

ECAT Pre Engineering Entry Test

Sr	Questions	Answers Choice
1	$f(x) = 3x^4 - 2x^2 + 7$ is:	A. an even function B. an odd function C. an even and implicit function D. neither even nor a odd
2	$f(x) = x^3 - x/x^2 + 1$ is :	A. an even function B. an odd function C. an even and implicit function D. neither even nor a odd
3	$\cos^2 x + \sin^2 x$	A. an even function B. an odd function C. an even and implicit function D. neither even nor a odd
4	$f(x) = x^3$ is:	A. an odd function B. an even function C. an implicit function D. a quadratic funtion
5	$f(x) = \sin x$ is:	A. an odd function B. an even function C. an implicit function D. an exponential function
6	A function f is said to be an even if $f(-x) =$	A. 0 B. 1 C. $f(x)$ D. $-f(x)$
7	$xy = 2$ is:	A. a constant function B. an identity function C. an improper function D. implicit function
8	A function of the form $p(x)/Q(x)$ is called:	A. Rational function B. Logarithmic function C. Exponential function D. Hyperbolic function
9	A function in which the variable appears as exponent is called:	A. An identity function B. A logarithmic function C. an exponential function D. A rational function
10	Express the perimeter P of square as a function of its area A?	A. $P = 4\sqrt{A}$ B. $P = \sqrt{A}$ C. $P = 2A$ D. $P = \pi\sqrt{A}$
11	if $f(x) = x^3 - 3x^2 + 5x - 1$, then $f(-\sqrt{2}) =$	A. $7 + 7\sqrt{2}$ B. $3 + 3\sqrt{2}$ C. $-7 - 7\sqrt{2}$ D. $-3 - 3\sqrt{2}$
12	If the function $y = 2x - 3$, what is the preimage of 11?	A. 11 B. 7 C. 5 D. 2
13	For $f(x) = x^2$, what is the value of $f(a) + f(-a)$ in terms of a?	A. $3a^2$ B. $2a^2$ C. $2a$ D. $-7a$
14	For $f(x) = x^2 + px + 1$, if $f(3) = 3$ then $P =$	A. $3/7$ B. $-2/5$ C. $-7/5$ D. $-7/3$
15	The largest possible domain of the function: $y = \sqrt{x}$ is:	A. $(0, \infty)$ B. 12 C. $(3, 12)$ D. $(3, \infty)$

16	What is range of the function $g(x) = x-3 $?	A. $[0, \infty)$ B. $(0, \infty)$ C. $(-\infty, 3]$ D. $[0, \infty)$
17	If x is an image of y under the function f . This can be written as	A. $y = f(x)$ B. $f(x) = 0$ C. $x = f(y)$ D. $f(y) = 0$
18	The value of x which is unchanged by the mapping in the function defined by $f: x \mapsto x^2 + 5x - 5$ for $x > 0$ is	A. 1 B. 5 C. -5 D. -1
19	Every relation, which can be represented by a linear equation in two variables, represents a	A. Relation B. Cartesian product C. Function D. Graph
20	_____ invented a symbolic way to write the statement " y is a function of x " as $y = f(x)$	A. Leibniz B. Newton C. Euler D. None of these
21	If the domain of the function $f: x \mapsto 2x^3 + 1$ is $\{-1, 2, 3\}$, the range of the function is	A. $\{3, 2, 5\}$ B. $\{1, 3, 9\}$ C. $\{-1, -2, -3\}$ D. $\{3, 9, 19\}$
22	The domain of the function $x/x^2 - 4$ is given by	A. $\mathbb{R}$ B. $\mathbb{R} + 2$ C. $\mathbb{R} - \{2, -2\}$ D. $\mathbb{R} - 4$
23	The domain the function $f(x) = x^2$ is given by	A. $\mathbb{R}$ B. Set of all non-negative Real numbers C. $\mathbb{R}^{>-1}$ D. None of these
24	In the function $f: A \rightarrow B$, the elements of A are called	A. Images B. Pre-images C. ranges D. Parameters
25	The domain of $y = \sqrt{x^2 - 9}$ is	A. $\mathbb{R}$ B. $(0, +\infty)$ C. $(-\infty, -3] \cup [3, +\infty)$ D. $(0, \infty)$
26	If a variable y depends on a variable x in such a way that each value of x determines exactly one value of y , then we say that	A. x is function of y B. y is a function of x C. y is independent variable D. x is real valued function
27	A function from A to B is denoted by	A. $f: A \rightarrow B$ B. $f: B \rightarrow A$ C. $f: \rightarrow A : B$ D. $f \rightarrow A \rightarrow B$
28	If the value of the sphere, $v = \frac{4}{3}\pi r^2$, then the which of the following statement is true?	A. r is the function of v B. v is the function of r C. π is independent variable D. None of these
29	If $\underline{u} = 2a\underline{i} + \underline{j} - \underline{k}$ and $\underline{v} = \underline{i} + a\underline{j} + 4\underline{k}$ are perpendicular then $a =$	A. 4 B. $1/2$ C. 3 D. $4/3$
30	The angle between the vectors $\underline{u} = 2\underline{i} - \underline{j} + \underline{k}$ and $\underline{v} = -\underline{j} + \underline{j}$ is:	A. $3\pi/2$ B. $2\pi/3$ C. $5\pi/6$ D. $\pi/3$