

## ECAT Computer Science Entry Test

Sr	Questions	Answers Choice
1	The slope of the tangent of the circle $x^3 + y^3 = 25$ at (4,3) is:	A. -4/5 B. 4/3 C. -25/4 D. 25/3
2	The points of intersection of the line $y = 2x - 3$ and the circle $x^2 + y^2 - 3x - 2y - 3 = 0$ are:	A. two B. three C. less than two D. not intersect
3	If one end of the diameter of the circle $x^2 + y^2 - 5x + 3y - 22 = 0$ is (3,4) the other end is:	A. (2,7) B. (-2,-7) C. (-2,7) D. (2,-7)
4	If one end of the diameter of the circle $2x^2 + 2y^2 - 8x - 4y + 2 = 0$ is (2,3), the other end is:	A. (2,1) B. (-2,1) C. (2,-1) D. (1,-1)
5	Two circle $x^2 + y^2 + 2x - 8 = 0$ and $x^2 + y^2 - 6x - 46 = 0$ :	A. touch internally B. do not intersect C. touch externally D. None of these
6	Circle $x^2 + y^2 - 2y - y = 0$ and $x^2 + y^2 - 8y - 4 = 0$ :	A. Intersect B. touch externally C. touch internally D. do not touch
7	The point of contact of the circles $x^2 + y^2 - 6x - 6y + 10 = 0$ and $x^2 + y^2 = 2$ is	A. (-3,2) B. (1,3) C. (-2,-1) D. None of these
8	The radius of the circle $x^2 + y^2 - 6x + 4y + 13 = 0$ is	A. 1 B. 2 C. 0 D. None of these
9	The area of the circle centred at (1,2) and passing through (4,6) is:	A. $10\pi$ B. $25\pi$ C. $5\pi$ D. $25/2\pi$
10	The equation $x^2 + y^2 + 2g + 2fy + c = 0$ represents a circle whose centre is :	A. (g,f) B. (-g,-f) C. (2g,2f) D. (-2f,-2g)
11	The radius of the circle $2x^2 + 2y^2 - 4x + 12y + 11 = 0$ is:	A. $\sqrt{4.5}$ B. $\sqrt{11}$ C. $\sqrt{29}$ D. $\sqrt{15}$
12	Parametric equation of circle : $x^2 + y^2 + r^2$ , are	A. $r = x \cos \theta$ $r \sin \theta = y$ B. $x = r \cos \theta$ $y = r \sin \theta$ C. $x = r \sin \theta$ $y = r \cos \theta$ D. $x = r \cos \theta$ $y = r \sin \theta$
13	The general equation of circle $x^2 + y^2 + 2gx + 2fy + c = 0$ , contains:	A. Three independent variables B. Two independent constants C. Three independent parameters D. Three independent constants
14	The three noncollinear points through which a circle passes are known, then we can find the:	A. Variables x and y B. Value of x and c C. three constants f,g and c D. inverse of the circle
15	A second degree equation in which coefficients of $x^2$ and $y^2$ are equal and there is no product term xy represents:	A. a parabola B. a circle C. an ellipse D. a hyperbola

		D. a pair of lines
16	Apollonius was a:	A. Rocket B. Muslims scientist C. Greek mathematicians D. Method of finding conics
17	The study conics, pappus used the method of:	A. analytic geometry Euclidean B. solid geometry C. Greek mathematicians D. None of these
18	The familiar plane curves, namely circle, ellipse, parabola and hyperbola are called:	A. cones B. conics C. nappes D. apex
19	If the cutting plane is parallel to the axis of the cone and intersects both of its nappes, then the curve of intersection is:	A. an ellipse B. a circle C. a parabola D. a hyperbola
20	The exact value of $\cos^{-1}(-1) + \cos^{-1}(1) =$	A. $\pi$ B. $-\pi$ C. $\pi/2$ D. $\pi/3$
21	The exact value of $\cos^{-1}(0)$ is	A. $\pi/2$ B. $-\pi/2$ C. $3\pi$ D. $\pi-\pi/6$
22	$\cos^{-1} \frac{12}{13} =$	A. $\tan^{-1} \frac{3}{5}$ B. $\cot^{-1} \frac{13}{12}$ C. $\sec^{-1} \frac{13}{12}$ D. $\sin^{-1} \frac{5}{13}$
23	$\cos^{-1}(\cos x) =$	A. $x$ B. $\cos x$ C. $x = 1/x$ D. $\cos^{-2} x$
24	$\cos^{-1}(x) =$	A. $\cos x$ B. $x$ C. $\tan^{-1}(-x)$ D. $\sec^{-1}(1/x)$
25	$\cos^{-1}(-x) =$	A. $-x$ B. $1/x$ C. $\tan^{-1} x$ D. $\pi - \cos^{-1} x$
26	If $\pi \leq x \leq 2\pi$ , then $\cos^{-1}(\cos x) =$	A. $\cos x$ B. $-x$ C. $1/x$ D. $-x$
27	If $\cos(2 \sin^{-1} x) = 1/9$ , then what is the value of $x$ ?	A. $1/3$ B. $-2/3$ C. $2/3$ D. $2/3, -2/3$
28	$\cos(\cos 4\pi/3) =$	A. $\pi/2$ B. $\pi/3$ C. $2\pi/3$ D. $-\pi/3$
29	The exact degree value of the function $\sin^{-1}(-\sqrt{3}/2)$ is	A. $70^\circ$ B. $50^\circ$ C. $90^\circ$ D. $60^\circ$
30	What is the value of $\cos(\cos^{-1} 2)$ ?	A. $\sqrt{2}$ B. $1/2$ C. undefined D. 0