

ECAT Pre General Science Mathematics Online Test

Sr	Questions	Answers Choice
1	If α, β are non-real roots of $ax^2 + bx + c = 0$ ($a, b, c \in \mathbb{Q}$), then	A. $\alpha = \beta$ B. $\alpha\beta = 1$ C. $\alpha = \beta$ D. $\alpha = 1$
2	Only one of the root of $ax^2 + bx + c = 0$, $a \neq 0$ is zero if	A. $c = 0$ B. $c = 0, b \neq 0$ C. $b = 0, c = 0$ D. $b = 0, c \neq 0$
3	The condition for polynomial equation $ax^2 + bx + c = 0$ to be quadratic is	A. $a \geq 0$ B. $a \leq 0$ C. $a \neq 0$ D. $a \neq 0, b \neq 0$
4	The order of the matrix A is 3×5 and that of B is 2×3 . The order of the matrix BA is	A. 2×3 B. 3×2 C. 2×5 D. 5×2
5	If for the matrix A, $A^5 = I$, then $A^{-1} =$	A. A^2 B. A^3 C. A D. None of above
6	For a square matrix A, if $A = A^t$, then A is called	A. Matrix B. Transpose C. Symmetric D. Non-symmetric
7	If $A = [a_{ij}]$ is $(m \times n)$ matrix then transpose of A is of the order	A. $m \times m$ B. $m \times n$ C. $n \times n$ D. $n \times m$
8	We solve the system of non-homogeneous linear equations by	A. a and b B. b and c C. c and a D. a, b and c
9	Trivial solution of homogeneous linear equation is	A. $(0, 0, 0)$ B. $(1, 2, 3)$ C. $(1, 3, 5)$ D. a, b and c
10	For non-trivial solution $ A $ is	A. non zero B. $A = 0$ C. $ A = 0$ D. $A^t = 0$
11	For trivial solution $ A $ is	A. A B. $ A = 0$ C. $A = 0$ D. $ A \neq 0$
12	System of linear equation is inconsistent if	A. System has no solution B. System has one solution C. System has two solution D. None of above
13	An equation of the form $ax + by = k$ is homogeneous linear equation when	A. $b = 0, a = 0$ B. $a = 0, b \neq 0$ C. $b = -0, a \neq 0$ D. $a \neq 0, b \neq 0, k = 0$
14	The matrix A is Hermitian when $(A)^t =$	A. A B. -A C. A D. A^t
15	The square matrix A is skew Hermitian when $(A)^t =$	A. A B. A^t C. -A D. A

16	The square matrix A is skew-symmetric when $A^t =$	A. $-B$ B. $-C$ C. $-A$ D. $-D$
17	A square matrix $A = [a_{ij}]$ is upper triangular when	A. $c_{ij} = 0$ B. $b_{ij} = 0$ C. $a_{ij} = 0$ for all $i > j$ D. $d_{ij} = 0$
18	A square matrix $A = [a_{ij}]$ is lower triangular matrix when	A. $a_{ij} = 0$ for all $i < j$ B. $b_{ij} = 0$ C. $c_{ij} = 0$ D. $d_{ij} = 0$
19	Cofactor of an element a_{ij} denoted by A_{ij} is	A. $(-2)^{i+j}$ B. M_{ij} C. $(-1)^{i+j} M_{ij}$ D. None of above
20	Matrices $A = [a_{ij}]$ 2×3 and $B = [b_{ij}]$ 3×2 are suitable for	A. BA B. A^2 C. AB D. B^2
21	A and B be two square matrices and if their inverse exist the $(AB)^{-1} =$	A. $A^{-1} B^{-1}$ B. AB^{-1} C. $A^{-1}B$ D. $B^{-1}A^{-1}$
22	If A and B are two matrices such that $AB = B$ and $BA = A$ then $A^2 + B^2 =$	A. $2 AB$ B. $2 BA$ C. $A + B$ D. AB
23	If A is a skew-symmetric matrix of order n and P, any square matrix of order n. prove that $P'AP$ is	A. Skew-symmetric B. Symmetric C. Null D. Diagonal
24	$(ABC)' =$	A. CBA' B. CBA C. $C'B'A$ D. $C'B'A'$
25	The set $(\mathbb{Z}, +)$ forms a group	A. Forms a group w.r.t addition B. Forms a group w.r.t multiplication C. Non commutative group w.r.t multiplication D. Doesn't form a group
26	Power set of X i.e $P(X)$under the binary operation of union \cup	A. Forms a group B. Does not form a group C. Has no identity element D. Infinite set although X is infinite
27	The set $\{\mathbb{Z} \setminus \{0\}\}$ is group w.r.t	A. Addition B. Multiplication C. Division D. Subtraction
28	The set \mathbb{R} isw.r.t subtraction	A. Not a group B. A group C. No conclusion drawn D. Non commutative group
29	The set $\{1, -1, i, -i\}$	A. Form a group w.r.t addition B. Form a group w.r.t multiplication C. Does not form a group w.r.t multiplication D. Not closed under multiplication
30	The set of complex numbers forms	A. Commutative group w.r.t addition B. Commutative group w.r.t multiplication C. Commutative group w.r.t division D. Non commutative group w.r.t addition