

Mathematics ECAT Pre Engineering Online Test

Sr	Questions	Answers Choice
1	The line l is horizontal if	A. m is undefined B. $m=0$ C. $m=1$ D. $m=0-1$
2	The coordinates of a point $P(x,y)$ referred to XY -system are	A. $(x+y,y+k)$ B. $(x-h,y-k)$ C. (x,y) D. $(x-h,y-k)$
3	The point of concurrency of the medians of the $\triangle ABC$ is called its	A. Orthocenter B. Centroid C. Circumcentre D. Incentre
4	If the lines $2x-3y-1=0$, $3x-y-5=0$ and $3x+py+8=0$ meet at a unique point then	A. $p = -14$ B. $p = -1$ C. $p = 0$ D. $p=12$
5	If the points $(a,2b):(c,a+b):(2c-a,h)$ lie on the same line then	A. $h=2a$ B. $h=a+b$ C. $h=ab$ D. $h=ac$
6	Area bounded between the curve $xy=2$ and the lines $x=1$ and $x=2$	A. $\ln 2$ square units B. $\ln \sqrt{2}$ square units C. $\ln 4$ square units D. Square units
7	The degree of differential equation is the power of the	A. Lowest order derivative B. Highest order derivative C. Integral D. All are correct
8	An equation containing at least one derivative of a depends variable with respect to independent variable is a (an)	A. Implicit equation B. Differential equation C. General equation D. None of these
9	The process of finding a function whose derivative is given is called a	A. Differentiation B. Integration C. Differential D. None
10	The set of all antiderivatives of $f(x)$ is the	A. Definite integral B. Indefinite integral C. Integral D. Area
11	The function $\phi(x)$ is an anti derivative of function $f(x)$, $x \in D$ if	A. $\phi'(x) = f(x)$ B. $\phi(x) = \int f(x) dx$ C. $\phi'(x) = f(x)$ D. $\phi(x) = \int f'(x) dx$
12	The number of arbitrary constants in the general solution of a differential equation is equal to the different equation	A. Order B. Degree C. Variables D. All are correct
13	The different of $\tan x$ is	A. $\sec^2 x$ B. $\ln \sec x $ C. $\sec^2 x dx$ D. $-\cos^2 x$
14	The approximate percentage increase in the volume of a cube if the length of its each edge changes from 5 to 5.02 is	A. 1.2% B. 1.5% C. 0.16% D. 100.16%
15	$\sqrt[3]{8.6}$ is approximately equal to	A. 2.488 B. 2.48 C. 2.0488 D. 2.05

16	The approximate increase in the area of a circular disc if its diameter increased from 44cm to 44.4cm is	A. 0.4cm B. 8.8π cm C. 17.6π cm D. 35.2π cm
17	$f(x)g(x) - \int g(x) f'(x) dx$ is equal to	A. $\int f(x)g'(x)dx$ B. $\int f'(x)g(x)dx$ C. $\int f'(x)g(x)'dx$ D. $\int f(x)g(x)dx$
18	The area bounded by $y = x(x^2 - 4)$ and below x - axis is	A. 4 B. 0 C. -4 D. 8
19	Archimedes approximate the function by horizontal function and the area under f by the sum of small	A. Parallelograms B. Squares C. Rectangles D. Polygons
20	If $y = 2x$, then	A. $y1 - \ln 2y = 0$ B. $y2 - (\ln 2)^2 y = 0$ C. $y2 - (\ln 2)y1 = 0$ D. All are correct
21	Two positive integers whose sum is 30 and their product will be maximum are	A. 12,18 B. 10,20 C. 15,15 D. 14,16
22	The velocity and acceleration at any point t of a particle which moves along straight line $x = 5t - 3$	A. 5,3 B. 5,-3 C. 5,0 D. 10,0
23	The distance of a moving particle at any instant t is $x = 3t^2 + 1$ then velocity of particle at t = 10 is	A. 50 cm/sec B. 60 cm/sec C. 61 cm/sec D. None of these
24	If $y = \sin(ax+b)$ then $y^4 =$ _____:	A. $\sin^4(ax+b)$ B. $a^4 \sin(ax+b)$ C. $a^4 \cos(ax+b)$ D. None of these
25	If $f(\sqrt{x}) = \sin x$, then $f'(x) =$ _____;	A. $2x \cos x^2$ B. $\cos x^2$ C. $\cos \sqrt{x}$ D. None of these
26	If $f(x) = x $, then (0,0) is the	A. Critical point B. Inflection point C. Stationary point D. None of these
27	If $f(x) = a_0 + a_1x + a_2x^2 + a_3x^3 + \dots + a_{n-1}x^{n-1} + a_nx^n$ then $f^{(n)}(x)$ is equal to	A. n! B. $a_n n!$ C. 0 D. a_n
28	If $y = e^{ax} \sin bx$ and $y^2 - 2ay + (a^2 + b^2)y = 0$ then for what values of a and b we have $y^2 + 10y + 34y = 0$	A. $a = -10, b = 34$ B. $a = -5, b = 3$ C. $a = 5, b = 3$ D. $a = 10, b = 34$
29	A stationary point x is a relative extrema of $y = f(x)$ is	A. $f''(x) > 0$ B. $f''(x) < 0$ C. $f''(x) \neq 0$ D. $f''(x) = 0$
30	The interval in which $f(x) = x^3 - 6x^2 + 9x$ is increasing	A. $1 < x < 3$ B. $x < 1$ and $x > 3$ C. $x \geq 1$ and $x \leq 3$ D. $-\infty < x < \infty$