NAT I Engineering Mathematics

Sr	Questions	Answers Choice
1	0 (zero) is	A. A irrational number B. A rational number C. A negative integer D. A positive number
2	6 is	A. A prime integer B. An irrational number C. A rational number D. A odd integer
3	√23 is	A. A rational number B. A irrational number C. An even integer D. A factor of 36
4	3/2 is	A. An irrational number B. Whole number C. A positive integer D. A rational number
5	Every prime number is also	A. Rational number B. even number C. Irrational number D. multiple of two numbers
6	π/3 is	A. A positive integer B. A negative integer C. A natural number D. An irrational number
7	The value of x, and y, when $(x+iy)^2=5+4i$	A. X=2, y=-1 B. X=-2, y=1 C. X=2, y=-i D. X=2, y=2
8	If Z= (1,2). tjem Z^{-1} = ?	A. (0.2, 0.4) B. (-0.2, 0.4) C. (0.2, -0.4) D. (-0.2, -0.4)
9	If Z_1 = 1+i, Z_2 = 2+3i, then $\|Z_2-Z_1\|$=?	A. √3 I B. √7 C. -2-1 D. √5
10	If Z_1 = √-36, Z_2=√-25, Z_3= √-16, then what is the sum of Z_1, Z_2 and Z_3 ?	A. √3 I B. √7 C. -2-1 D. √5
11	What is the conjugate of -7 -2i ?	A. -7 + 2i B. 7 + 2i C. 7-2i D. √53
12	For any set X, X∪X is	A. 15 B. 15i C. -15i D. -15
13	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
14	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
15	The complement of set A relative to universal set U is the set	A. X B. X C. φ D. Universal set

16	The multiplicative inverse of x such that x = 0 is	A. -x B. does not exist C. 1/x D. 0
17	Multiplicative inverse of "1" is	A. 4 B. 3 C. 2 D. 1
18	In a school, there are 150 students. Out of these 80 students enrolled for mathematics 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
19	Which of the following is the subset of all sets ?	A. A ≠ C B. B = C C. A = B D. A ≠ B
20	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
21	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
22	The graph of a quadratic function is	A. Circle B. Ellipse C. Parabola D. Hexagon
23	The set of complex numbers forms a group under the binary operation of	A. 0 B. ±1 C. 1 D. {0,1}
24	The multiplicative inverse of -1 in the set {1-,1} is	A. 40 B. 30 C. 50 D. 20
25	The set {1, -1, i, -i}, form a group under	A. addition B. multiplication C. subtraction D. None
26	The set of all positive even integers is	A. Φ B. {1,2,3} C. {Φ} D. {0}
27	The statement that a group can have more than one identity elements is	A. True B. False C. Fallacious D. Some times true
28	The set (Q, .)	A. Infinite set B. Singleton set C. Two points set D. None
29	The set (Z, +) forms a group	A. Function on B B. Range C. Domain D. A into B
30	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
31	Two matrices A and B are conformable for multiplication (AB) if and only if	A. Addition B. Multiplication C. Division D. Subtraction
32	If |A| ≠ 0 then A is called	A. 1 B. -1 C. ±1 D. 0
		A. addition B. multiplication

33	If A and B are matrices of same order than (A + B)(A + B)=	B. multiplication C. subtraction D. None
34	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
35	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
36	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 D. A and B are equal
37	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
38	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
39	If α and β be irrational roots of a quadratic equation, then	A. α = b/a and β = ca B. α = a/b and β = -c/a C. α² + β² = 1 D. α = -b/a and β= c/a
40	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}]
41	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
42	The cube roots of unity ω = ----------	A. 1-i √-3 / 2 B. -1+i √-3 / 2i C. -1+i √3 / 2 D. 1+i √3 / 2
43	Complex roots of real quadratic equation occur in	A. Nilpotent matrix B. Singular matrix C. Non singular matrix D. Diagonal matrix
44	The value of the polynomial $3x^3 + 4x^2 - 5x + 4$ at x = -1 is	A. A² + B² B. A² + B²+ 2AB C. A + B D. A² + B² + AB+BA
45	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
46	Two natural numbers whose sum is 25 and difference is 5, are	A. 25, 20 B. 20, 10 C. 20, 5 D. 15, 10
47	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
		A. A and B are multiplicative inverse of

48	ω^{88} = ?	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
49	ω^{n} = ?, when n = 3k	A. 0 B. ω C. 1 D. 1 / ω
50	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
51	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
52	The two consecutive positive integers whose product is 56 are	A. 7, 8 B. 14, 4 C. 28, 2 D. 56, 1
53	Which is a proper rational fraction	A. 3x - 7/x² +4 B. 2x² - 5/x² + 4 C. 3x⁴/2x² - 15 D. All are proper rational fraction
54	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. α² + β² = 1 D. α = -b/a and β= c/a
55	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
56	$(x+2)^2 = x^2 +4x +4$ is	A. 1 B. 2 C. 3 D. 4
57	$x^2 +2x -25 = 0$ is	A. 1 B. 2 C. 3 D. 4
58	$1/x^2 -1$ = ? (in case of making partial fraction)	A. Ax +B/x² -1 B. A/x + B/ x- 1 C. A/ x+1 + B/x-1 D. None
59	A fraction in which the degree of the numerator is less than the degree of the denominator is called	A. 1-i √-3 / 2 B. -1+i √-3 / 2i C. -1+i √3 / 2 D. 1+i √3 / 2
60	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
61	Partial fraction of $1/x^3$-1 will be of the form	A. Conjugate pair B. ordered pair C. reciprocal pair D. quadratic function
62	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
63	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
64	If the 9^{th} tern of A.P is 8 and the 4^{th} term is 20. then the first term is	A. 1 B. 2 C. -2 D. -1
		A. 25, 20

65	The nth term in G.P 3,-6,12,..... is	A. 25, 20 B. 20, 10 C. 20, 5 D. 15, 10
66	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
67	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. ω² C. ω D. 0
68	The sum of the interior angles for a 16 sided polygon is	A. 0 B. ω C. 1 D. 1 / ω
69	The difference of two consecutive terms of an A.P is called	A. Zero B. One C. Four D. Infinite
70	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
71	The common difference of the sequence 7,4,1.....is	A. 1 B. -3 C. 5 D. 0
72	Find the geometric mean between 4 and 16	A. 7, 8 B. 14, 4 C. 28, 2 D. 56, 1
73	A sequence of numbers whose reciprocals forms an arithmetic sequence is called	A. Harmonic series B. Arithmetic series C. Harmonic sequence D. Geometric sequence
74	The fifth term of the sequence a_n = 3n - 2 is	A. 3 B. -3 C. 13 D. -13
75	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
76	The average of first 100 integers is=	A. 50 1/2 B. 25 1/4 C. 100 D. 5050
77	The number of ways in which we can courier 5 packets to 10 cities is	A. 2 x 5^o B. 5¹⁰ C. 10⁵ D. 2¹⁰
78	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
79	If A and B are two events then P(A∪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)
80	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
81	If C^n_r, P^n_r = 24:1 then r = ?	A. 1 B. 2 C. 3 D. 4
82	The number of diagonals of a six sided figure are	A. 9 B. 6 C. 12 D. 3

83	The number of ways in which 5 distinct toys can be distributed among 3 children is	A. 3⁵ B. 5³ C. C⁵₃ D. P⁵₃
84	If P(E) is the probability that can event will occur then P(E)=	A. 1 B. 0.5 C. 2 D. 0
85	A standard deck of 52 cards shuffled what is the probability of choosing the queen of the diamonds	A. 1/5 B. 1/13 C. 5/52 D. 1/52
86	How many elements are in the sample space of two rolling dies	A. 6 B. 12 C. 18 D. 36
87	Corola available in 5 models 8 colours and 3 sizes how many Corola must a local dealer have no hand in order to have one of each kind avialable?	A. 24 B. 120 C. 16 D. 39
88	How many different arrangements of the letters in the word QABABA are Possible?	A. 720 B. 40 C. 60 D. 30
89	Given eight points in a plane no three of which are collinear how many lines do the points determine?	A. 16 B. 64 C. 28 D. 36
90	There are 30 Red, 20 Green and some Blue bells in a bag if the probability of finding a Red ball is 1/3,how many are red balls in the bag	A. 120 B. 20 C. 40 D. 90
91	There are 30 Red balls and 25 Green balls in a bag of a ball is drawn from the bag randomly what is the probability that a Blue ball comes out?	A. 1 B. 0.5 C. 0 D. None
92	1+2+3+.....+n=?	A. n(n +1)/2 B. n +1/2 C. n(n +1)(2n +1)/6 D. n³
93	An angle of one radian is equivalent to	A. 90^o B. 60^o C. 67^o D. 57^o, 18^o
94	The associative angle of 280^{o} is	A. 100^o B. 10^o C. 80^o D. -80^o
95	If sin θ= 3/5 Cos θ=	A. 1/2 B. 3/5 C. 4/5 D. 1
96	An angle 0 is such that tan θ = 1 and cos θ is negative then	A. Sin θ is positive B. Cos θ = √2/4 C. cosθ = -1 D. sec θ is negative
97	If in isosceles right angled triangle one side is a then hypotenuse is	A. a√2 B. a/2 C. a D. Cannot be determined by given
98	If 0 is not an integral multiple of π/2 then Cot^{4} θ+ Cot^{2} θ=?	A. Cosec⁴ θ - Cosec² θ B. Tan θ - Tan² θ C. Cosec² θ + Cosec θ D. Sinθ Cosθ
99	Domain of Cosecθ is	A. is R but θ= nπ B. is R but θ ≠ nπ C. is R but θ ≠ 2nπ D. is R but θ ≠ nπ/2

100	In 30,60,90 triangle if the smallest side is 6 than the side opposite to the angle of 60^o is	A. 12 B. 3 C. 6√3 D. 6
101	Cse π/3	A. 2 B. 1 C. 0 D. 2/√3
102	If a rectangle has an area $81x^2$ and length of 27x. then what is its width?	A. 3x B. 9x C. 3x² D. 9x²
103	If sinθ = 1 then θ =	A. 2nπ +π/2 B. 2nπ C. 2π +n D. Nπ +π/2
104	Sin 720° = _____	A. 1 B. 0 C. 2 D. 1/2
105	Cot 360° =_____.	A. Undefined B. 0.707 C. -0.5 D. 0
106	Sin (2π -θ) =_____.	A. Cosθ B. -Sinθ C. -Sinθ D. -cosθ
107	In the triangle Δ ABC, where C is the right angle Tan A + Tan B=	A. A +B B. C² /AB C. A²/BC D. B²/AC
108	If Cosα = 3/5, Cosβ = 5/13, then	A. Cos(α +β) =33/65 B. Sin(α +β) =56/65 C. sin²(α +β/2) =1/65 D. Cos(α +β) =63/65
109	If 2 Sin x Cos 2 x = Sin x then?	A. X = nπ+ π/6 B. X = nπ +π/3 C. X = nπ +1 D. X = nπ + π/2
110	The value of Cos (1/2 Cos^{-1} 1/2) is equal to	A. √3/2 B. -3/4 C. 1/16 D. 1/4
111	Sin(a + b) + Sin(a- b) =	A. Sin a Cos b B. Sin a Sin b C. Sin a + Cos b D. Sin a - 2Cos b
112	Period is Tan x/5 is	A. 5π B. 4π C. 2π D. π/5
113	Cos 315° =	A. 0.707 B. 0.5 C. 1 D. 0
114	If Sin θ =Cosθ then θ=	A. 30° B. 45° C. 60° D. 90°
115	Sin x + Cos x=1 x=	A. π B. π/2 C. π/3 D. π/4
116	If A = (3,8) and B = (5,6) then the distance between A and B is	A. 2√2 B. 2 C. 1 D. 6
117	What is the domain of y= Sin^{-1} x?	A. -1 ≤ x ≤1 B. 1 ≤ x ≤ 1 C. 0 ≤ x ≤ π

		D. -π/2 ≤ x ≤ π/2
118	What is the domain of y = Cot^{-1} x?	A. Set of irrational numbers only B. Set of all real numbers C. Set of integers only D. Set of complex numbers only
119	What is the period of Cot x?	A. 2π B. π C. π/2 D. 4π
120	Period of Sin 2x =	A. π B. 4π C. 2nπ D. 2π
121	Sin^{-1} (-x) =?	A. Sin⁻¹ x B. -Sin⁻¹ x C. Cos⁻¹ x D. -Cos⁻¹ x
122	Sin^{-1} x =?	A. π/2- Sin⁻¹ x B. π/2 -Cos⁻¹ x C. -Sin⁻¹ x D. -Cos⁻¹ x
123	Tan (π + Tan^{-1} x) =?	A. Tan x B. X C. -x D. Cot⁻¹ x
124	Sin^{-1} √3/2 =?	A. 2π/3 B. π/2 C. π/3 D. v/5
125	Sin-1 (√2/2)=?	A. π/2 B. π/3 C. 3π/4 D. 2π
126	AreCot √3 =?	A. π/2 B. π C. 2π D. π/6
127	Which of the following is not defined?	A. Arcsin 1/9 B. ArcCos (-4/3) C. Arctan 11/12 D. Arccot (-4)
128	Cos^{-1} (-x) =_____.	A. π +cos⁻¹ x B. π -sin⁻¹ x C. π +sin⁻¹ x D. π -cos⁻¹ x
129	If Sin^{-1} x + cos^{-1} y = π, then x and y are	A. Associative angles B. Complementary angles C. Reflex angles D. Supplementary angles
130	The principal value of sin^{-1} [√3/2] is	A. π/3 B. -π/3 C. 2π/3 D. 5π/3
131	120° degrees are equal to how many radians?	A. π/3 radians B. 2π/3 radians C. π/4 radians D. π/2 radians
132	In the figure PS is perpendicular to QR, if PQ = PR 26 and P8 = 24,then QR=	A. 10 B. 20 C. 40 D. 26
133	Area of ΔABC=	A. ab sin α B. 1/2 ab sin α C. 1/2 ac Sin γ D. 1/2 ac Sin β
134	If you looking a high point from the ground then the angle formed is	A. Angle of elevation B. Angle of depression C. Right angle D. Horizon
135	In the figure angle A is =	A. 15 B. 60

135	In the figure angle A is =	C. 90 D. 20
136	If Cosθ =0, Then θ=	A. nπ/2 B. (2n + 1)π/2 C. (2n - 1)π/2 D. (n ±1)π/2
137	Sin-1 [-1/2] = _____.	A. ∏/3 B. -∏/6 C. -∏/3 D. ∏/6
138	Tan^{-1} 1/x =_____	A. Sin x B. Sec⁻¹ X C. Cot⁻¹ X D. Sin lx/cos- lx
139	Sin^{-1} (-x) =	A. Cos⁻¹ 1/x B. -Sin⁻¹ X C. 1/sin-1x D. Sin⁻¹ 1/x
140	Sec^{-1} x=	A. Cos⁻¹ 1/x B. Cosec⁻¹ 1/x C. Cos-1 (-x) D. Tan⁻¹ x
141	Cos^{-1} x =	A. ∏ = sin⁻¹ x B. ∏ + sin⁻¹ x C. ∏/2 - sin⁻¹ x D. ∏/2 +sin⁻¹ x
142	In which quadrant is the solution of the equation sin x - 1 = 0	A. II quadrants B. II and III quadrants C. III and Iv quadrants D. I quadrant
143	If θ= 60° then	A. sin θ = 1/2 B. tan θ = cot 30° C. θ = π/4 D. Sec θ =4
144	If 1 + Cos x = 0 then x =	A. π +2n π B. π + nπ C. π - nπ D. π/2
145	If x lies in {0, 2π} and Cosec x = 2 then x =	A. π/ 6 and 5π/6 B. π +2nπ C. nπ D. 2π/3 and π/3
146	Which of the following is solution of Tan^2 x = 1/3	A. 7π/6 B. 5π/6 C. π/6 D. All
147	Which of the following is the solution of Cot^2x = 1/√3	A. π/5 B. π/3 C. π/7 D. π/9
148	If f(x) = x^3- $2x^2$ +4x-1, then f(-2) =?	A. 0 B. -25 C. 5 D. 45
149	If f (x) = x/x^2- 4 then which is not included in the domain of f(x)	A. 0 B. -2 C. 1 D. 4
150	P(x) = $2x^4$ -$3x^3$ +2x-1 is polynomial of degree	A. 1 B. 2 C. 3 D. 4
151	Which is not included in the domain of Cos^{-1} x	A. 0 B. 1 C. -1 D. 2
152	Which is an explicit function	A. y = x² +2x -1 B. x² +xy +y² =2 C. xy² -y +9/xy =1 D. All are

153	If f(x) : A → B and g (x) : A → B then Dom [f(x) + g(x)] is	A. Dom f(x) ∩ Dom g (x) B. Dom f(x) ∪ Dom g(x) C. [Domf(x)]² - [Dom g(x)]² D. [Dom g(x)]²-[Domf(x)]²
154	The Domain of f(x) = log x is	A. [0,∞] B. (0, ∞) C. [0,∞[D. [∞ ,∞]
155	A function F(x) is called even if	A. F(x) = F(-x) B. F(x) = F(-x) C. F(x) = -F(x) D. 2F(x) = 0
156	The range of inequality x + 2 > 4 is	A. (-1,2) B. (-2,2) C. (1,∞) D. None
157	Graph of the equation $X^2 + y^2 = 4$ is	A. a circle B. an ellipse C. a parabola D. A square
158	Domain of Y = csc x is	A. R - nπ, n ε I B. R C. R -nπ/2,nεI D. All negative Integers
159	The area of circle of unit radius=	A. 0 B. 1 C. 4 D. π
160	F(x) = xx decreases in the interval	A. (0,e) B. (0.1) C. (-∞.0) D. None
161	In the function $v = 4/3\ \pi\ r^3$, V is a function of	A. 3/4 B. r C. v D. π
162	The parametric equation of a curve are $x = t^2$, $y = t^2$ then	A. dy/dx =3t/2 B. dy/dx =t⁵ C. dy/dx =5t⁴ D. None
163	If $x^2 + y^2 = 4$, Then dy/dx =	A. 2x +2y B. 4 -x² C. -x/y D. y/x
164	d/dx a^x is	A. xa^{x-1} B. a^x C. x in a D. a^x in a
165	d/dx (√x) =	A. 2√x B. 1/√x C. 1/2√x D. None of these
166	d/dx $(3y^4)$ =	A. 12y³ dy/dx B. 8y³ C. 8y³ dy/dx D. 12y³
167	If $y = (ax)^m + b^m$, then dy/dx equals	A. m (ax)^m x^{m-1} B. ma^m x^{m-1} C. m a^m x^{m-1} D. m a^m x^{m-2}
168	d/dx [cos x^2] =_____	A. -2x cos x² B. -2x² sin x² C. x² sin x D. -2x² sin x²

169	Second derivative of $y = x^9 + 10x^2 + 2x - 1$ at x = 0 is	A. 10 B. 20 C. 12 D. 1
170	Derivative of strictly increasing function is always	A. Zero B. Positive C. Negative D. Both A and B
171	Any point where f is neither increasing nor decreasing and f(x) =0 at that point is called a	A. Minimum B. Maximum C. Stationary point D. Constant
172	If y = sin(ax + b) then fourth derivative of y with respect to x=	A. a⁴ cos (ax + b) B. a⁴ sin (ax + b) C. -a⁴ sin(ax +b) D. a4 tan (ax + b)
173	∫1/ax +b dx =	A. 1/a log |ax + b| +c B. Log |ax + b| +c C. 1/b log |ax +b| +c D. 1/x log |ax + b| +c
174	d/dx ∫x^1 dx =_____.	A. 1/4 x⁴ B. X³ C. 3x³ D. x⁴/4
175	If f_1 (x) and f_2 (x) are any two anti derivatives of a function F (x) then the value of f_1 (x) = f_2 (x)	A. A variable B. A constant C. Undefined D. Infinity
176	∫sec (ax + b) tan(ax + b) dx=_____	A. sec(ax + b)/a B. sec² (ax + b)/2 C. sec(ax + b)/x D. 1/2
177	∫cot (ax + b) dx =	A. 1/a log |sin (ax + b)| +c B. 1/a log |cos ax + b) C. 1/b |sin (ax + b)| D. 1/a log |sin (bx + a)|
178	The general solution of the differential equation dy/dx = log x is	A. Y = -x log x- x +c B. Y = x log x + x² C. Y = x log x -x +c D. Y= 2x log x + 2x +c
179	The point (-5,3) is the center of a circle and P(7,-2) lies on the circle the radius of the circle is	A. 2 B. 13 C. 7 D. 8
180	The mid point of the line joining (=1,-3) to(3,-5) is	A. (1, 1) B. (1,-1) C. (2, -8) D. (1, -4)
181	The gradient of the line joining (1,4) and (-2,5) is	A. 3/8 B. -2 2/3 C. -1/3 D. 2
182	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
183	The equation of the line with gradient 1 passing through the point (h,k) is	A. Y = x+ k-h B. Y = k/hx +1 C. Y = x + h -l D. Ky = hx =1
184	The curves y =x^2, y= x interest at	A. (0,0) ,(1,1) B. (2,4) C. (0,),(2,4) D. (0,3),(-1,1)
185	Which of the following is the equation of a line with slope 0 and passing through the point (4,3)	A. X =4 B. X = -4 C. Y = 3 D. Y = -6
186	If the diagonal of a square has coordinates (1,2) and(5,6) the length of a side is	A. 3 B. 4

	If the diagonal of a square has coordinates (1,2) and(3,3) the length of a side is	C. 1 D. 5
187	If $k_1 : k_2 = 1:1$ then the point P dividing the line is	A. Mid point B. Extreme left point C. Extreme Right point D. Plies out side k₁ and k₂
188	The center of a circle of radius 10 is on the origin which of the following points lies with in the circle	A. (10,0) B. (8,8) C. (8,4) D. (0,10)
189	The angle a (0° < a< 180°) measured counterclockwise from positive x-axis to a non-horizontal straight line / is called the	A. Rotation B. Inclination C. Radian D. None
190	If a line passes through origin then the equation of the line is	A. y = m/x B. y = mx C. x = my D. None
191	If x < y, 2x = A and 2y = B then	A. A =B B. A < B C. A< X D. B < y
192	If ab > 0 and a < 0, which of the following is negative?	A. b B. -b C. -a D. (a - b)²
193	If 4 - x > 5, then	A. x > 1 B. x > -1 C. x < 1 D. x < -1
194	Which is not a half plane	A. ax + by < c B. ax + by > c C. Both A and B D. None
195	A point of a solution region where two of its boundary lines intersect is called	A. Boundary B. Inequality C. Half plane D. Vertex
196	Which is in the solution set of 4x - 3y <2	A. (3,0) B. (4,1) C. (1,3) D. None
197	For which of the following ordered pairs (s,t) is s + t> and s- t < -3?	A. (3,2) B. (2,3) C. (1,8) D. (0,3)
198	If -1 < x < 0, which of the following statement must be true?	A. x < x² < x² B. x < x³ < x² C. x² < x³ < x D. x²< x < x³
199	If p and r are integers P = 0, and p ≠ -r, which of the following must be true?	A. p < r B. p > r C. p + r < 0 D. p - r < -0
200	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
201	x is a member of the set {-1,0,3,5} y is a member of the set {-2,1,2,4} which is possible?	A. x- y =-6 B. x -y < -6 C. x -y > 6 D. None
202	r + 3 > 5 then which is true	A. r + 2 > 4 B. r + 2 < 4 C. r + 2 + 4 D. None

203	Ab > 0 and a > 0 then	A. a > b B. a < b C. a = b D. None
204	8 > t then	A. (s -t) ²>(t -8) ² B. (s -t) ²<(t -8) ² C. (s -t) ²=(t -8) ² D. None
205	If a cone is cut by a plane perpendicular to the axis of the cone then the section is a	A. Parabola B. Circle C. Hyperbola D. Ellipse
206	The equation of the circle with center origin and radius $2\sqrt{2}$ is	A. x² + y² = $2\sqrt{2}$ B. x² + y² = 8 C. x² - y² = $2\sqrt{2}$ D. x² - y² = 8
207	The radius of the circle $(x- 1)^2 + (y + 3)^2 =64$ is	A. 8 B. $2\sqrt{2}$ C. 4 D. 64
208	The circle $(x -2)^2 + (y + 3)^2 =4$ is not concentric with the circle	A. (x -2)² + (y + 3) ² =9 B. (x +2)² + (y - 3) ² =4 C. (x -2)² + (y + 3) ² =8 D. (x -2)² + (y + 3) ² =5
209	The equation of the normal to the circle $x^2 + 2^2 = 25$ at (4,3) is	A. 3x -4y =0 B. 3x -4y= 5 C. 4x + 3y=5 D. 4x - 3y =25
210	The perpendicular bisector of any chord of a circle	A. Passes through the center of the circle B. Does not pass through the center of the circle C. May or may not pass through the center of the circle D. None of these
211	The conic is a parabola if	A. e <1 B. e > 1 C. e = 1 D. e = 0
212	The axis of the parabola $y^2 = 4ax$ is	A. x =0 B. Y =0 C. X = y D. X = -y
213	The end points of the major axis of the ellipse are called its	A. foci B. Vertices C. Co-vertices D. eccentricity
214	The vertices of the ellipse $x^2 + 4y^2 = 16$ are	A. (±,4,0) B. (0,±,4) C. (± 2,0) D. (0,± 2)
215	The line through the center and perpendicular to the transverse axis is called the	A. Major axis B. Minor axis C. Focal axis D. Conjugate axis
216	The two different parts of the hyperbola are called is	A. Vertices B. Directrices C. Nappes D. Branches
217	Unit vector in the positive direction of x-axis is	A. $\hat{i}$ B. $\hat{j}$ C. $\hat{k}$ D. All

218	The magnitude of a vector can never be	A. Zero B. Negative C. Positive D. Absolute
219	If i,m,n are the direction cosines of a vector $\overline{OP}$ then	A. l² + m² + n² =0 B. l² - m² + n² =1 C. l² + m² + n² =1 D. l² + m² - n² =0
220	The direction cosines of y-axis are	A. 1,0,0 B. 0,1,0 C. 0,0,1 D. 1,1,1
221	If the angle between two vectors with magnitude 8 and 2 is 60° then their scalar product is	A. 12 B. 8 C. 16 D. 1
222	If the vector 2i+4j-2k and 2i +6j+xk are perpendicular then x-7	A. 4 B. 8 C. 14 D. 7