

NAT I Engineering Mathematics

Sr	Questions	Answers Choice
1	If $\theta = 60^\circ$ then	A. $\sin \theta = 1/2$ B. $\tan \theta = \cot 30^\circ$ C. $\theta = \pi/4$ D. $\sec \theta = 4$
2	The general solution of the differential equation $dy/dx = \log x$ is	A. $Y = -x \log x - x + c$ B. $Y = x \log x + x^2 + c$ C. $Y = x \log x - x + c$ D. $Y = 2x \log x + 2x + c$
3	If $y = \sin(ax + b)$ then fourth derivative of y with respect to $x =$	A. $a^4 \cos(ax + b)$ B. $a^4 \sin(ax + b)$ C. $-a^4 \sin(ax + b)$ D. $a^4 \tan(ax + b)$
4	$F(x) = x^x$ decreases in the interval	A. $(0, e)$ B. $(0, 1)$ C. $(-\infty, 0)$ D. None
5	Graph of the equation $x^2 + y^2 = 4$ is	A. a circle B. an ellipse C. a parabola D. A square
6	The average of first 100 integers is =	A. $50 \frac{1}{2}$ B. $25 \frac{1}{4}$ C. 100 D. 5050
7	The equation of the normal to the circle $x^2 + y^2 = 25$ at $(4, 3)$ is	A. $3x - 4y = 0$ B. $3x - 4y = 5$ C. $4x + 3y = 5$ D. $4x - 3y = 25$
8	Which of the following is the solution of $\cot^2 x = 1/\sqrt{3}$	A. $\pi/5$ B. $\pi/3$ C. $\pi/7$ D. $\pi/9$
9	Write the first four term of the arithmetic sequence if $a_1 = 5$ and other three consecutive terms are 23, 26, 29	A. 18 years B. 36 years C. 8 years D. 16 years
10	The equation of two polynomials $P(x)/Q(x)$ where $Q(x) \neq 0$ with no common factor is called	A. 12 B. 1 C. 10 D. -10
11	120° degrees are equal to how many radians?	A. $\pi/3$ radians B. $2\pi/3$ radians C. $\pi/4$ radians D. $\pi/2$ radians
12	Which is an explicit function	A. $y = x^2 + 2x - 1$ B. $x^2 + xy + y^2 = 2$ C. $xy^2 - y + 9/xy = 1$ D. All are
13	$\cos^{-1}(-x) =$ _____.	A. $\pi + \cos^{-1} x$ B. $\pi - \sin^{-1} x$ C. $\pi + \sin^{-1} x$ D. $\pi - \cos^{-1} x$
14	The two consecutive positive integers whose product is 56 are	A. 7, 8 B. 14, 4 C. 28, 2 D. 56, 1
15	The set $\{ \{a, b\} \}$ is	A. $\{X \in A \wedge x \in U\}$ B. $\{X \notin A \wedge x \in U\}$ C. $\{X \in A \text{ and } x \notin U\}$ D. $\{X \in A \wedge x \in U\}$

16	The conic is a parabola if	A. $e < 1$ B. $e > 1$ C. $e = 1$ D. $e = 0$
17	The parametric equation of a curve are $x = t^2$, $y = t^2$ then	A. $\frac{dy}{dx} = \frac{3t}{2}$ B. $\frac{dy}{dx} = t^5$ C. $\frac{dy}{dx} = 5t^4$ D. None
18	The nth term of A.P: 1, 5, 9, 13, is given by	A. $4n - 3$ B. $4n + 1$ C. $3n - 4$ D. $4n + 3$
19	How many elements are in the sample space of two rolling dies	A. 6 B. 12 C. 18 D. 36
20	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
