

## NAT I Engineering Mathematics

Sr	Questions	Answers Choice
1	If the sum of the roots of $(a + 1)x^2 + (2a + 3)x + (3a + 4) = 0$ is -1, then product of the roots is	<p>A. Commutative law w.r.t multiplication</p> <p>B. Associative law w.r.t addition</p> <p>C. Distributive law w.r.t addition</p> <p>D. Multiplication of a scalar with the matrix</p>
2	If $f(x) = x^3 - 2x^2 + 4x - 1$ , then $f(-2) = ?$	<p>A. 0</p> <p>B. -25</p> <p>C. 5</p> <p>D. 45</p>
3	The multiplicative inverse of $x$ such that $x = 0$ is	<p>A. -x</p> <p>B. does not exist</p> <p>C. <math>1/x</math></p> <p>D. 0</p>
4	Two matrices A and B are conformable for multiplication (AB) if and only if	<p>A. Addition</p> <p>B. Multiplication</p> <p>C. Division</p> <p>D. Subtraction</p>
5	$\tan^{-1} 1/x = \underline{\hspace{2cm}}$	<p>A. <math>\sin x</math></p> <p>B. <math>\sec^{-1} X</math></p> <p>C. <math>\cot^{-1} X</math></p> <p>D. <math>\sin x / \cos x</math></p>
6	What is the period of $\cot x$ ?	<p>A. <math>2\pi</math></p> <p>B. <math>\pi</math></p> <p>C. <math>\pi/2</math></p> <p>D. <math>4\pi</math></p>
7	Given eight points in a plane no three of which are collinear how many lines do the points determine?	<p>A. 16</p> <p>B. 64</p> <p>C. 28</p> <p>D. 36</p>
8	Area of $\Delta ABC =$	<p>A. <math>ab \sin \alpha</math></p> <p>B. <math>1/2 ab \sin \alpha</math></p> <p>C. <math>1/2 ac \sin \alpha</math></p> <p>D. <math>1/2 ac \sin \beta</math></p>
9	If $Z = (1, 2)$ . then $Z^{-1} = ?$	<p>A. (0.2, 0.4)</p> <p>B. (-0.2, 0.4)</p> <p>C. (0.2, -0.4)</p> <p>D. (-0.2, -0.4)</p>
10	$\cos 315^\circ =$	<p>A. 0.707</p> <p>B. 0.5</p> <p>C. 1</p> <p>D. 0</p>
11	The total cost of 2 apples and 3 oranges is \$1.70, which of the following is true	<p>A. The cost of one apple</p> <p>B. The cost of one orange</p> <p>C. Both have equal cost per item</p> <p>D. Cost of each single item can not be determined</p>
12	$\text{ArcCot } \sqrt{3} = ?$	<p>A. <math>\pi/2</math></p> <p>B. <math>\pi</math></p> <p>C. <math>2\pi</math></p> <p>D. <math>\pi/6</math></p>
13	The gradient of the line joining (1,4) and (-2,5) is	<p>A. <math>3/8</math></p> <p>B. <math>-2/3</math></p> <p>C. <math>-1/3</math></p> <p>D. 2</p>
14	$r + 3 > 5$ then which is true	<p>A. <math>r + 2 &gt; 4</math></p> <p>B. <math>r + 2 &lt; 4</math></p> <p>C. <math>r + 2 = 4</math></p> <p>D. None</p>
		A. -7 + 2i

15	What is the conjugate of $-7 - 2i$ ?	B. $7 + 2i$ C. $7 - 2i$ D. $\sqrt{53}$
16	Which of the following is not defined?	A. $\text{Arcsin } 1/9$ B. $\text{ArcCos } (-4/3)$ C. $\text{Arctan } 11/12$ D. $\text{Arccot } (-4)$
17	An angle $\theta$ is such that $\tan \theta = 1$ and $\cos \theta$ is negative then	A. $\sin \theta$ is positive B. $\cos \theta = \sqrt{2}/4$ C. $\cos \theta = -1$ D. $\sec \theta$ is negative
18	The graph of a quadratic function is	A. Circle B. Ellipse C. Parabola D. Hexagon
19	If $A = [a_{ij}]$ and $b = [b_{ij}]$ are the matrices of the order $3 \times 3$ then $A - B =$	A. Circle B. Ellipse C. Parabola D. Hexagon
20	$\sin x + \cos x = 1$ $x =$	A. $\pi$ B. $\pi/2$ C. $\pi/3$ D. $\pi/4$