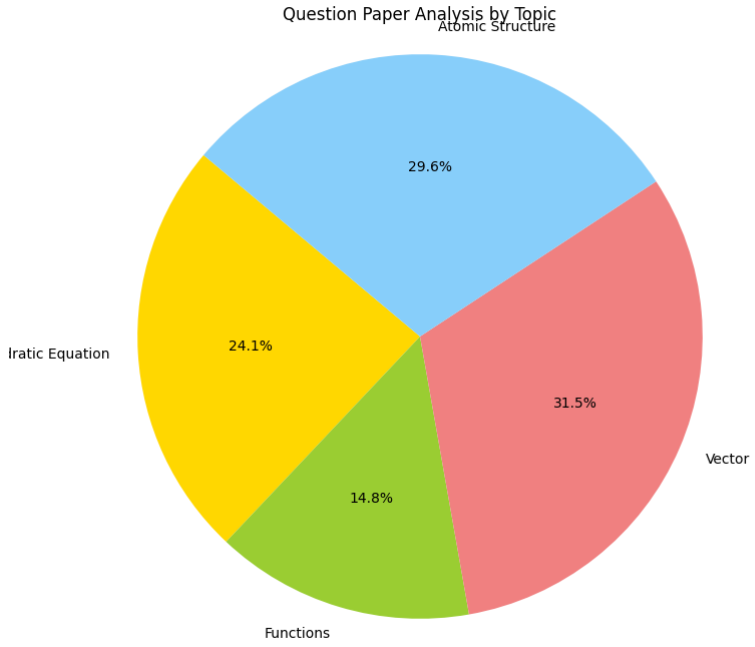
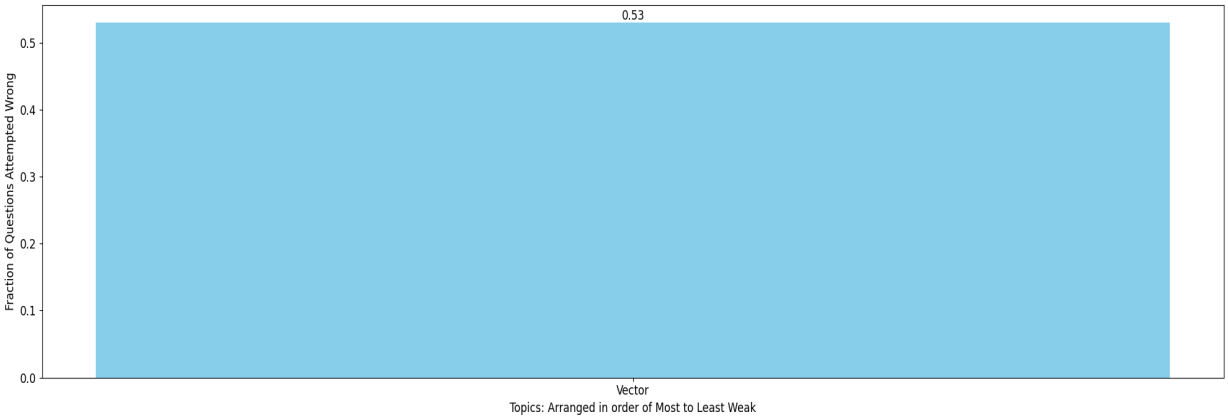
Piyush jha Total
MLAssist - Personalised DPP

Question Paper Analysis:



Weak Topic Analysis:



Practice Questions:

Vector:

48. Given $\vec{a} = x\hat{i} + y\hat{j} + 2\hat{k}$, $\vec{b} = \hat{i} - \hat{j} + \hat{k}$, $\vec{c} = \hat{i} + 2\hat{j}$; $(\vec{a} \hat{} \vec{b}) = \pi/2$, $\vec{a} \cdot \vec{c} = 4$ then

(A) $[\vec{a}\,\vec{b}\,\vec{c}]^2 = |\vec{a}|$ (B) $[\vec{a}\,\vec{b}\,\vec{c}] = |\vec{a}|$ (C) $[\vec{a}\,\vec{b}\,\vec{c}] = 0$ (D) $[\vec{a}\,\vec{b}\,\vec{c}] = |\vec{a}|^2$

49. If the volume of a parallopiped, whose coterminos edges are given by the vectors $\vec{a} = \hat{i} + \hat{j} + n\hat{k}$, $\vec{b} = 2\hat{i} + 4\hat{j} - n\hat{k}$ and $\vec{c} = \hat{i} + n\hat{j} + 3\hat{k}$ $(n \geq 0)$, is 158 cu. units, Then : **[JEE (Main)-2020]**

(1) $\vec{a} \cdot \vec{c} = 17$ (2) $\vec{b} \cdot \vec{c} = 10$ (3) $n = 9$ (4) $n = 7$

29. Let S be the reflection of a point Q with respect to the plane given by $\vec{r} = -(t+p)\hat{i} + t\hat{j} + (1+p)\hat{k}$ where t, p are real parameters and $\hat{i}, \hat{j}, \hat{k}$ are the unit vectors along the three positive coordinate axes. If the position vectors of Q and S are $10\hat{i} + 15\hat{j} + 20\hat{k}$ and $\alpha\hat{i} + \beta\hat{j} + \gamma\hat{k}$ respectively, then which of the following is/are TRUE ? **[JEE (Advanced)-2022]**

(A) $3(\alpha + \beta) = -101$ (B) $3(\beta + \gamma) = -71$

(C) $3(\gamma + \alpha) = -86$ (D) $3(\alpha + \beta + \gamma) = -121$

62. $\vec{a}, \vec{b}$ and $\vec{c}$ be three vectors having magnitudes 1, 1 and 2 respectively. If $\vec{a} \times (\vec{a} \times \vec{c}) + \vec{b} = 0$, then the acute angle between $\vec{a}$ & $\vec{c}$ is :

(A) $\pi/6$ (B) $\pi/4$ (C) $\pi/3$ (D) $5\pi/12$

10. If the three points with position vectors (1, a, b) ; (a, 2, b) and (a, b, 3) are collinear in space, then the value of a + b is

(A) 3 (B) 4 (C) 5 (D) none