CBSE

MOTION IN A PLANE WS 7

Class 11 - Physics

Section A

1. If a unit vector is represented by $0.5\hat{i} + 0.8\hat{j} + c\hat{k}$, then the value of c is **[1]**

   a) $\sqrt{0.8}$ b) $\sqrt{0.11}$

   c) $\sqrt{0.01}$ d) 1

2. A unit vector is a vector having a magnitude of 1 and points in **[1]**

   a) any chosen direction b) x-direction

   c) y-direction d) z-direction

3. What is the unit vector perpendicular to the plane of vectors $\vec{A}$ and $\vec{B}$? **[1]**

4. The direction of vector $\vec{a}$ is reversed. Find $\Delta\vec{a}$, $|\Delta\vec{a}|$ and Δa. **[1]**

5. A unit vector is represented by $a\hat{i} + b\hat{j} + c\hat{k}$. If the values of a and b are 0.6 and 0.8 respectively, find the value of c. **[1]**

Section B

6. **State True or False:** **[2]**

   (a) The vector $\left(\frac{1}{\sqrt{2}}\hat{i} + \frac{1}{\sqrt{2}}\hat{j}\right)$ is a unit vector. **[1]**

   (b) The vector $(\hat{i} + \hat{j})$ is a unit vector. **[1]**

7. Find a unit vector parallel to the resultant of the vectors $\overline{A} = 2\hat{i} + 3\hat{J} + 4\hat{k}$ and $\overline{B} = 3\hat{i} - 5\hat{J} + \hat{k}$. **[2]**

8. Find a unit vector parallel to the vector ($3\hat{i}$+ $7\hat{j}$ + $4\hat{k}$). **[2]**

9. Determine that vector which when added to the resultant of A = $3\hat{\mathbf{i}} - 5\hat{\mathbf{j}} + 7\hat{\mathbf{k}}$ and B = $2\hat{\mathbf{i}} + 4\hat{\mathbf{j}} - 3\hat{\mathbf{k}}$ gives unit vector along the y-direction. **[2]**

10. If $\vec{A} = 3\hat{i} + 4\hat{j}$ and $\hat{B} = 7\hat{i} + 24\hat{j}$, find a vector having the same magnitude as $\vec{B}$ and parallel to $\vec{A}$. **[2]**