Mathematics ECAT Pre Engineering Online Test

Sr	Questions	Answers Choice
1	The roots of $(x - a)(x - b) = ab$ $x2$ are always	A. Real B. Depends upon a C. Depends upon b D. Depends upon a and b
2	If α,β are non-real roots of $ax2 + bx +c =0$ $(a,b,c \in Q)$,then	A. $\alpha = \beta$ B. $\alpha\beta = 1$ C. $\alpha = \beta$ D. $\alpha = 1$
3	Only one of the root of $ax2 + bx + c =0$, $a \neq 0$ is zero if	A. $c = 0$ B. $c = 0, b \neq 0$ C. $b = 0, c = 0$ D. $b = 0, c \neq 0$
4	The condition for polynomial equation $ax2 + bx + c = 0$ to be quadratic is	A. $a > 0$ B. $a < 0$ C. $a \neq 0$ D. $a \neq 0, b \neq 0$
5	The order of the matrix A is 3 x 5 and that of B is 2 x 3. The order of the matrix BA is	A. 2 x 3 B. 3 x 2 C. 2 x 5 D. 5 x 2
6	If for the matrix A, $A5 = 1$, then $A-1 =$	A. $A2$ B. $A3$ C. A D. None of above
7	For a square matrix A, if $A = At$, then A is called	A. Matrix B. Transpose C. Symmetric D. Non-symmetric
8	If $A = |aij|$ is (m x n) matrix then transpose of A is of the order	A. m x m B. m x n C. n x n D. n x m
9	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
10	Trival solution of homogeneous linear equation is	A. (0, 0, 0) B. (1, 2, 3) C. (1, 3, 5) D. a.b and c
11	For non-trival solution $|A|$ is	A. non zero B. $A = 0$ C. $|A| = 0$ D. $At = 0$
12	For trival solution $|A|$ is	A. A B. $|A| = 0$ C. $A = 0$ D. $|A| \neq 0$
13	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
14	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. $a \neq 0, b \neq 0, k = 0$
15	The matrix A is Hermitian when $(A)' =$	A. A B. -A C. A D. A'

16	The square matrix A is skew Hermitian when (A)'=	A. A B. A' C. -A D. A
17	The square matrix A is skew-symmetric when At =	A. -B B. -C C. -A D. -D
18	A square matrix A = [aij] is upper triangular when	A. cij = 0 B. bij = 0 C. aij = 0 for all i > j D. dij = 0
19	A square matrix A = [aij] is lower triangular matrix when	A. aij = 0 for all i<j B. bij = 0 C. cij = 0 D. dij = 0
20	Cofactor of an element aij denoted by Aij is	A. (-2)i+j B. Mij C. (-1)i+j Mij D. None of above
21	Matrices A = [aij] 2 x 3 and B = [bij] 3 x 2 are suitable for	A. BA B. A2 C. AB D. B2
22	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-1B D. B-1A-1
23	If A and B are two matrices such that AB = B and BA = A then A2 + B2 =	A. 2 AB B. 2 BA C. A + B D. AB
24	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
25	(ABC)' =	A. CBA' B. CBA C. C'B'A D. C'B'A'
26	The set (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
27	Power set of X i.e P(X)..........under the binary operation of union U	A. Forms a group B. Does not form a group C. Has no identity element D. Infinite set although X is infinite
28	The set {Z\ {0} } is group w.r.t	A. Addition B. Multiplication C. Division D. Subtraction
29	The set R is ....w.r.t subtraction	A. Not a group B. A group C. No conclusion drawn D. Non commutative group
30	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