



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) Why a null vector can not be added to zero? Explain.
- (ii) Under what circumstances would a vector have components that are equal in magnitude?
- (iii) Define unit vector and position vector.
- (iv) Find unit vectors in the direction of vector $\rightarrow A$. $\rightarrow A = 8\hat{i} - 4\hat{j}$.
- (v) Define component of a vector? What are rectangular components?
- (vi) Is it possible to add 5 in $2\hat{i}$? Explain.
- (vii) Under what circumstances would a vector have components that are equal in magnitude?
- (viii) What is the angle between two vectors of same magnitude? If they were to be combined to give a resultant equal to a vector of the same magnitude.
- (ix) Write down the steps for addition of vectors by rectangular component method.
- (x) A force of 10 N makes an angle of 60° with x-axis. Find its x and y components?
- (xi) Can the magnitude of a vector ever be zero? Explain.
- (xii) Find the angle between $\rightarrow A = 2\hat{i} - 2\hat{j}$ and $\rightarrow B = 2\hat{i} - 2\hat{j}$.
- (xiii) Show that: $\hat{i} \cdot \hat{j} = \hat{j} \cdot \hat{k} = \hat{k} \cdot \hat{i} = 0$.
- (xiv) If $\vec{A} = \hat{i} - 2\hat{j} + 3\hat{k}$ and $\vec{B} = 2\hat{i} - \hat{j} + \hat{k}$, then find $\vec{A} \cdot \vec{B}$.
- (xv) What is difference between moment arm and moment of force?

Q.2 Write long answers of the following questions.

(5x2=10)

1. Explain cross product of two vector state right hand rule and give at least four characteristic.
2. Find the angle between two forces of equal magnitude when the magnitude of their resultant is also equal to the magnitude of either of these forces.