

NAT I Engineering Mathematics

Sr	Questions	Answers Choice
1	The total cost of 2 apples and 3 oranges is \$1.70, which of the following is true	A. The cost of one apple B. The cost of one orange C. Both have equal cost per item D. Cost of each single item can not be determined
2	The angle α ($0^\circ < \alpha < 180^\circ$) measured counterclockwise from positive x-axis to a non-horizontal straight line l is called the	A. Rotation B. Inclination C. Radian D. None
3	If $\cos \theta = 0$, Then $\theta =$	A. $n\pi/2$ B. $(2n + 1)\pi/2$ C. $(2n - 1)\pi/2$ D. $(n \pm 1)\pi/2$
4	$\sec^{-1} x =$	A. $\cos^{-1} 1/x$ B. $\operatorname{cosec}^{-1} 1/x$ C. $\cos^{-1} (-x)$ D. $\tan^{-1} x$
5	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	A. Commutative law w.r.t multiplication B. Associative law w.r.t addition C. Distributive law w.r.t addition D. Multiplication of a scalar with the matrix
6	The parametric equation of a curve are $x = t^2$, $y = t^2$ then	A. $dy/dx = 3t/2$ B. $dy/dx = t^5$ C. $dy/dx = 5t^4$ D. None
7	$\sqrt{23}$ is	A. A rational number B. A irrational number C. An even integer D. A factor of 36
8	$d/dx [x^4] dx =$ _____.	A. $1/4 x^4$ B. x^3 C. $3x^3$ D. $x^4/4$
9	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
10	The sum of the interior angles for a 16 sided polygon is	A. 0 B. ω C. 1 D. $1 \text{ / \ } \omega$
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	If $C_r^n, P_r^n = 24:1$ then $r = ?$	A. 1 B. 2 C. 3 D. 4
13	The number of ways in which we can courier 5 packets to 10 cities is	A. 2×5^0 B. 5^{10} C. 10^5 D. 2^{10}
14	$P(x) = 2x^4 - 3x^3 + 2x - 1$ is polynomial of degree	A. 1 B. 2 C. 3 D. 4
15	If A and B are matrices such that $AB=BA=I$ then	A. A and B are multiplicative inverse of each other B. A and B are additive inverses of

15	If A and B are matrices such that $AB = BA$, then	<p>each other</p> <p>C. A and B are singular matrices</p> <p>D. A and B are equal</p>
16	$\frac{1}{x^2} - 1 = ?$ (in case of making partial fraction)	<p>A. $\frac{A}{x} + \frac{B}{x-1}$</p> <p>B. $\frac{A}{x} + \frac{B}{x-1}$</p> <p>C. $\frac{A}{x+1} + \frac{B}{x-1}$</p> <p>D. None</p>
17	If the order of A is $n \times m$. Then order of kA is	<p>A. Forms a group</p> <p>B. Does not form a group</p> <p>C. Contains no additive identity</p> <p>D. Contains no additive inverse</p>
18	In general matrices do not satisfy	<p>A. Not a group</p> <p>B. A group w.r.t. subtraction</p> <p>C. A group w.r.t. division</p> <p>D. A group w.r.t. multiplication</p>
19	If $y = (ax)^m + b^m$, then dy/dx equals	<p>A. $m(ax)^{m-1} \cdot x^{m-1}$</p> <p>B. $ma^{m-1} \cdot x^{m-1}$</p> <p>C. $m a^{m-1} \cdot x^{m-1}$</p> <p>D. $m a^{m-1} \cdot x^{m-2}$</p>
20	The degree of the polynomial $2x^4 + 3x^2 + 16x + 28 = x^4 + 2x^2$ is	<p>A. $[a_{ij} - b_{ji}]$</p> <p>B. $[a_{ij} - b_{ij}]$</p> <p>C. $[a_{ij} - b_{ij}]$</p> <p>D. $[a_{ij}] - [b_{ij}]$</p>