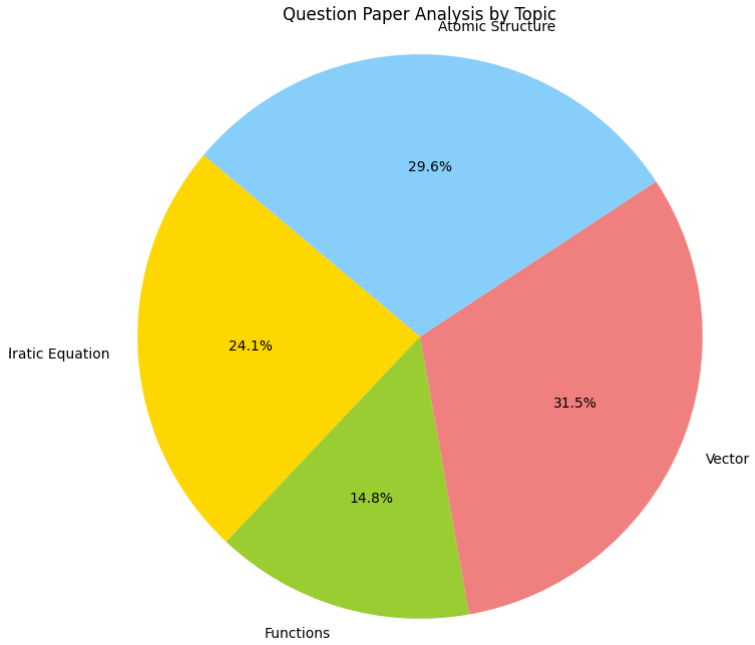
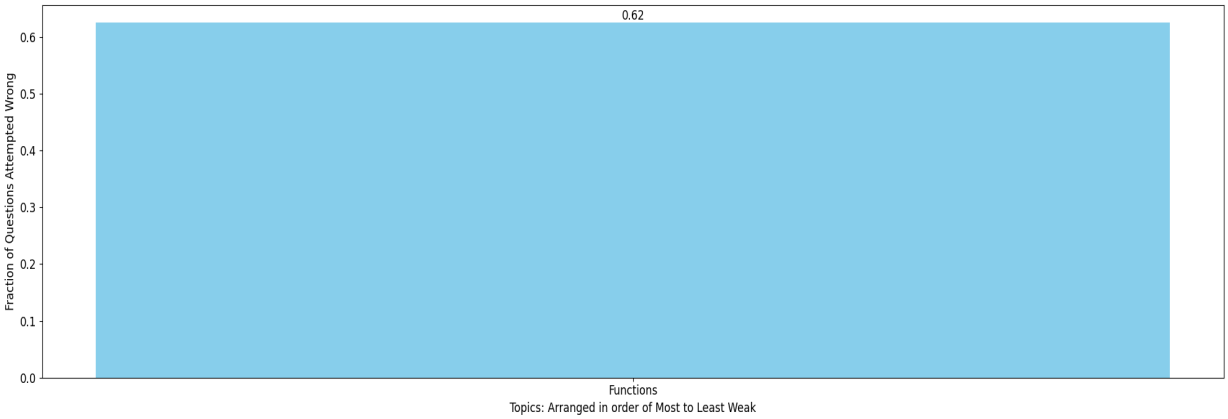
## Question Paper Analysis:




## Weak Topic Analysis:



## Practice Questions:

### Functions:

**5.** Let $f: (-\infty, 2] \to [6, \infty)$ be defined as $f(x) = 4x^2 - 16x + 22$ and $g(x)$ is a function such that graphs of $f(x)$ and $g(x)$ are mirror image of each other with respect to line $x - y = 0$, then $g(10)$ is equal to

(A) 1 (B) 2 (C) 3 (D) 4

3 7

**32.** Let $f(x)$ be a polynomial of degree 3 such that $f(x) = -\frac{2}{k}$ for $k = 2, 3, 4, 5$. Then the value of $52 - 10\, f(10)$ is equal to _____. **[JEE - Main 2021]**

**13.** Compute the inverse of the functions:

(a) $f(x) = \ln\left(x + \sqrt{x^2 + 1}\right)$

(b) $f(x) = 2^{\frac{x}{x-1}}$

(c) $y = \frac{10^x - 10^{-x}}{10^x + 10^{-x}}$

4. Let $f(x) = \begin{cases} 2 + x, & x \leq 0 \\ 4 - x, & x < 0 \end{cases}$

If $f(f(x)) = k$ has atleast one solution, then smallest value of k is

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

**13.** Let $\sum_{k=1}^{10} f(a + k) = 16(2^{10} - 1)$, where the function f satisfies $f(x + y) = f(x)f(y)$ for all natural numbers x, y and $f(1) = 2$. Then, the natural number ' a ' is **[JEE - Main 2019]**

(A) 2 (B) 4 (C) 3 (D) 16

(1−x) (2x)