

## ECAT Mathematics Chapter 23 Conic Section

Sr	Questions	Answers Choice
1	If $m$ and $n$ be two scalars, then $(m+n) \mathbf{g} =$	A. 0 B. $m+n$ C. $m_a+n_a$ D. $m_a - m_a$
2	If $ \mathbf{a}  =  \mathbf{b}  =  \mathbf{a} + \mathbf{b}  = 1$ , then $ \mathbf{a} + \mathbf{b}  = 5$ , then $ \mathbf{a} - \mathbf{b}  =$	A. 4 B. 6 C. 5 D. 3
3	The modulus of a vector $i + k$ is:	A. $\sqrt{3}$ B. 1 C. $\sqrt{2}$ D. $\infty$
4	The angle between the vectors $\mathbf{u} = [-3, 5]$ and $\mathbf{v} = [6, -2]$ is:	A. $\pi/2$ B. $3\pi/2$ C. $\pi$ D. None of these
5	If $\mathbf{c} = 2\mathbf{i} + \mathbf{j} + \mathbf{k}$ and $\mathbf{d} = -\mathbf{i} + 4\mathbf{j} + 2\mathbf{k}$ , then $ \mathbf{c} - \mathbf{d}  =$	A. $\sqrt{7}$ B. $\sqrt{41}$ C. $\sqrt{19}$ D. $\sqrt{2+7}$
6	If $ \mathbf{a}  =  \mathbf{b}  =  \mathbf{a} + \mathbf{b}  = 1$ , then $ \mathbf{a} - \mathbf{b} $ is equal to:	A. 1 B. $\sqrt{3}$ C. $\sqrt{2}$ D. 7
7	If $\mathbf{u} = [3, -4]$ , then modulus of $\mathbf{u}$ is:	A. 5 B. $5i$ C. $-5$ D. $\sqrt{5}$
8	If $G$ is the centroid of the triangle, then $\mathbf{GA} + \mathbf{GB} + \mathbf{GC} =$	A. 0 B. 1 C. $-1$ D. 3
9	$\mathbf{O}(0,0)$ is called:	A. Position vector B. Free vector C. Unite vector D. Null vector
10	If $\mathbf{a} = 2\mathbf{i} + 2\mathbf{j}$ , $\mathbf{b} = 3\mathbf{i} - \mathbf{j}$ and $\mathbf{c} = 4\mathbf{i} + 5\mathbf{j}$ , the $3\mathbf{b} - \mathbf{a} - 2\mathbf{c} =$	A. $-\mathbf{i} - 15\mathbf{j}$ B. $\mathbf{i} - 15\mathbf{j}$ C. $\mathbf{i} - 3\mathbf{j}$ D. None of these
11	Vector $\mathbf{i} =$	A. $[1, 0]$ B. $[0, 1, 0]$ C. $[0, 0, 1]$ D. None of these
12	If $\mathbf{a} = 5\mathbf{i} + 2\mathbf{j}$ , then $ \mathbf{a}  =$	A. $\sqrt{13}$ B. $\sqrt{7}$ C. $1/\sqrt{13}$ D. $\sqrt{29}$
13	a _____ quantity is one that possesses both magnitude and direction.	A. Scalar B. Vector C. Segment D. None of these
14	If the angle between two vectors $\mathbf{u}$ and $\mathbf{v}$ is $0$ or $\pi$ , then the vectors $\mathbf{u}$ and $\mathbf{v}$ are:	A. Orthogonal B. Collinear C. Perpendicular D. None of these
15	If $\mathbf{a}, \mathbf{b} = 0$ then	A. $\mathbf{a} \perp \mathbf{b}$ B. $\mathbf{a} \parallel \mathbf{b}$ C. $\mathbf{a} = \mathbf{b}$ D. ...

D. None

16 The magnitude of vector  $a = 2i - 7j$  is

- A.  $\sqrt{23}$
- B.  $\sqrt{43}$
- C. 3
- D.  $\sqrt{53}$

17 The angle between the vectors  $\underline{u} = 2i - j + k$  and  $\underline{v} = -i + j$  is:

- A.  $3\pi/2$
- B.  $2\pi/3$
- C.  $5\pi/6$
- D.  $\pi/3$

18 The modulus of  $12 - 5i$  is:

- A. 7
- B. 13
- C.  $\sqrt{7}$
- D. 119

19 If  $\underline{u} = 2i + pj + 5k$  and  $\underline{v} = 3i + j + pk$  are perpendicular, then  $p =$

- A. 1
- B. 2
- C. -1
- D. -3

20 If  $\underline{u} = 2ai + j - k$  and  $\underline{v} = i + aj + 4k$  are perpendicular then  $a =$

- A. 4
- B.  $1/2$
- C. 3
- D.  $4/3$