GAT Subject Mathematics Mathematics

Sr	Questions	Answers Choice
1	The number of diagonals of a six sided figure are	A. 9 B. 6 C. 12 D. 3
2	If C^n_r, P^n_r = 24:1 then r = ?	A. 1 B. 2 C. 3 D. 4
3	A die is thrown what is the probability that there is a prime number on the top?	A. 1/2 B. 1/3 C. 1/6 D. 2/3
4	If A and B are two events then $P(A \cup B)$ =? (when A and B are disjoint)	A. P(A) - P(B) B. P(A) x P(B) C. P(A) + P(B) D. P(A) + P(B) -P(A∩B)
5	Two dice are rolled The number of possible out come in which at least one die shows 2 is?	A. 5 B. 12 C. 11 D. 7
6	The number of ways in which we can courier 5 packets to 10 cities is	A. 2×5° B. 5^{10} C. 10^5 D. 2^{10}
7	The average of first 100 integers is=	A. 50 1/2 B. 25 1/4 C. 100 D. 5050
8	Sum of integers starting from to n is	A. n(n+1)/4 B. n(n+1)/6 C. n(n+1)/2 D. n(n-1)/2
9	The fifth term of the sequence a_n = 3n - 2 is	A. 3 B. -3 C. 13 D. -13
10	A sequence of numbers whose reciprocals forms an arithmetic sequence is called	A. Harmonic series B. Arithmetic series C. Harmonic sequence D. Geometric sequence
11	Find the geometric mean between 4 and 16	A. 7, 8 B. 14, 4 C. 28, 2 D. 56, 1
12	The common difference of the sequence 7,4,1......is	A. 1 B. -3 C. 5 D. 0
13	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
14	The difference of two consecutive terms of an A.P is called	A. Zero B. One C. Four D. Infinite
15	The sum of the interior angles for a 16 sided polygon is	A. 0 B. ω C. 1 D. 1 / ω

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16	If a and b are any two distinct negative real numbers and G-ab where A.G.H represent arithmetic geometric and harmonic means then	A. 1 B. ω^2 C. ω D. 0
17	The sum of the series 1+5+9+13+17+21+25+29 is:	A. 10 cm B. 20 cm C. 30 cm D. 40 cm
18	The nth term in G.P 3,-6,12,............ is	A. 25, 20 B. 20, 10 C. 20, 5 D. 15, 10
19	If the 9th tern of A.P is 8 and the 4th term is 20. then the first term is	A. 1 B. 2 C. -2 D. -1
20	The nth term of A,P:1,5,9,15...........is given by	A. 4n - 3 B. 4n + 1 C. 3n -4 D. 4n +3
21	The equation of two polynomials P(x)/Q(x) where Q(x) ≠ 0 with no common factor is called	A. 12 B. 1 C. 10 D. -10
22	Partial fraction of $1/x^3$-1 will be of the form	A. Conjugate pair B. ordered pair C. reciprocal pair D. quadratic function
23	A relation in which the equality is true only for some values of the unknown variable is called	A. An identity B. An equation C. A polynomial D. Inverse function
24	A fraction in which the degree of the numerator is less than the degree of the denominator is called	A. 1-i $\sqrt{-3}$ / 2 B. -1+i $\sqrt{-3}$ / 2i C. -1+i $\sqrt{3}$ / 2 D. 1+i $\sqrt{3}$ / 2
25	$1/x^2$ -1 = ? (in case of making partial fraction)	A. Ax +B/x^2 -1 B. A/x + B/ x- 1 C. A/ x+1 + B/x-1 D. None
26	x^2 +2x -25 = 0 is	A. 1 B. 2 C. 3 D. 4
27	$(x+2)^2 = x^2$ +4x +4 is	A. 1 B. 2 C. 3 D. 4
28	x-1/(x+2)(x-2) =	A. 4/3(x-4) -1/3(x-1) B. 3/4(x+2) + 1/4(x-2) C. 2/3(x-2) - 4/3(x+2) D. 3/x - 2/x+1
29	2/(x+1)(x-1) = A/x+1 + B/x-1 corresponds to	A. α = b/a and β = ca B. α = a/b and β = -c/a C. α^2 + β^2 = 1 D. α = -b/a and β= c/a
30	Which is a proper rational fraction	A. 3x - 7/x^2 +4 B. 2x^2 - 5/x^2 + 4 C. 3x^4/2x^2 - 15 D. All are proper rational fraction
31	The two consecutive positive integers whose product is 56 are	A. 7, 8 B. 14, 4 C. 28, 2 D. 56, 1
32	The sum of the ages of Nazish and his son is 56 years. Eight years ago. Nazish was 3 time as old as his son. How old is the son now?	A. m = n B. m ≠ n C. mn = 1 D. mn = 0

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33	The number of real roots in cube roots of 8 is ?	A. n x m B. m x n C. km x n D. m x kn
34	ω^n = ?, when n = 3k	A. 0 B. ω C. 1 D. 1 / ω
35	ω^{88} = ?	A. A and B are multiplicative inverse of each other B. A and B are additive inverses of each other C. A and B are singular matrices D. A and B are equal
36	The length of rectangle is twice as much as its breadth. If the perimeter is 120 cm, the length of the rectangle is	A. Same as the original determinant B. Additive inverse of the original determinant C. Both A and B D. Adj of the original matrix
37	Two natural numbers whose sum is 25 and difference is 5, are	A. 25, 20 B. 20, 10 C. 20, 5 D. 15, 10
38	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
39	The value of the polynomial $3x^3 + 4x^2 - 5x + 4$ at x = -1 is	A. $A^2 + B^2$ B. $A^2 + B^2 + 2AB$ C. A + B D. $A^2 + B^2 + AB+BA$
40	Complex roots of real quadratic equation occur in	A. Nilpotent matrix B. Singular matrix C. Non singular matrix D. Diagonal matrix
41	The cube roots of unity ω = ------------------------	A. $1-i\ \sqrt{-3} / 2$ B. $-1+i\ \sqrt{-3} / 2i$ C. $-1+i\ \sqrt{3} / 2$ D. $1+i\ \sqrt{3} / 2$
42	One of the roots of the equation $2x^2 + 3x + n = 0$ is the reciprocal of the other, then n = -------------------	A. Both A,B have the same number of columns B. Both A,B do not have the same order C. Number of col A is same as number of rows of B D. Number of rows of A is same as number of col of B
43	The degree of the polynomial $2x^4 + 3x^2 + 16x + 28 = x^4 + 2x^2$ is	A. $[a_{ij} - b_{ji}]$ B. $[a_{ij} - b_{ij}]$ C. $[a_{ij} - b_{ij}]$ D. $[a_{ij}] - [b_{ij}]$
44	If α and β be irrational roots of a quadratic equation, then	A. $\alpha = b/a$ and $\beta = ca$ B. $\alpha = a/b$ and $\beta = -c/a$ C. $\alpha^2 + \beta^2 = 1$ D. $\alpha = -b/a$ and $\beta = c/a$
45	An m x n matrix is said to be rectangular if	A. Forms a group w.r.t. addition B. Non commutative group w.r.t. multiplication C. Forms a group w.r.t. multiplication D. Doesn't form a group
46	If the order of A is n x m. Then order of kA is	A. Forms a group B. Does not form a group C. Contains no additive identity D. Contains no additive inverse
47	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 each other C. A and B are singular matrices

48	If any two rows (or any two columns) of a square matrix are inter changed, the determinant of the resultant matrix is	A. True B. False C. Fallacious D. Some times true
49	In general matrices do not satisfy	A. Not a group B. A group w.r.t. subtraction C. A group w.r.t. division D. A group w.r.t. multiplication
50	If A and B are matrices of same order than (A + B)(A + B)=	A. addition B. multiplication C. subtraction D. None
51	If |A| ≠ 0 then A is called	A. 1 B. -1 C. ±1 D. 0
52	Two matrices A and B are conformable for multiplication (AB) if and only if	A. Addition B. Multiplication C. Division D. Subtraction
53	If A = [a_{ij}] and b = [b_{ij}] are the matrices of the order 3x3 then A-B=	A. Circle B. Ellipse C. Parabola D. Hexagon
54	The set (Z, +) forms a group	A. Function on B B. Range C. Domain D. A into B
55	The set (Q, .)	A. Infinite set B. Singleton set C. Two points set D. None
56	The statement that a group can have more than one identity elements is	A. True B. False C. Fallacious D. Some times true
57	The set of all positive even integers is	A. Φ B. {1,2,3} C. {Φ} D. {0}
58	The set {1, -1, i, -i}, form a group under	A. addition B. multiplication C. subtraction D. None
59	The multiplicative inverse of -1 in the set {1-,1} is	A. 40 B. 30 C. 50 D. 20
60	The set of complex numbers forms a group under the binary operation of	A. 0 B. ±1 C. 1 D. {0,1}
61	The graph of a quadratic function is	A. Circle B. Ellipse C. Parabola D. Hexagon
62	The set of the first elements of the ordered pairs forming a relation is called its	A. -x B. does not exist C. 1/x D. 0
63	The set { {a,b} } is	A. {X/X∈ A∧x ∈ U} B. {X/X∉ A∧x ∈ U} C. {X/X∈ A and x ∉ U} D. A-U
64	Which of the following is the subset of all sets ?	A. A ≠ C B. B = C C. A = B D. A ≠ B
	In a school, there are 150 students. Out of these 80 students enrolled for mathematics	A. 40

65	class, 50 enrolled for English class, and 60 enrolled for Physics class. The student enrolled for English cannot attend any other class, but the students of mathematics and Physics can take two courses at a time. Find the number of students who have taken both physics and mathematics.	A. 40 B. 30 C. 50 D. 20
66	Multiplicative inverse of "1" is	A. 4 B. 3 C. 2 D. 1
67	The multiplicative inverse of x such that x = 0 is	A. -x B. does not exist C. 1/x D. 0
68	The complement of set A relative to universal set U is the set	A. X B. X C. φ D. Universal set
69	Let A, B, and C be any sets such that A∪B=A∪C and A∩B=A∩C then	A. A ≠ C B. B = C C. A = B D. A ≠ B
70	Given X, Y are any two sets such that number of elements in X=28, number of elements in set Y=28, and number of elements in set X∪Y=54, then number of elements in set X∩Y=	A. -7 + 2i B. 7 + 2i C. 7-2i D. √53