



# SMART TEST SERIES

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Name:		Subject:	Physics-11
Roll # :		Unit(s):	2,
Class:	Inter Part-I	Test:	Type 3 - MCQs + SQs Test - Marks=30
Date:		Time:	

**Q.1 Four possible answers A, B, C & D to each question are given. Circle the correct one. (10x1=10)**

- 1 The unit vector in the direction of  $\vec{A}$  is:  
(A)  $\hat{A} = \frac{\vec{A}}{|\vec{A}|}$  (B)  $\hat{A} = A\vec{A}$  (C)  $\hat{A} = \frac{\vec{A}}{A}$  (D)  $\vec{A} = \frac{A}{\hat{A}}$
- 2 The resultant of two forces 3N and 4N acting at right angle to each other is:  
(A) 5 N (B) 6 N (C) 1 N (D) 7 N
- 3 The resultant of 120 N and 20 N forces can not be:  
(A) 141 N (B) 100 N (C) 101 N (D) 130 N
- 4 The force of 15 N makes an angle of 90° with x-axis, its y-component is:  
(A) 15 N (B) Zero N (C) 30 N (D) 45 N
- 5 If  $\vec{A} = 6\hat{j}$  then  $\vec{A} \cdot \vec{B}$  will be:  
(A)  $24\hat{k}$  (B) 24 (C) zero (D)  $-24\hat{k}$
- 6  $AB\sin\theta\hat{n} \times AB\sin\theta\hat{n}$  is:  
(A)  $A^2B^2\sin^2\theta$  (B)  $A^2B^2$  (C)  $A^2B^2\hat{n}$  (D) 0
- 7 Which of the following is correct  
(A)  $AxB = -BxA$  (B)  $AxB = BxA$  (C)  $AxB = -Cx A$  (D)  $AxB \neq BxA$
- 8  $\vec{B} \cdot \hat{B}$  is equal to:  
(A)  $B^2$  (B) 1 (C) Zero (D) B
- 9 The force and torque are analogous to:  
(A) Velocity (B) Mass and weight (C) Moment of inertia (D) Each other
- 10 Conventionally, clockwise torque is taken as:  
(A) negative (B) positive (C) zero (D) neither positive nor negative

**Q.2 Write short answers of the following questions.**

**(10x2=20)**

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- (i) The vector sum of three vectors gives a zero resultant. What can be orientation of the vectors?
- (ii) Two vectors have unequal magnitude. Can their sum be zero? Explain.
- (iii) Is it possible to add  $2 \rightarrow A$  into 6? Explain.
- (iv) If a vector lies in x – y plane. Is it possible, one of its rectangular components is zero? Explain.
- (v) Under what circumstances would a vector have components that are equal in magnitude?
- (vi) What is the orientation of three vectors to get their vector sum equal to zero magnitude?
- (vii) Name three conditions that could make  $\vec{A} \cdot \vec{B} = 0$ .
- (viii) Show that:  $\hat{i} \cdot \hat{j} = \hat{j} \cdot \hat{k} = \hat{k} \cdot \hat{i} = 0$ .
- (ix) Show that:  $\hat{i} \cdot \hat{j} = \hat{j} \cdot \hat{k} = \hat{k} \cdot \hat{i} = 0$ .
- (x) What is the moment of a force about the point lying on the axis of rotation?