

NEET MOTION IN A PLANE — SCALAR AND VECTOR PRODUCTS OF VECTORS — PYQS

Max. Marks: 32

Questions: 8

Section A (MCQ) — 8 questions

Q.1 If $\vec{F} = 2\hat{i} + \hat{j} - \hat{k}$ and $\vec{r} = 3\hat{i} + 2\hat{j} - 2\hat{k}$, then the scalar and vector products of $\vec{F}$ and $\vec{r}$ have the magnitudes respectively as [NEET (UG) 2022 (Phase 2)]

- (1) 10, 2 (2) 5, $\sqrt{3}$ (3) 4, $\sqrt{5}$ (4) 10, $\sqrt{2}$

Scan or tap for the full solution 

Q.2 If vectors $\vec{A} = \cos \omega t \hat{i} + \sin \omega t \hat{j}$ and $\vec{B} = \cos \frac{\omega t}{2} \hat{i} + \sin \frac{\omega t}{2} \hat{j}$ are functions of time, then the value of t at which they are orthogonal to each other is [AIPMT 2015]

- (1) $t = \frac{\pi}{\omega}$ (2) $t = 0$ (3) $t = \frac{\pi}{4\omega}$ (4) $t = \frac{\pi}{2\omega}$

Scan or tap for the full solution 

Q.3 Vectors $\vec{A}$, $\vec{B}$ and $\vec{C}$ are such that $\vec{A} \cdot \vec{B} = 0$ and $\vec{A} \cdot \vec{C} = 0$. Then the vector parallel to $\vec{A}$ is [NEET 2013 (Karnataka)]

- (1) $\vec{A} \times \vec{B}$ (2) $\vec{B} + \vec{C}$ (3) $\vec{B} \times \vec{C}$ (4) $\vec{B}$ and $\vec{C}$

Scan or tap for the full solution 

Q.4 $\vec{A}$ and $\vec{B}$ are two vectors and θ is the angle between them. If $|\vec{A} \times \vec{B}| = \sqrt{3} (\vec{A} \cdot \vec{B})$, the value of θ is [AIPMT 2007]

- (1) 45° (2) 30° (3) 90° (4) 60°

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Q.5 If the angle between the vectors $\vec{A}$ and $\vec{B}$ is θ , the value of the product $(\vec{B} \times \vec{A}) \cdot \vec{A}$ is equal to [AIPMT 2005]

- (1) $BA^2 \sin \theta$ (2) $BA^2 \cos \theta$
(3) $BA^2 \sin \theta \cos \theta$ (4) zero.

Scan or tap for the full solution 

Q.6 If a vector $2\hat{i} + 3\hat{j} + 8\hat{k}$ is perpendicular to the vector $4\hat{j} - 4\hat{i} + \alpha\hat{k}$, then the value of α is [AIPMT 2005]
(1) $1/2$ (2) $-1/2$ (3) 1 (4) -1 .

Scan or tap for the full solution 

Q.7 If $|\vec{A} \times \vec{B}| = \sqrt{3} \vec{A} \cdot \vec{B}$ then the value of $|\vec{A} + \vec{B}|$ is [AIPMT 2004]

- (1) $(A^2 + B^2 + AB)^{1/2}$
(2) $\left(A^2 + B^2 + \frac{AB}{\sqrt{3}}\right)^{1/2}$
(3) $A + B$
(4) $(A^2 + B^2 + \sqrt{3}AB)^{1/2}$

Scan or tap for the full solution 

Q.8 The vector sum of two forces is perpendicular to their vector differences. In that case, the forces [AIPMT 2003]

- (1) are equal to each other
(2) are equal to each other in magnitude
(3) are not equal to each other in magnitude
(4) cannot be predicted.

Scan or tap for the full solution 

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8			
Ans.	4	1	3	4	4	2	1	2			