Mathematics ECAT Pre Engineering Online Test

Sr	Questions	Answers Choice
1	∀x∈(a,b),f(x) is increasing if	A. f′(x) >0 B. f′(x) <0 C. f″(x) >0 D. f″(x) =0
2	(fog)′(x) =f′(g(x))g′(x) is derivative by	A. Chain rule B. Reciprocal rule C. Power rule D. Product rule
3	The range of function f(x)=-x2+2x-1 is	A. R B. (-∞,0] C. (-∞,1] D. [0,∞)
4	Inverse of the function y-10x is	A. y=logx B. y=lnx C. x=10y D. x=10y
5	If f(α) = b2 and g (c) =d where c=b2 then (gof)(a) is	A. α B. c C. b D. d
6	x = r2, y = 1 are the parametric equation of	A. Circle B. Hyperbola C. Ellipse D. Parabola
7	The set of points {(x,y)|y = f(x),∀x∈} is called	A. Relation B. Graph of f C. Function D. All are correct
8	If f (x) = 2x+1 then fof (x) = _____;	A. 4x+3 B. 2x +3 C. 4x +1 D. None of these
9	The function f(x) =|x| is a/an_____function	A. Even B. Odd C. Both even as well as odd D. Neither even nor odd
10	Domain of cosh x is	A. R B. R -{0} C. [1,∞) D. [0,∞)
11	The function discontinuous at x = 0 is (1) tan x (II) cot x (III) sec x (iv)cosec x)	A. I & III B. I & IV C. II & IV D. II & III
12	The curve f(x,y) = 0 has a central symmetry if	A. f(-x,-y)=f(x,y) B. f(x,-y)=f(x,y) C. f(-x,y)=f(x,y) D. f(-x,-y)≠f(x,y)
13	The only function which is both even and odd is	A. f(x) =α B. f(x) = x C. f(x) =0 D. Both A & B
14	The range of the function f : x→ y is defined by	A. {x| y = f (x) ∀x∈ X ∧y∈y} B. {(x,y) |y = f (x)∀x∈ X} C. {y|y = f (x) ∀x∈ X ∧y∈y} D. Y
15	An even function is symmetric about the line	A. y = x B. x = 0 C. y = -x D. y = 0

16	If a tangent line touches the function y = f (x) in more than one point then y = f (x) is	A. Periodic B. Surjective C. Bijective D. Injective
17	Composition of functions is	A. Non-commutative (fg ≠ gf) B. non-associative [8(fh) ≠(8f)h] C. Commutative (fg = gf) D. f of-1≠ 1
18	x = secθ,y = tanθ are the parametric equations of	A. Circle B. Hyperbola C. Ellipse D. parabola
19	The range of y=x2 + 1 is the set of non-negative real numbers except	A. 0≤ y < 1 B. 0 < y < 1 C. 0≤ y≤ 1 D. 0 < y≤1
20	The function f : x→ y defined as f (x) =α∀x∈ X,α∈ y is called	A. Constant function B. Polynomial function C. Identity function D. Linear function
21	f (x) = | x | is a/an	A. Injective function B. Bijective function C. Surjective function D. Implicit function
22	Point (2,0) lies on trigonometric function f(x)=_____;	A. sinx B. cosx C. tanx D. secx
23	The domain of y = cos-1 x is	A. -∞ < x < ∞ B. -1≤ x≤ 1 C. x≤ -1 or x ≥ 1 D. None of these
24	For any equilateral r :R :η :r1 :r2 :r3 =	A. 1:2:3:4:5 B. 1:2:3:3:3 C. 1:2:4:4:4 D. 2:1 :2 :2 :2
25	Area of inscribed circle is	A. π R2 B. π η2 C. π r22 D. π r2
26	In any triangle ABC,with usual notationαsinβ =____;	A. b sinα B. bsinβ C. αsinα D. None of these
27	The law of cosines reduces to a2 +c2 =b2 for	A. α = 90° B. β = 90° C. γ = 90° D. α +β +γ =180°
28	e-radii are denoted by	A. η B. r2 C. r3 D. All of these
29	In-radius is denoted by	A. r B. η C. r2 D. R
30	A circle which touches one side of a triangle extermally and the other two sides produced is called	A. In-circle B. Circumcircle C. e-circle D. Point circle