NTS Educators ESE (Science) Jobs Test

Sr	Questions	Answers Choice
1	If ab > 0 and a < 0, which of the following is negative?	A. b B. -b C. -a D. (a - b)²
2	If x < y, 2x = A and 2y = B then	A. A =B B. A < B C. A< X D. B < y
3	If a line passes through origin then the equation of the line is	A. y = m/x B. y = mx C. x = my D. None
4	The angle a (0° < a< 180°) measured counterclockwise from positive x-axis to a non-horizontal straight line / is called the	A. Rotation B. Inclination C. Radian D. None
5	The center of a circle of radius 10 is on the origin which of the following points lies with in the circle	A. (10,0) B. (8,8) C. (8,4) D. (0,10)
6	If $k_1 : k_2 = 1:1$ then the point P dividing the line is	A. Mid point B. Extreme left point C. Extreme Right point D. Plies out side k₁ and k₂
7	If the diagonal of a square has coordinates (1,2) and(5,6) the length of a side is	A. 3 B. 4 C. 1 D. 5
8	Which of the following is the equation of a line with slope 0 and passing through the point (4,3)	A. X =4 B. X = -4 C. Y = 3 D. Y = -6
9	The curves $y = x^2$, y= x interest at	A. (0,0) ,(1,1) B. (2,4) C. (0,),(2,4) D. (0,3),(-1,1)
10	The equation of the line with gradient 1 passing through the point (h,k) is	A. Y = x+ k-h B. Y = k/hx +1 C. Y = x + h -l D. Ky = hx =1
11	The line joining (1,3) to (a,b) has unit gradient then	A. a-b =-2 B. a+b = 0 C. A-b =5 D. 2a + 3b =1
12	The gradient of the line joining (1,4) and (-2,5) is	A. 3/8 B. -2 2/3 C. -1/3 D. 2
13	The mid point of the line joining (=1,-3) to(3,-5) is	A. (1, 1) B. (1,-1) C. (2, -8) D. (1, -4)
14	The point (-5,3) is the center of a circle and P(7,-2) lies on the circle the radius of the circle is	A. 2 B. 13 C. 7 D. 8
15	The general solution of the differential equation dy/dx = log x is	A. Y = -x log x- x +c B. Y = x log x + x² C. Y = x log x -x +c

		D. Y= 2x log x + 2x +c
16	∫cot (ax + b) dx =	A. 1/a log |sin (ax + b)| +c B. 1/a log |cos ax + b) C. 1/b |sin (ax + b)| D. 1/a log |sin (bx + a)|
17	∫sec (ax + b) tan(ax + b) dx=_____	A. sec(ax + b)/a B. sec² (ax + b)/2 C. sec(ax + b)/x D. 1/2
18	If f_1 (x) and f_2 (x) are any two anti derivatives of a function F (x) then the value of f_1 (x) = f_2 (x)	A. A variable B. A constant C. Undefined D. Infinity
19	d/dx ∫x^1 dx =_____.	A. 1/4 x⁴ B. X³ C. 3x³ D. x⁴/4
20	∫1/ax +b dx =	A. 1/a log |ax + b| +c B. Log |ax + b| +c C. 1/b log |ax +b| +c D. 1/x log |ax + b| +c
21	If y = sin(ax + b) then fourth derivative of y with respect to x=	A. a⁴ cos (ax + b) B. a⁴ sin (ax + b) C. -a⁴ sin(ax +b) D. a4 tan (ax + b)
22	Any point where f is neither increasing nor decreasing and f(x) =0 at that point is called a	A. Minimum B. Maximum C. Stationary point D. Constant
23	Derivative of strictly increasing function is always	A. Zero B. Positive C. Negative D. Both A and B
24	Second derivative of y = x^9 + 10x^2 + 2x -1 at x = 0 is	A. 10 B. 20 C. 12 D. 1
25	d/dx [cos x^2] =_____	A. -2x cos x² B. -2x² sin x² C. x² sin x D. -2x² sin x²
26	If y = $(ax)^m$ + b^m, then dy/dx equals	A. m (ax) ^m x^{m-1} B. ma^m x^{m-1} C. m a^m x^{m-1} D. m a^m x^{m-2}
27	d/dx (3y^4) =	A. 12y³ dy/dx B. 8y³ C. 8y³ dy/dx D. 12y³
28	d/dx (√x) =	A. 2√x B. 1/√x C. 1/2√x D. None of these
29	d/dx a^x is	A. xa^{x-1} B. a^x C. x in a D. a^x in a
30	If x^2 +y^2 = 4, Then dy/dx =	A. 2x +2y B. 4 -x² C. -x/y D. y/x