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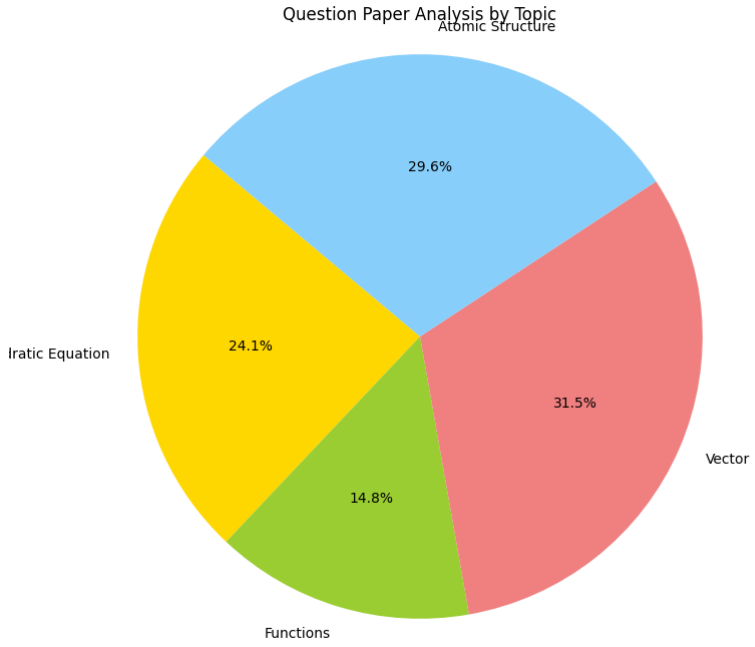
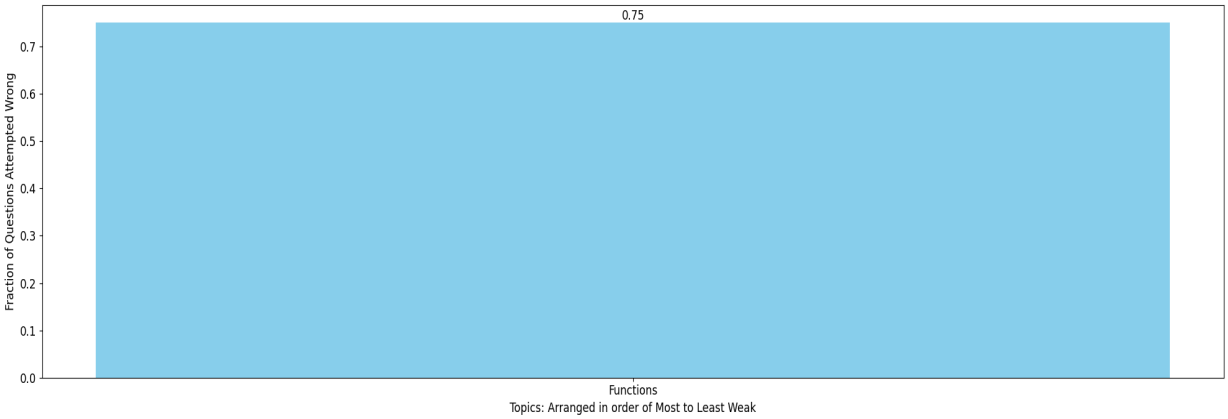
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Functions:

29. Let A = {1, 2, 3, ..., 10} and f: A → A be defined as $f(k)=\begin{cases} k+1 & \text{if k is odd} \\ k & \text{if k is even} \end{cases}$ Then the number of possible function g : A → A such that gof = f is **[JEE - Main 2021]**

(A) 105 (2) $^{10}C_5$ (3) 55 (4) 5!

7. Let $f(x) = \sin\left(\frac{\pi}{6}\sin\left(\frac{\pi}{2}\sin x\right)\right)$ for all $x \in R$ and $g(x) = \frac{\pi}{2}\sin x$ for all $x \in R$.

Let (fog)(x) denote f(g(x)) and (gof) (x) denote g(f(x)). Then which of the following is (are) true?

[JEE Ad. 2015]

(A) Range of f is $\left[-\frac{1}{2}, \frac{1}{2}\right]$ (B) Range of fog is $\left[-\frac{1}{2}, \frac{1}{2}\right]$

(C) $\lim_{x\to 0}\frac{f(x)}{g(x)} = \frac{\pi}{6}$ (D) There is an $x \in R$ such that (gof) (x) = 1

3. If f(x) is defined on (0,1), then the domain of definition of $f(e^x) + f(\ln|x|)$ is

(A) $(-e, -1)$ (B) $(-e, -1) \cup (1, e)$

(C) $(-\infty, -1) \cup (1, \infty)$ (D) $(-e, e)$

14. If $f(x) = \left(\frac{1-x}{1+x}\right)$, $|x| < 1$, then $f\left(\frac{2x}{1+x^2}\right)$ is equal to **[JEE - Main 2019]**

(A) 2f(x) (B) $2f(x^2)$ (C) $(f(x))^2$ (D) $-2f(x)$

7. The function $f: R \to \left[-\frac{1}{2}, \frac{1}{2}\right]$ defined as $f(x) = \frac{x}{1+x^2}$, is : **[JEE - Main 2017]**

(A) neither injective nor surjective. (B) invertible

(C) injective but not surjective (D) surjective but not injective.