

## Parishram (2025)

## Physics

DPP: 4

## Basic Mathematics

**Q1** If  $\vec{P} \cdot \vec{Q} = PQ$ , then angle between  $\vec{P}$  and  $\vec{Q}$  is:

- (A)  $0^\circ$   
 (B)  $30^\circ$   
 (C)  $45^\circ$   
 (D)  $60^\circ$

**Q2** The vector  $\vec{B} = 5\hat{i} + 2\hat{j} + S\hat{k}$  is perpendicular to the vector  $\vec{A} = 3\hat{i} + \hat{j} + 2\hat{k}$  if  $S =$

- (A) 1  
 (B) 4.7  
 (C) 6.3  
 (D) -8.5

**Q3** If force  $(\vec{F}) = 4\hat{i} + 5\hat{j}$  and displacement  $(\vec{s}) = 3\hat{i} + 6\hat{k}$  then the work done is

- (A)  $4 \times 3$   
 (B)  $5 \times 6$   
 (C)  $6 \times 3$   
 (D)  $4 \times 6$

**Q4** The angle between the two vectors  $\vec{A} = 5\hat{i} + 5\hat{j}$  and  $\vec{B} = 5\hat{i} - 5\hat{j}$  will be

- (A) Zero  
 (B)  $45^\circ$   
 (C)  $90^\circ$

(D)  $180^\circ$

**Q5** The angle that the vector  $\vec{A} = 2\hat{i} + 3\hat{j}$  makes with  $y$  - axis is:

- (A)  $\tan^{-1}(3/2)$   
 (B)  $\tan^{-1}(2/3)$   
 (C)  $\sin^{-1}(2/3)$   
 (D)  $\cos^{-1}(3/2)$

**Q6** The angle between the two vectors  $\vec{A} = 3\hat{i} + 4\hat{j} + 5\hat{k}$  and  $\vec{B} = 3\hat{i} + 4\hat{j} - 5\hat{k}$  will be

- (A)  $90^\circ$   
 (B)  $0^\circ$   
 (C)  $60^\circ$   
 (D)  $45^\circ$

**Q7** Consider a vector  $\vec{F} = 4\hat{i} - 3\hat{j}$ . Another vector that is perpendicular to  $\vec{F}$  is

- (A)  $4\hat{i} + 3\hat{j}$   
 (B)  $6\hat{i}$   
 (C)  $7\hat{k}$   
 (D)  $3\hat{i} - 4\hat{j}$



## Answer Key

Q1 (A)

Q2 (D)

Q3 (A)

Q4 (C)

Q5 (B)

Q6 (A)

Q7 (C)



# Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Video Solution:



Q2 Video Solution:



Q3 Video Solution:



Q4 Video Solution:



Q5 Video Solution:



Q6 Video Solution:



Q7 Video Solution:



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