

ECAT Pre General Science Mathematics Online Test

Sr	Questions	Answers Choice
1	The angle between the vectors $\underline{u} = [-3, 5]$ and $\underline{v} = [6, -2]$ is:	A. $\pi/2$ B. $-3\pi/2$ C. π D. None of these
2	If the angle between two vectors $\underline{u}$ and $\underline{v}$ is 0 or π , then the vectors $\underline{u}$ and $\underline{v}$ are:	A. Orthogonal B. Collinear C. Perpendicular D. None of these
3	If the angle between two vectors $\underline{u}$ and $\underline{v}$ is 0 or π , then the vectors $\underline{u}$ and $\underline{v}$ are:	A. Orthogonal B. Collinear C. Perpendicular D. None of these
4	If $\underline{u} = 2\hat{i} + p\hat{j} + 5\hat{k}$ and $\underline{v} = 3\hat{i} + \hat{j} + p\hat{k}$ are perpendicular, then $p =$	A. 1 B. 2 C. -1 D. -3
5	The modulus of a vector $\hat{i} - \hat{j} + \hat{k}$ is:	A. $\sqrt{3}$ B. 1 C. $\sqrt{2}$ D. ∞
6	If $\underline{u} = [3, -4]$, then modulus of $\underline{u}$ is:	A. 5 B. $5i$ C. -5 D. $\sqrt{5}$
7	If $\underline{a}$ and $\underline{b}$ are two vectors then $\underline{a} + \underline{b} =$	A. $\underline{b} + \underline{a}$ B. $\underline{b} - \underline{a}$ C. $\underline{ab}$ D. $\underline{a}^{\wedge} \underline{b}$
8	If $\underline{a} \neq \underline{b}$, $\underline{b} \neq 0$ and $ \underline{a} = \underline{b} = \underline{a} - \underline{b} $, then vectors $\underline{a}$ and $\underline{b}$ are:	A. Parallel to each other B. Perpendicular to each other C. Inclined at 60° D. neither parallel nor perpendicular
9	If the sum of two unit vectors is a unit vector the magnitude of their difference is	A. $\sqrt{2}$ B. $\sqrt{3}$ C. 1 D. None of these
10	The vector $\underline{k} = [0, 0, 1]$ is called unit vector along:	A. x - axis B. y - axis C. z - axis D. None of these
11	Vector $\underline{i} =$	A. $[1, 0]$ B. $[0, 1, 0]$ C. $[0, 0, 1]$ D. None of these
12	The vector $\underline{i} = [1, 0]$ is called unit vector along:	A. x-axis B. y - axis C. z - axis D. Both a and y-axis
13	$\underline{O} (0, 0)$ is called:	A. Position vector B. Free vector C. Unit vector D. Null vector
14	Vector addition is:	A. Commutative B. Associative C. Commutative and Associative D. None of these
15	The positive real number which is the measure of the length of a vector is called the	A. Unit vector B. Modulus C. Inverse D. None of these

16	If $ a = b = a+b = 1$, then $ a-b $ is equal to:	A. 1 B. $\sqrt{3}$ C. $\sqrt{2}$ D. 7
17	If $ a = b = a + b = 1$, then $ a + b = 5$, then $ a-b =$	A. 4 B. 6 C. 5 D. 3
18	If $a = 2i + 2j$, $b = 3i - j$ and $c = 4i + 5j$, the $3b - a - 2c =$	A. $-i - 15j$ B. $i - 15j$ C. $i - 3j$ D. None of these
19	If $a = [1, 4, 3]$ and $B = [2, -1, 5]$ then the mid point M of AB is:	A. $[1, 1, 1.5]$ B. $[2, 2, 1.5]$ C. $[1.5, 1.5, 4]$ D. None of these
20	If $c = 2i + j + k$ and $d = -1 + 4j + 2k$, then $ c-d =$	A. $\sqrt{7}$ B. $\sqrt{41}$ C. $\sqrt{19}$ D. $\sqrt{(2 \& \#7)}$
21	If $a = 5j + 2j$, $b = 2i - 3j$, then $ a+2b =$	A. $\sqrt{21}$ B. $\sqrt{97}$ C. $\sqrt{39}$ D. None of these
22	If $a = 5i + 2j$, then $ a =$	A. $\sqrt{13}$ B. $\sqrt{7}$ C. $1/\sqrt{13}$ D. $\sqrt{29}$
23	If m and n be two scalars, then $(m+n)g =$	A. 0 B. $m+n$ C. $m_a + n_a$ D. $m_a - m_a$
24	If G is the centroid of the triangle, then $GA + GB + GC =$	A. 0 B. 1 C. -1 D. 3
25	The modulus of $12-5i$ is:	A. 7 B. 13 C. $\sqrt{7}$ D. 119
26	The magnitude of vector $a = i - 3j + 5k$ is:	A. 3 B. $\sqrt{35}$ C. $\sqrt{17}$ D. $\sqrt{35}$
27	The magnitude of vector $a = 2i - 7j$ is	A. $\sqrt{23}$ B. $\sqrt{43}$ C. 3 D. $\sqrt{53}$
28	a _____ quantity is one that possesses both magnitude and direction.	A. Scalar B. Vector C. Segment D. None of these
29	If $u = xi + yj$, then $ u $	A. $x^2 + y^2$ B. $(x^2 + y^2)^2$ C. $x^2 - y^2$ D. $\sqrt{x^2 + y^2}$
30	The locus of the centre of a circle which touches two given circles externally is:	A. a hyperbola B. an ellipse C. a circle D. a parabola