



# SMART TEST SERIES

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Name:		Subject:	Physics-11
Roll # :		Unit(s):	2,
Class:	Inter Part-I	Test:	Type 4 - SQs + LQs Test - Marks=40
Date:		Time:	

## Q.1 Write short answers of the following questions.

(15x2=30)

- (i) Two vectors have unequal magnitude. Can their sum be zero? Explain.
- (ii) What is unit-vector in the direction of the vector  $\vec{A} = 4\hat{i} + 3\hat{j}$ .
- (iii) If  $\vec{A} + \vec{B} = 0$ , what can you say about the components of the two vectors?
- (iv) Two vectors of magnitude 10 each making angle  $180^\circ$  with each other. Find the magnitude of their resultant.
- (v) How does the direction of a vector specified in three dimensions? Explain with diagram.
- (vi) Under what circumstances would a vector have components that are equal in magnitude?
- (vii) Under what circumstances would a vector have components that are equal in magnitude?
- (viii) A force of 10 N makes an angle of  $60^\circ$  with x-axis. Find its x and y components?
- (ix) Determine the direction of  $\vec{A} = -3\hat{i} - 8\hat{j}$  with positive x-axis.
- (x) You are falling off the edge. What should you do to avoid falling?
- (xi) What do you know about Right Hand Rule? Also state it.
- (xii) Mention the criterion for positive and negative torque.
- (xiii) Can a body rotate about its centre of gravity under the action of its weight?
- (xiv) What conditions are required by a body to be in complete equilibrium?
- (xv) State first and second conditions of equilibrium in terms of linear and angular acceleration.

## Q.2 Write long answers of the following questions.

(5x2=10)

1. Define rectangular components of a vector. Discuss the vector addition of number of coplanar vectors by rectangular component method.
2. The positions of two aeroplanes at any instant are represented by two points A (2, 3, 4) and B(5, 6, 7) from an origin O in km as shown in Fig. 2.8. (i) What are their position vectors? (ii) Calculate the distance between the two aeroplanes.