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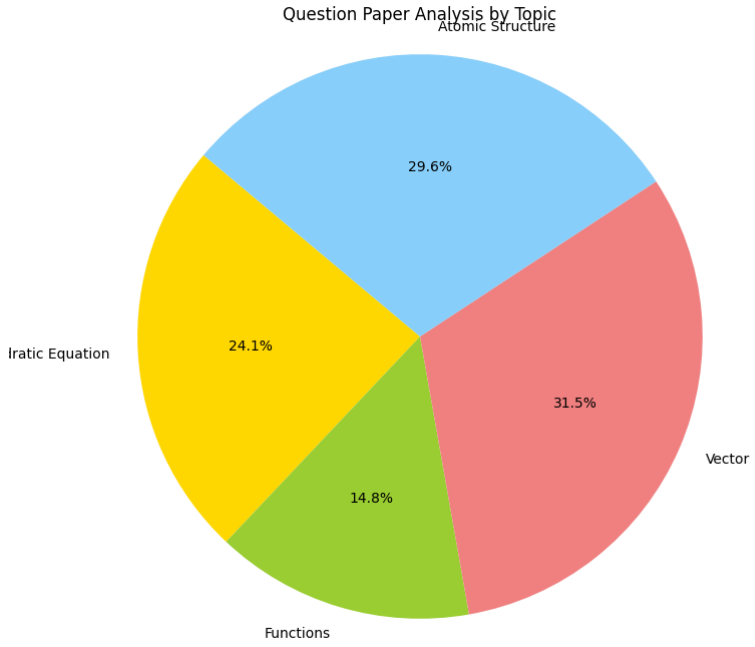
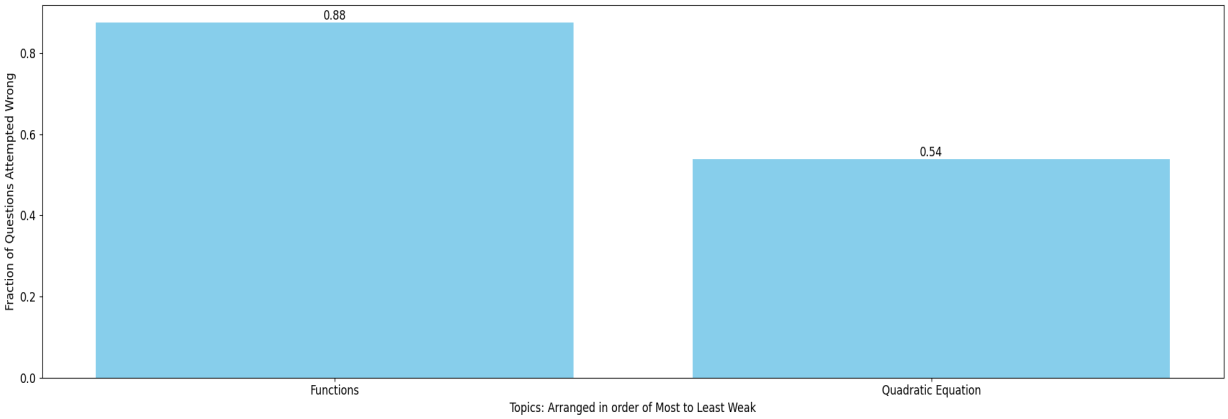
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Functions:

7. A function f: R → R is such that $f\left(\frac{1-x}{1+x}\right) = x$ for all $x \neq -1$. Prove the following.

(a) $f(f(x)) = x$

(b) $f(1/x) = -f(x), x \neq 0$ (c) $f(-x-2) = -f(x) - 2$

6. Let $f(x) = \frac{3}{2} + \sqrt{x - \frac{1}{4}}$ and g(x) be the inverse function of f(x) then the value of $(f^{-1}og^{-1})(17)$ is equal to

(A) $\frac{3+\sqrt{61}}{2}$ (B) 242 (C) 17 (D) $\frac{3-\sqrt{61}}{2}$

10. If $h(x) = Ax^5 + B\sin x + C\ln\left(\frac{1+x}{1-x}\right) + 7$, where A, B, C are non-zero real constants and $h\left(\frac{-1}{2}\right) = 6$, then find the vale of $h\left(\frac{\text{sgn}\,(e^{-x})}{2}\right)$.

Daily Work Sheet-4

SINGLE CORRECTTYPE

10. Let $f(x) = \sin x - \cos^2 x$. If $f(x) = a$ has atleast one solution in $\left[0, \frac{\pi}{2}\right]$, then find the number of integral values of a. EXERCISE-2

INTERGER TYPE QUESTION

7. Let f be a function defined as f: $\left(0, e^{\frac{\pi}{2}}\right] \to \left[\frac{-1}{4}, \infty\right)$, $f(x) = (\ln x)^2 + 3\ln x + 2$ then $f^{-1}(x)$ equals

(A) $\log\left(\frac{-3+\sqrt{4x+1}}{2}\right)$ (B) $\log\left(\frac{-3-\sqrt{4x+1}}{2}\right)$

(C) $e^{\frac{-3+\sqrt{4x+1}}{2}}$ (D) $e^{\frac{-3-\sqrt{4x+1}}{2}}$

Quadratic Equation:

9. α, β are the roots of the equation $K(x^2 - x) + x + 5 = 0$. If K_1 & K_2 are the two values of K for which the roots α, β are connected by the relation $(\alpha/\beta) + (\beta/\alpha) = 4/5$.Find the value of $(K_1/K_2) + (K_2/K_1)$.

22. Let $P(x) = x^2 + bx + c$ be a quadratic polynomial with real coefficients such that $\int_0^1 P(x)dx = 1$ and P(x) and P(x) leaves remainder 5 when it is divided by (x − 2). Then the value of 9(b + c) is equal to **[JEE-MAIN-2021]**

(A) 9 (B) 15 (C) 7 (D) 11

10. If roots of the equation $(x - \alpha)(x - 4 + \beta) + (x - 2 + \alpha)(x + 2 - \beta) = 0$ are p and q then find the absolute value of the sum of the roots of the equations $2(x - p)(x - q) - (x - \alpha)(x - 4 + \beta) = 0$ and $2(x - p)(x - q) - (x - 2 + \alpha)(x + 2 - \beta) = 0$.

12. If the product of the roots of the equation $x^2 - 3kx + 2e^{2\log k} - 1 = 0$ is 7 , then the roots of the equation are real if k equals-

(A) 1 (B) 2 (C) -2 (D) pm 2

27. The sum of all the roots of the equation $|x^2 - 8x + 15| - 2x + 7 = 0$ is:

[JEE-MAIN-2023]

(A) $11 - \sqrt{3}$ (B) $9 - \sqrt{3}$ (C) $9 + \sqrt{3}$ (D) $11\sqrt{3}$

EXERCISE – 4