Grade-12 Mathematics

Name/Code-

Chapter-4 (Vector Algebra)

1. If $\vec{a}=\begin{pmatrix}1\\2\\3\end{pmatrix}$, $|\vec{a}|^2=?$

   A. $\sqrt{14}$ B. $\sqrt{6}$ C. 14 D. 6

2. In the Scalar Product, if nonzero vectors $\vec{a}$ and $\vec{b}$ are perpendicular, then

   A. $\vec{a}\,.\,\vec{b}=0$ B. $\vec{a}\times\vec{b}=\vec{0}$ C. $\vec{a}\,.\,\vec{b}=|\vec{a}|\,|\vec{b}|$ D. $\vec{a}\,.\,\vec{b}=-|\vec{a}|\,|\vec{b}|$

3. The value of $\frac{5!+4!-3!}{3!}$ is

   A. 25 B. 23 C. 20 D. 5

4. The magnitude of the vector $6\hat{\imath}-2\hat{\jmath}+3\hat{k}$ is

   A. 1 B. 5 C. 7 D. 12

5. A line passes through (-1, 4) with direction vector $\begin{pmatrix}2\\-1\end{pmatrix}$,

   the parametric equation is

   A. x = 2t-1 , y =t B. x = 1+2t , y = 4+t

   C. x = -1+2t , y = 4 – t D. . x = -2t+1 , y = 4 - t

6. The cartesian equation of the line with parametric equation

   x= 1+3t, y = 4+2t , z = -1+5t is

   A. $\frac{x-1}{3}=\frac{y-4}{2}=\frac{z+1}{5}$ B. $\frac{x-1}{3}=\frac{y+4}{2}=\frac{z+1}{5}$

   C. $\frac{x-1}{3}=\frac{y-4}{2}=\frac{z-1}{5}$ D. $\frac{x+1}{3}=\frac{y-4}{2}=\frac{z+1}{5}$

7. Given $\vec{a}=3\hat{\imath}+2\hat{\jmath}+5\hat{k}$ and $\vec{b}=\hat{\imath}-4\hat{\jmath}+2\hat{k}$. Then $\vec{a}\times\vec{b}=$

   A. $\begin{pmatrix}-24\\-1\\-14\end{pmatrix}$ B. $\begin{pmatrix}24\\-1\\-14\end{pmatrix}$ C. $\begin{pmatrix}24\\-1\\14\end{pmatrix}$ D. $\begin{pmatrix}-24\\1\\14\end{pmatrix}$

8. The area of the parallelogram determine by the vectors $\begin{pmatrix}1\\-2\\3\end{pmatrix}$ and $\begin{pmatrix}2\\3\\-4\end{pmatrix}$ is

   A. $\sqrt{306}$ B. $17\sqrt{17}$ C. $6\sqrt{5}$ D. $5\sqrt{6}$