MATHS

VECTOR ALGEBRA

TYPES OF VECTORS

EXERCISE

Q.1	If I, J, and k be unit vector in the X, Y, and Z direction respectively suppose that				
	A = 3I - J + 2K find the magnitude of the vector A.				
	(A) √8	(B) √ <u>12</u>	(C) $\sqrt{14}$	(D) $\sqrt{4}$	
Q.2	If $A = 2I + J$, $B = I - 4J + K$ and $C = J + K$ find the magnitude of the vector $2A - B + C$				
	and show that it is not a unit vector.				
	(A) \{78	(B) √ <u>28</u>	(C) $\sqrt{58}$	(D) $\sqrt{36}$	
Q.3	two vector $a = xi + 14j$ and $b = 3i - 7yj$ are equal vector if:				
	(A) $x = 6, y = -1/2$		(B) $x = 3, y = 2$		
	(C) $x = 3, y = -1/2$		(D) $x = 3, y = -2$		
Q.4	What is the sum of vector 3I + 3J – K and A zero vector?				
	(A) 3I + 3J - K		(B) 0I + 0J - 0K	(B) 0I + 0J - 0K	
	(C) - 3I + 3J + K		(D) 3I + 3J + K		
Q.5	Two vectors are considered to be collinear vectors if their cross product is.				
	(A) Equal to zero vector		(B) Not equal to zet	(B) Not equal to zero vector	
	(C) Equal to unit vector		(D) None of the above		
Q.6	The vector that have the same initial point are called.				
	(A)Coplanar vector		(B) Coinitial vector		
	(C) Coterminous vector		(D) Collinear vector		
Q.7	Two vector are equal if they have the same magnitude and the same direction.				
	(A) True		(A) False		
Q.8	A zero vector id a unique vector.				
	(A) True		(B) False		
Q.9	State true or false any two given vectors can be considered as collinear vectors if these				
	vectors are parallel to the same given line.				
	(A) True		(B) False		

- **Q.10** if two vector a = xi + 2yj + 7zk and b = 2i j + 14k are equal vector then find the value of x, y, z..
- **Q.11** check if the vector x = 5i 6j is equal to the vector y = -5i + 6j.
- **Q.12** find the unit vector which is in the direction of 3i + 4j 5k.
- **Q.13** Find the vector of magnitude 8 unit and in the direction of the vector I 7J + 2K
- **Q.14** Find the unit vector parallel to the resultant of the vector. A = 2i - 3j + 4k And B = -i + 5j - 2k
- **Q.15** Two men apply equal force on a wooden box but in opposite direction. Will the box move in any direction?
- **Q.16** If $\vec{a} = (2, -1, 3)$ then what is (A) $\vec{a} \times \vec{0}$ and (B) $\vec{a} \cdot \vec{0}$
- **Q.17** Which of the given vector $\vec{a} = \{2,3\}, \vec{b} = \{4,6\}, \vec{c} = \{6,12\}$ are collinear to one another.
- **Q.18** Show that the vector $\vec{a} = (3,5,7)$, $\vec{b} = (6,10,14)$ are collinear vector.
- **Q.19** Find If the given vector oa = 2i + j and ob = 5i + j are coinitial vector.

ANSWER KEY

- **1.** (C) $\sqrt{14}$
- **2.** (C) $\sqrt{58}$
- **3.** (D) x = 3, y = -2
- **4.** (A) 3I + 3J K
- **5.** (A) Equal to zero vector
- **6.** (B) Coinitial Vector
- 7. (A) True
- **8.** (A) True
- **9.** (A) True

10. The values are $x = 2, y = -\frac{1}{2}$ and z = 2

11. x and y are not equal.

12. The unit vector is
$$\left(\frac{3}{5\sqrt{2}}\right)i + \left(\frac{4}{5\sqrt{2}}\right)j - \left(\frac{5}{5\sqrt{2}}\right)k$$
.

- **13.** Therefore the vector of magnitude 8 unit = $(4\sqrt{6/9}) \cdot (I 7J + 2K)$
- **14.** $\frac{1}{3i} + \frac{2}{3j} + \frac{2}{3k}$.
- **15.** No the box will not move in any direction.
- **16.** $\vec{0}$; B)0
- **17.** Vectors b and c are non-collinear.