**M-01 : SETS, RELATIONS AND FUNCTIONS**

1. If A and B are finite sets and then

a) b)

c) d) none of these

1. Set A has 3 elements and the set B has 6 elements then the minimum number of elements in the set is

b) c) d)

1. If

a) b) c) d)

1. The domain of the function is

a) b) c) d)

1. If then 

a) b) c) d)

1. The range of the function is

a) b) c) d)

1. If defined by is onto then S is

b) c) d)

1. Let R be an equivalence relation defined on a set containing 6 elements. The minimum number of ordered pairs that R should contain is

a) b) c) d)

1. The domain of the function is

a) b) c) d)

1. If is the inverse of itself then the value of is

a) b) c) d)

1. If A and B are any two sets then

a) b) c) d)

1. If

a) b)

c) d)

1. Let . Then the number of onto functions from A to B is

b) c) d)

1. Two functions are defined as below , , then

a) b) c) d)

1. If then which of the following relations is a function from A to itself

a) b)

c) d)

1. If then

b) c) d) none of these

1. In a group of 75 persons every one takes either tea or coffee, If 45 take tea and 35 take coffee, then the number of persons who take tea only is

a) b) c) d)

1. Let is a relation from A to B then is

b)

c) d)

1. If R is the relation defined as then R is

reflexive only b) symmetric only

c) transitive only d) both reflexive and transitive

1. If is

a) one – one and onto b) onto but not one - one

c) many one and onto d) many one and into function.

1. If is defined by is

a) b) c) d)

1. If

b) c) d)

1. If is defined by is

a) b) c) d)

1. Let be a binary operation on Q defined as ,then identity element under is

a) b) c) d)

1. On the set of real numbers under binary operation defined by for real numbers a and b the equation has the solution

a) b) c) d)

1. On is

a) commutative and associative b) associative but not commutative

c) is not associative d) not a binary operation

1. If is the binary operation defined on z by the inverse of is

b) c) d)

1. Let then the number of binary operations that can be defined on A is

a) b) c) d)

1. On the set Q of all rational numbers the operation which is both associative and commutative is given by

a) b) c) d)

1. Let T be the set of all triangles in the Euclidean plane and let a relation R on T be defined as

aRb , if a is congruent to b, for all then R is

a) reflexive but not transitive b) transitive but not symmetric

c) equivalence relation d) none of these

1. If A and B have 3 elements in common, then the number of elements common to

is

a) b) c) d) no elements common

1. If is defined byandthen

a) b) c) d)

1. If there are 5040 bijections from A to B then the number of elements in is

b) c) d)

1. If and then

a) b) c) d)

1. In where is defined by then is

a) b) c) d)

1. If denote the greater integer , the domain of the function is

b) c) d)

1. If then the number of reflexive relations that can be defined on A is

a) b) c) d)

1. Let then the number of one – one functions from A to B is

a) b) c) d)

1. Let . Then the number of elements in the power set of is

b) c) d)

1. Let N be the set of natural numbers and the functions be defined by

then f is

a) surjective but not injective b) injective but not surjective

c) bijetive d) neither injective nor surjective

1. Two finite sets have m and n elements. The number of subsets of the first set 112 more than that of the second set. The value of m and n are respectively.

a) b) c) d)

1. If , where [.] denote the greatest integer function, then

a) b) c) d)

1. If a set A contains 5 elements and set B contains 6 elements, then the number of one – one and onto mapping from A to B is

720 b) 120 c) 0 d) none of these

1. Range of is

a) b)

c) d)

1. Consider the non – empty set consisting of children in a family and a relation R defined by aRb if a is brother of b. Then R is

a) symmetric but not transitive b) transitive but not symmetric

c) neither symmetric nor transitive d) both symmetric and transitive

1. Let be defined by . Then is

a) b) c) d)

1. Let be the function defined by then the range of f is

a) b) c) d)

1. Let be defined by then

b) c) d)

1. Let be the bijective functions then is

a) b) c) d)

1. Let be defined by , then f is

a) one - one b) onto c) bijective d) is not defined

1. The domain and range of the function f given by is

Domain , Range b) Domain , Range

c) Domain , Range d) Domain , Range

1. Let then the number of surjections from A into B is

a) b) c) d)

1. If a relation R on the set {1,2,3} be defined by then R is

a) reflexive b) transitive c) symmetric d) none of these

1. Let and consider the relation then R is

reflexive but not symmetric b) reflexive but not transitive

c) symmetric and transitive d) neither symmetric nor transitive

1. If where a and b are integers then a and b are equal to

a) b) c) d)

1. Let S = set of points inside the square, T = set of points inside the triangle, C = set of points inside the circle. If the triangle and circle intersect each other and are contained in a square, then

a) b) c) d)

1. The domain for which the function defined by are equal is

a) b) c) d)

1. Let where [x] denotes the greatest integer less than or equal to x, then for all x,

b) c) d)

1. Let be a function defined by then f is both one – one and onto when B is the interval

a) b) c) d)

1. Let be defined by by . Then is

a) b) c) d)

**M-02 : TRIGONOMETRY**

1. The value of cos10.cos20.cos30………..cos1790 is

a) 1 b) 179 c) -1 d) 0

1. If sin+cosec=2, then the value of sin2020+cosec2020 =

a) 0 b) 2020 c) 22020 d) 2

1. If then the value of x is

a) b) c) d)

1. The value of 3[sin x – cos x]4+6[sin x + cos x]2+4[sin6 x + cos6 x] is

a) 3 b) 6 c) 4 d) 13

1. If sec = m & tan = n , then

a) mn b) 2n c) 2m d) 2

1. The minute hand of a watch is 1.5cm long. How far does its tip move in 40 minutes?

[ Use π = 3.14]

a) 2.68cm b) 6.28cm c) 6.82cm d) 7.42cm

1. If x = sin1, y = sin 2, z = sin 3 , then

a) x < y < z b) x > y > z c) y < z < x d) z < x < y

1. The value of cos120+cos840+cos1560+cos1320 =

a) 1/2 b) -1/2 c) 1 d) 1/8

1. Sin700.Sin100 =

a) sin2400 – sin2300 b)sin2700.sin2100 c) 1 d) none

1. If sin x+sin2 x+sin3 x=1 , then the value of cos6 x- 4cos4 x+8cos2 x+1=

a) 4 b) 5 c) 6 d) 7

1. =

a) 1 b) c) d) ½

1. If in ABC, 4cosAcosB+sin2A+sin2B+sin2C= 4, then the triangle is

a) Equilateral b) Only right angled

c) Isosceles d) Isosceles & right angled

1. sin200sin400sin600sin800 =

a) 1/16 b) 3/16 c) 3 d) 16

1. If then the value of (1+tan) (1+tan) is

a) 1 b) -2 c) 2 d) not defined

1. The minimum value of 3cosx+4sinx+8 is

a) 5 b) 9 c) 7 d) 3

1. If , then the value of is

a) b) c) d)

1. If tan A=1/2 and tan B=1/3 then tan(2A+B) is equal to

a) b) c) d)

1. The principal solution of sinθ = -1 is

a) π/2 b) 3π/2 c) 0 d) None of these

1. If 3 tanθ = cot θ , then θ =

a) b) c) d)

1. The number of solutions of the equations tan x+ sec x=2cos x lying in the interval [0,2π] is

a) 0 b) 1 c) 2 d) 3

1. The general solution of is

a) , b) , c) , d)

1. If a =2, b = 3, c = 5 in ABC, then C =

a) b) c) d) none of these

1. In a ABC, if a = 2, B=600 and C = 750, then b =

a) b) c) d) none of these

1. If , then the value of tanA is

a) b) c) d)

1. If , then bcos2+asin2 is equal to

a) b) c) d)

1. If tan250 = p , then =

a) b) c) 1 d)

1. If cosec A+cot A=2/3 , then cos A =

a) 5/13 b) 13/5 c) -5/13 d) -13/5

1. If 8 = π , then cos7+cos=

a) 1 b) 0 c) -1 d) none of these

1. =

a) 1 b) 2 c) 0 d) -2

1. The value of is

a) 1/2 b) -1/2 c) -1/4 d) 1

1. The value of tan750 – cot750 is equal to

a) 2 b) 2+ c) 2 - d) 1

1. If

a) 3 b) -3 c) 1/3 d) 0

1. If lies in third quadrant then the value of is

a) b) c) d)

1. cosec200 - sec200 =

a) b) c) 4 d) 2

1. 

a) tan 260 b) tan 810 c) tan 540 d) tan 180

1. Which of the following number(s) is / are rational

a) sin150 b) cos150 c) sin150cos150 d) sin150cos750

1. If be the angles of a cyclic quadrilateral taken in order, then

a) b) c) d)

1. If sin x-sin y = 1/2 & cos x-cos y = 1 , then tan(x+y) =

a) 4/3 b) -3/8 c) 3/8 d) -4/3

1. If in two circles arcs of the same length subtend angles of and at the centre, then the ratio of their radii is

a) b) c) not derivable d) none of these

1. In a circle of diameter 40cm, the length of chord is 20 cm. The length of minor arc of the chord is

a) b) c) d)

1. The number of values of x in the interval [0,3π] satisfying the equation 2sin2x+5sinx-3=0 is

a) 2 b) 6 c) 4 d) 1

1. If for real values of x , , then θ is

a) acute angle b) right angle

c) obtuse angle d) no value of θ is possible

1. The general value of x for the equation is

a) nπ b) c) 2nπ d) (2n+1)

1. 3sinx+4cosx-6=0 , then the general solution of of x is

a) b)

c) d) No solution

1. The smallest positive x satisfying is

a) π/2 b) π/3 c) π/4 d) π/6

1. If Pn = sinn + cosn, where nW (whole number) & R (real number) , then the value of 2P6-3P4+10 is

a) 0 b) 6 c) 9 d) 15

1. If A,B,C are acute positive angles such that A+B+C = and cotAcotBcotC = K, then

a) b) c) d)

1. =

a) b) 1/ c) 1 d) None

1. The value of cos200cos400cos600cos800 is

a) 3/16 b) 1/16 c) /16 d) None

1. The number of values of x in the interval [0,π] satisfying the equation sinx+sin5x=sin3x is

a) b) c) d)

1. The value of sin6 +cos6+3sin2.cos2 is

a) 0 b) 1 c) 2 d) 3

1. If cos200 – sin200 = p then cos400 is equal to

a) b) c) d)

1. The value of =

a) 1/2 b) 2 c) 1 d) None

1. If A,B,C are in A.P , then =

a) tanB b) cot(B/2) c) cotB d) None

1. If , then the numerical value of k is

a) 1/2 b) 2 c) 1/8 d) 0

1. The value of sin500 – sin700 + sin100 is

a) 1/2 b) 2 c) 1 d) 0

1. The number of values of x in the interval [0,5π] satisfying the equation 3sin2x-7sinx+2=0 is

a) 6 b) 10 c) 8 d) 4

1. If tan pθ = tan qθ then the values of θ form an A.P with common difference

a) π/(p+q) b) π/p c) π/q d) π/(p-q)

1. The value of cos2480 – sin2120 is

a) b) c) d)

1. The general solution of tan5 = cot2 is

a) b) c) d)

**M-03 : LINEAR INEQUALITIES, COMPLEX NUMBERS AND QUADRATIC EQUATIONS**

1. If then

a) b)

c) d)

1. Solution set of the inequation is

b) c) d)

1. The solution set of the inequation is

a) b) c) d)

1. Number of pairs of consecutive odd integers both of which are larger than 8 and such that sum is less than 34 is

a) b) c) d)

1. Solution set of the in equality when x is an integer is

a) b) c) d)

1. Solution set of the inequation is

a) b)

c) d)

1. The number of integral solutions of is

b) c) d)

1. If  then the maximum value of  is

a) b) c) d) 10

1. Imaginary part of  is

a) b) c) d) 

1. If  then 

a) b) c) d)

1. If  then the 10th term of the series  is

a) b) c) d)

1. The modulus and amplitude of  is

a) b) c) d) 

1. The amplitude of  is

b) c) d)

1. If is a root of the equation , where are real then

a) b) c) d)

1. If In a triangle PQR , . If and the roots of the equation

, then

a) b) c) d)

1. If then 

 b) c) d)

1. If then upto 1000 times is equal to

a) 1 b) c) 0 d)

1. The multiplicative inverse of is

b) c) d)

1. Given that  then z =

b) c) d)

1. The complex number z which satisfies the condition  lies on

a) circle b) the x – axis

c) the y – axis d) the line

1. If  is a cube root of unity and  then A and B are respectively

a) b) c) d)

1. The real value of for which the expression  is a real number is

b) c) d)none of these

1. The point represented by the complex number is rotated about origin through an angle in the clockwise direction, the new position of the point is

a) b) c) d)

1. Number of non - zero integral solutions of the equation  is

a) b) c)infinite d) none of these

1. If  then

a) b) c) d)

1. and are conjugate to each other for

a)  b) c) d) no value of x

1. If lies in the third quadrant then, also lies in the third quadrant if

b) c) d)

1. The value of  is equivalent to

a) b) c) d) none of these

1. A real value of x satisfies the equation  if 

a) b) c) d)

1. If  then 

a) b) c) d)none

1. If then

a) b) c) d)

1. Which of the following is correct for any two complex number  ?

a) b) 

c) d) 

1. If  where then is

b) c) d)none of these

1. 

a) positive b)negative c) d) cannot be evaluated

1. If  then 

a) b) c) d) 

1. Number of solution of the equation is

b) c) d)infinitely many

1. The amplitude of  is

a) b) c) d)

1. If the equations  and  have a common root then

a) b) c) d)

1. If  is purely imaginary then

b) c) d)

a) b) c) d)

1. If are roots of then  is

a) b) c) d)

1. Let two numbers have A.M 9 and G.M 4 then these numbers are the roots of the quadratic equation

a) b)

c)  d)

1. The real value of for which the expression  is purely real is

 b) c) d) none of these

1. The area of the triangle on the complex plane formed by the complex number and is

a)  b) c) d) none of these

1. If  then

a) b) c) d)

1. The complex number lies in

a)fourth quadrant b)first quadrant c)second quadrant d)third quadrant

1. Solution of is

a) b) c) d)

1. The solution set of is

b) c) d)

1. The solution set of is

a) b)c) d)

1. If then

a) b) c) d)

1. The least positive integers ‘n’ for which is positive is

b) c) d)

1. The length of a rectangle is 3 times the breadth. If the minimum perimeter of the rectangle is 160 cm, then

a)breadth b)breadth c)breadth d) breadth

1. The solution set of the inequation is

a) b) c) d)

1. The number of integral solutions of is

b) c) d) 4

1. The solution set of is

a) b) c) d)

1. The value of when x < 0 is

a) b) c) d)none of these

1. If  then 

a) b) c) d)

1. If then

b)  c) d) 

1. The value of k, (k > 0) for which the equation and  both will have equal roots is

a) b) c) d)

1. If are three cube roots of unity then is

a) b) c) d) 4

**M-04 : PERMUTATION & COMBINATION**

1. A picnic party of 10 persons is to go by two vehicles, one van having a passenger seating capacity of 8 and a car with a passenger seating capacity of 4. In how many ways can the travel arrangements be made?

a) b) c) d)

1. Ten different letters of an alphabet are given words with five letters are formed from these given letters. Then the number of words which have atleast one letter repeated is

b)  c)  d) 

1. The letter of the word COCHIN are permuted and all the permutations are arranged in an alphabetical order as in an English dictionary. The number of words that appear before the word COCHIN is

a) b) c) d)

1. At an election a voter may vote for any number of candidates, not greater than the number to be elected. There are 10 candidates and 4 are to be elected. If a voter votes for atleast one candidate, then the number of ways in which he can vote is

a) b) c) d)

1. A student is to answer 10 out of 13 questions in an examination such that he must choose atleast 4 from first 5 questions. The number of choices available to him is

a) b) c) d)

1. The sum of the digits in the unit place of all the numbers formed with the help of 3,4,5,6 taken all at a time is

a) b) c) d)

1. In a class of 10 students there are 3 girls. The number of ways they can be arranged in a row, so that no 2 girls are consecutive is k.8!, where k =

b) c) d)

1. The number of ways of distributing 8 identical balls in 3 district boxes so that none of the boxes is empty is

a) b) c) d) 5

1. Four boys picked 30 - apples. The number of ways in which they can divide if all the apples are identical is

a)5630 b)4260 c) d) none

1. Consider all possible permutations of the letters of the word ENDEANOEL. The number of permutations in which none of the letters D, L, N occur in the last five positions is

a) b) c) d)

1. The total number of numbers greater than 1000, but not greater than 4000, that can be formed with the digits 0,1,2,3,4 when the repetition of digits allowed is

a) b) c) d)

1. The number of ways of arranging 6 positive signs and four negative signs in a row so that no 2 negative signs occur together is

a)24 b)35 c)44 d) 18

1. The number of ways in which 6 men and 5 women can dine at a round table if no two women are to sit together is

b) c) d)

1. From 4 – gentlemen & 6 – ladies a committee of 5 is to be selected. The number of ways in which the committee can be formed so that gentlemen are in majority is

a) b) c) d) none of these

1. The maximum value of  is

a) b) c) d)

1. Ifthen the value of n is equal to

48 b)49 c)50 d)51

1. If a man and his wife enter in a bus, in which five seats are vacant then the number of different ways in which they can be seated is

a) 2 b) c) 20 d)

1. Every body in a room shakes hands with everybody else. The total number of handshakes is 66. The total number of persons in the room is

b) c) d)

1. The number of ways in which a team of eleven players can be selected from 22 players always including 2 of them and excluding 4 of them is

 b) c) d)

1. Total number of 6 – digit numbers in which all the odd digit appears is

a) b) 6! c) d)

1. The number of signals that can be sent by 6 flags of different colours taking one or more at a time is

a) b) c) d)

1. The number of ways in which 5 boys and 3 girls be seated in a row so that each girl is between two boys is

2880 b)1880 c)3800 d)2800

1. The number of parallelograms that can be formed from a set of 4 parallel lines intersecting another set of three parallel lines is

a) b) c) d)

1. If then n is equal to

a) b) c) 8 d) 22

1. The number of triangles that are formed from a set of 12 points, seven of which lie on the same line is

a) b) c) d)

1. then

a) 34 b)35 c) d) 37

1. All the letters of the word ‘EAMCOT’ are arranged in different possible ways. The number of such arrangements in which no two vowels are adjacent to each other is

b) c) d)

1. How many nine digit numbers can be formed using the digits 2,2,3,3,5,5,8,8,8 so that the odd digit occupy even positions?

a)7560 b)180 c)16 d) 60

1. In an examination there are three multiple choice questions and each question has 4 choices. Number of ways in which a student can fail to get all answers correct is

a) b) c) d)

1. The number of ways in which a necklace can be made out of 6 red beads and 4 pink bead so that no two pink beads are together is

a) b) c) d) 5040

1. A car will hold 2 in the front seat and 1 in the rear seat. If among 6 persons 2 can drive, then number of ways in which the car can be filled is

a) b) c) d) 40

1. At an election 3 wards of a town are canvassed by 4,5 & 8 men respectively. If there are 20 volunteers then number of ways they can be allotted to different wards is

a) b) c) d) 

1. The number of numbers greater than 3000 which can be formed by using the digits 0,1,2,3,4,5 without repetition is

1240 b)1280 c) 1320 d)1380

1. The value of  is equal to

a)  b) c) d) 

1. In how many ways can 5 prizes be distributed among 4 boys when every boy can take one or more prizes?

a) b)1024 c)2014 d)1042

1. If  then the value of r is

b) c) d) 41

1. If  then r is equal to

a) b) c) d) none of these

1. The number of 5 digit telephone numbers having atleast one of their digits repeated is

a) b) c) d)

1. A five digit number is divisible by 3 is to be formed using the numbers 0,1,2,3,4 and 5 without repetitions. The total number of ways this can be done is

b) c) d)

1. A committee of 6 is to be chosen from 10 men and 7 women so as to contain atleast 3 men and 2 women. In how many different ways can this be done if two particular women refuse to serve on the same committee

a) b) c) d)

1. Three boys and three girls are to be seated around a round table, in a circle. Among them the boy x does not want any girl neighbor and girl y does not want any boy neighbor then the number of such arrangement is

a) b) c) d)

1. The number of 3 digit numbers having atleast one of their digits 5 is

a)252 b)352 c)100 d)144

1. If then r =

3 b)4 c)5 d) 6

1. If  then n is equal to

a) 19 b)20 c)24 d) 21

1. The number of ways of distributing 52 cards among 4 players so that 3 players have 17 cards and the fourth player has just one card is

a) b) c) d)

1. The number of rectangles that can be formed on a chess board is

a)1296 b)1926 c)1629 d)1692

1. The greatest possible number of points of intersection of 8 straight lines & 4 circles is

a) b) c) d)

1. The number of ways in which one can post 5 letters in 10 letter box is

b) c) d)

1. The maximum number of points of intersection of 8 circles is

a) b) c) d)

1. Ramesh has 9 friends. In how many ways can he invite one or more of them at a dinner is

a) b) c) d)

1. Given five different green dyes , four different blue dyes and three different red dyes. The number of combinations of dyes which can be chosen taking at least one green and one blue dye is .....

b) c) d)

1. Digits 1,2,3,4,5 are written in random order without repetition to form a five digit number. How many of these are divisible by 4?

a)12 b)18 c)24 d) 48

1. Consider all possible permutations of the letters of the word ENDEANOEL. the number of permutations in which the letter E occur in the first and last positions is

a) b) c) d)

1. There are four bus routes between A and B and three bus routes between B and C. A man can travel round – trip in number of ways by bus from A to C via B. If he does not want to use a bus route more than once, in how many ways can he make round trip?

b) c) d) 19

1. The letters of he word “DANGER” are permuted in all possible ways and the words thus formed are arranged as in a dictionary. The rank of the word “DANGER” is

a) b) c) d)

1. The letters of the word “RANDOM” are arranged in all possible ways. The number of arrangement in which there are 2 letters between R and D is

a) b) c) d)72

1. A convex polygon of n sides has diagonals equals to twice the number of sides, then n is

a) b) c) d)

1. The number of six digit numbers having all digit odd is

b) c) d)

1. How many numbers with no more than three digits can be formed using only the digits 1 through 7 with no digit used more than once in a given number?

a) b) c) d)

1. 6 teachers and 6 students have to sit round a circular table such that there is a teacher between any 2 students. The number of ways in which they can sit is

a) b) c) d)

**M-05 : BINOMIAL THEOREM AND STATISTICS**

1. The coefficient of xn in the expansion of and are in the ratio

a) 1 : 2 b) 1 : 3 c) 3 : 1 d) 2 : 1

1. The coefficient of term is equal to the coefficient of term in 

then r =

a) 0 b) 1 c) 2 d) 3

1. The term from the end in is

a)  b)  c)  d) 

1. In the expansion the term independent of x is

a)  b)  c)  d) 

1. If the coefficient of x in is 270, then k =

a) 3 b) 4 c) 5 d) 6

1. In the expansion of coefficients of and are equal then n =

a) 49 b) 50 c) 55 d) 56

1. In the expansion of , the 5th term is 4 times the 4th term and the 4th term is 6 times the 3rd term, then n =

a) 9 b) 10 c) 11 d) 15

1. The total number of terms in the expansion of after simplification

a) 102 b) 25 c) 26 d) 51

1. If in the expansion of and in the expansion of are equal, then n =

a) 3 b) 4 c) 5 d) 6

1. If the coefficients of 2nd , 3rd and 4th terms in the expansion of are in AP then the value of n is

a) 2 b) 7 c) 11 d) 14

1. If  then 

a)  b)  c)  d) 

1. The mean deviation of the data 2,9,9,3,6,9,4 from the mean is

a)2.23 b)2.57 c)3.23 d)3.57.

1. variance of the data 2, 4, 5, 6,8,17 is 23.33. Then variance of 4, 8, 10,12,16,34 will be

a)23.33 b) 25.33 c)46.66 d) 48.66.

1. A set of n values has standard deviation . The standard deviation of

n values will be

a)  b) +k c) -k d)k.

1. The standard deviation of the data 6, 5, 9, 13, 12, 8, 10 is

a)  b) c)6 d)5.

1. The mean of 100 observations is 50 and their standard deviation is 5. The sum of the squares of all the observations is

a)50000 b) 250000 c) 252500 d) 255000.

1. Let be the observations with mean m and standard deviation s. The

standard deviation of the observations  is

a) k+s b)s/k c) ks d) s.

1. Coefficient of variation of two distributions are 50 and 60, and their arithmetic means

are 30 and 25 respectively. Difference of their standard deviation is

a) 0 b) 1 c) 1.5 d) 2.5.

1. The following information relates to a sample size of 60. 

The variance is

a)6.63 b)16 c) 22 d) 44.

1. Following are the marks obtained by 9 students in a mathematics test:50,69,20,33,53,39,40,65,59. Then the mean deviation from the median is
2. 9 b)10.5 c)12.67 d)14.76.
3. The variance for first 10 natural numbers is

a)8.25 b) 6.5 c) 3.87 d)2.87

1. The expansion is a polynomial of degree

a) 5 b) 6 c) 7 d) 8

1. If then

a) Re (Z) = 0 b) Im(Z) = 0

c) Re(Z) > 0, Im(Z) >0 d) Re(Z) < 0, Im(Z) < 0

1. If 21st and 22nd terms in the expansion are equal, then x =

 b)  c)  

1. If the middle term of is , then the value of x =

  c)  d) 1

1. The coefficient of ( p and q are positive integers) in the expansion of are

a)equal b) equal with opposite signs

c) reciprocal of each other d)none.

1. If the coefficient of 7th and 13th terms in the expansion of are equal, then n =

a) 10 b) 15 c) 18 d) 20

1. The sum of the coefficients in the expansion of is

a)  b)   d) 

1. If the sum of the coefficients in the expansion of vanishes, then the value of a is

a) 2 b) – 1 c) 1 d) – 2

1. The sum of the coefficients in the expansion of . The greatest coefficient in the expansion is

a) 924 b) 1024 c) 724 d) 824

1. In the expansion of , the sum of the coefficients of odd powers of x is

a) 0 b) 249 c) 250 d) 251

1. The number of terms in the expansion of is

a) 136 b) 135 c) 116 d) 153

1. The first three terms in the expansion of are 1, 6x and 16x2. Then the ordered pair (a, n) is

a)  b) (2, 9) c) (3, 2) d) 

1. If denote the binomial coefficients in the expansion of and

then n =

a) 7 b) 8 c) 9 d) 10

1. The coefficient of is is

a) 0 b) 1 c) 2n d) 2nCn

1. The coefficient of middle term in the binomial expansion in powers of x is and

is the same, then 

1. If the third term in the binomial expansion of is then m =

a) 2  c) 3 d) 4

1. In the binomial expansion of the sum of the 5th and 6th terms is zero then 

1. The coefficient of x7 in the expansion of is

a) 132 b) 144 c) – 132 d) – 144

1. The sum of last eight coefficients in the expansion of is

a) 216 b) 215 c) 214 d) 27

1. The two successive terms in the expansion of whose coefficients are in the ratio 1:4 are

a) 3rd and 4th b) 4th and 5th c) 5th and 6th d) 6th and 7th

1. If the coefficient of 4th term in the expansion of is 20 then the respective values of  and n are

a) 2, 7 b) 5, 8 c) 3, 6 d) 2, 6

1. If the rth term is the middle term in the expansion of then term is

a)  b)   c)  d) 

1. The 7th term in when expanded in descending powers of y is

a)  b)  c)  d) 

1. If the rth term in the expansion of contains x4, then r =

a) 2 b) 3 c) 4 d) 5

1. The 11th term in the expansion of is

a) 1 b)  c)  d) 

1. The value of is 

a)  b) 210 c) 211 d) 

1. The middle term of expansion of 

1. In the binomial expansion of the coefficients of  and are equal, then r =

a) 4 b) 6 c) 8 d) 7

1. If  then n =

a) 4 b) 7 c) 3 d) 1

1. The 6th term from the end of the expansion of is

1. The middle term of is equal to then the value of x is

a)  b)  c)  d) 

1. If the term independent of x in the expansion of is 405, then k =

a) – 3 b) 3 c) 3 or – 3 d) 10

1. If the coefficients of terms in the expansion of are in AP

then r =

a) 5, 9 b) 6, 9 c) 7, 9 d) 8, 9

1. The number of terms in is

a) 36 b) 38 c) 37 d) 150

1. In an experiment with 15 observations the results were availed The observation that 20 was found wrong and was replaced by the correct value 30. The corrected variance is

a) 8.33 b) 78 c) 188.66 d) 177.

1. Mean of 100 items is 49. It was detected later that three items 60, 70 and 80 were wrongly

entered as 40, 20 and 50 respectively. The correct mean is

a)40 b) 50 c) 48 d)51.

1. In a series of observation the coefficient of variation is 30 and mean is 10. Then the variance is

a) 20 b) 15 c) 100 d) 9

1. The variance of a data is 121. If the A.M is 11 then C.V is

a)100% b) 10% c) 1% d)50%

1. If for a data and n = 10 then C.V for the data is

a) 20 b) 250 c)100 d) 200

**M-06 : MATHEMATICAL INDUCTION, SEQUECES AND SERIES,**

**MATHEMATICAL REASONING**

1. Let P(n): 2n < (1 x 2 x 3 x 4 x….x n). Then the smallest positive integer for which P(n) is true is

a)1 b)2 c)3 d) 4

1. If P(n) : “ 2.42n+1+33n+1 is divisible by λ for all nN ” is true, then the value of λ is

a)3 b) 11 c)209 d)5

1. If P(n): “ 49n+16n+k is divisible by 64for nN ” is true , then the least negative integral value of k is

a) -1 b) -2 c) -3 d)-4

1. The smallest positive integer n for which n! < holds is,

a) 1 b)2 c) 3 d) 4

1. The greatest positive integer which divides (n+1)(n+2)….(n+r) for all nN is,

a) r b) r! c)(n+r) d) (r+1)!

1. The inequality n!>2n-1 is true

a) for all nN b) for all n>1 c) for all n>2 d) for no nN

1. The sum of the cubes of three successive natural numbers is divisible by,

a) 6 b) 9 c) 27 d) 8

1. If 10n+3. 4n+2 +k is divisible by 9 for all nN, then the least positive integer value of k is

a) 5 b) 3 c) 7 d) 1

1. The number (492 - 4 )(493 - 49 ) is divisible by

a) 5! b) 6! c) 9! d) 7!

1. If xn– 1 is divisible by x-k ,then the least positive integral value of k is

a) 1 b) 2 c) 3 d) 4

1. If P(n) :2n < n! , nN , then P(n) is true for all n

a) 1 b) 2 c) 3 d) 4

1. If (a-1) is the G.M between (a-2) and (a+1) then a =

a) 2 b) 3 c) 4 d) 1

1. 

a)  b)  c)  d) 

1. The 50th term of the series 2+3+6+11+18+……… is

a)  b)  c) 502 d) 

1. The 12th  element from the end of AP 3,8,13,……,253 is

a) 190 b)194 c) 198 d) 200

1. The sum of all two digit numbers which when divided by 4,yield unity as remainder is

a) 1012 b) 1201 c) 1212 d) 1210

1. Sum of all integers between 100 and 200 which are not divisible by 2 is

a) 7000 b) 7550 c) 7500 d) 7250

1. The sum of the series 152 + 162 + ………… + 302 is

a) 7440 b) 8440 c) 6220 d) 4220

1. The nth term of 3 + 13 + 29 + 51 + 79 + …………. is

a) 3n2 + n + 1 b) 3n2 + n - 1 c) 4n2 – 1 d) 3n2 – n + 1

1. The sum  is

a) 3 b) 6 c) 9 d) 12

1. If second ,third and sixth terms of an AP are consecutive elements of a GP .The common ratio of the GP is

a) 1 b) -1 c) 3 d) -3

1. Let P(n) denote the statement that n2+n is odd. It is seen that P(n) => P(n+1) . P(n) is true for all

a) n>1 b) n c) n>2 d) none

1. The sum to n terms of a series is 2n+1 + n -2 , then the nth term is

a) 2n + 1 b) 3n – 1 c) 2n + 1 d) 3n + 1

1. If m, n are any two odd positive integers with m > n then the largest positive integers which divides all the numbers of the type m2 – n2  is

a) 4 b) 6 c) 8 d) 9

1.  where n is even . When n is Odd , the sum is

a)  b)  c)  d) 

1. The 10th  common term between the series 3+7+11+…… and 1+6+11+…. is

a) 191 b) 193 c) 211 d) 181

1. If a clock strikes appropriate number of times at each hour . Then the number of times it strikes in one full day is

a)78 b)156 c) 144 d) 72

1. 

*a)  b)  c) d) *

1. The minimum value of 4x + 41-x , x €R is

a) 2 b) 4 c) 1 d) 0

1. “The diagonals of a rhombus are perpendicular” The contra positive of this statement is

a) If the figure is not a rhombus ,then its diagonals are not perpendicular

b ) If the diagonals are perpendicular ,then the figure is a rhombus

c) If the diagonals are not perpendicular ,then the figure is a rhombus

d) If the diagonals are not perpendicular ,then the figure is not a rhombus

1. The inverse of “if x then x ∈A or x ∈ B” is

a)if xthen x & x b) if xthen x or x

c) if x or x then x d) none of these

1. The contra-positive of the inverse of p→~q

a) ~q→~p b) ~p→~q c) ~q→p d) p→q

1. Negate the following proposition : “ If it rains heavily , the college is closed But the students do not go home”

a) It rains heavily and either the college is not closed or the students go home

b) It does not rain heavily and the college is closed or the students go home

c) It does not rain heavily , the college is neither closed nor the students go home

d) None of these

1. If p ,q ,r have truth values T,F,T respectively , which of the following is true ?

a)(p=>q)Λr b) (p=>q)Λ~r c) (pΛq)Λ(pνr) d) q=>(pΛr)

1. The truth value of the contrapositive of the statement “ If xA, xB then xAB” is

a) T b) F c) no conclusion d) None

1. Let p:2+3=5 ; q=  is irrational. The symbolic form of the statement “ It is not true that 2+3=5 iff is irrational” , is

a) ~pq b) ~p~q c) ~(p~q ) d) ~( pq)

1. Which of the following is not logically equivalent to the proposition: “A real number is either rational or irrational ”

a) If a number is neither rational nor irrational then it is not real

b) If a number is not rational or not an irrational then it is not real

c) If a number is not real , then it is neither rational nor irrational

d) If a number is real , then it is rational or irrational

1. Negation of “2+3=5 and 8 less than10” is

a) 2 + 3 ≠ 5 and 8 < 10 b) 2 + 3 = 5 and 8 not less than </ 10

c) 2 + 3 ≠ 5 or 8 not less than 10 d) none of these

1. The contrapositive of  is

a)  b)  c)  d) 

1. If (p Λ ~r)  (~ p ν q ) is false , then truth values of p , q , r are respectively

a) F ,F & T b) T, F & F c) T, F & T d) F, T & T

1. The negation of p ν (q Λ ~r ) is

a) pΛ(~qν r) b) ~pΛ(~qΛr) c) ~pΛ(~qν r) d) None

1. Contrapositive of the inverse of the proposition “if I am Ok, then everybody is Ok” is

a) If everybody is Ok ,then I am Ok b)If everybody is not Ok , I am not Ok

c) If I am not Ok, then everybody is not Ok d) If I am Ok, then everybody is Ok

1. The negation of the proposition “ If then ” is

a)  b) 

c) If  d) 

1. The third term of a GP is 4 , the product of the first five terms is

a) 64 b) 1024 c) 256 d) 512

1. The sum to n terms of an AP is n(n+3), the common difference is

a) 1 b) 2 c) 3 d) 4

1. The nth term of the series 2∙12∙33+3∙22∙43+…. Is

a) (n2+3n+2)(n2+2n)2 b) (n2+3n+2)(n2+2n+1)2

c) (n2+3n)(n2+2n+1)2 d) None of these

1. Sum to n terms of the series is  The 20th term is

a)  b)  c)  d)None of these

1. If the sum of n terms of the series 23+43+63+…∞ is 3528 then n=

a) 6 b) 7 c) 8 d)9

1. 

a)  b)  c)  d) 

1. 12+1+22+2+32+3+…n2+n=

a)  b)  c)  d) 

1. If  then

a) n = 3 b) n =-1 c) n2=3 d) n=1

1. If the sum of first n terms of a series is 5n2+2n then its second term is

a) 7 b) 27 c) 24 c) 17

1. The fourth ,seventh and tenth terms of a G.P are p, q and r respectively then Which one of the following is true ?

a) p2 = q2 + r2 b) p2 = qr c) q2 = pr d) r2 = p2+q2

1. 7th term of an A.P is 40. The sum of the first 13 terms is

a) 520 b) 53 c) 2080 d) 1040

1. If p(n) = 2+4+6+…….+2n ,n€N ,then P(k) = K(K+1)+2 =>P(K+1) = (K+1)(K+2)+2

For all n€N .So we can conclude that P(n) = n(n+1) +2 for

a) all n€ N b) n >1 c) n >2 d) nothing can be said

1. The sixth term of a H.P is 1/61 and 10th term is 1/105. Then the first term of that H.P is

a) 1/17 b) 1/6 c) 1/39 d) 1/28

1. The sum to infinity of the progression 9 – 3 + 1 –  + ……. is

a) 27/4 b) 15/2 c) 9 d) 9/4

1. Sn = to n terms , then 6Sn=

a)  b)  c) d) 

1. The sum to n terms of the series 12 + (12 + 22) + (12+22+32)+……

a)  b)  c) d)

1. The 99th term of the series 2 + 7 + 14 + 23 + 34 + ……………. is

a) 9999 b) 9998 c) 10000 d) None

**M-07: Co-ordinate Geometry and STRAIGHT LINES**

1. The ratio in which x ­− axis divides the line segment joining (3, 6) and (12, −3) is

a) 2 : 1 b) 1 : 2 c) −2 : 1 d) −1 : 2

1. If the point P (2, 3) divides the line joining the points (5, 6) and (8,9), then the ratio is

a) 1 : 2 internally b) 1 : 2 externally c) 2 : 1 internally d) 2 : 1 externally

1. Orthocenter of the triangle formed by the points (0,0, (3, 0) and (0, 4) is

a)  b)  c) (0, 0) d) (3, 4)

1. P, Q, R are the mid points of AB, BC, CA of Δ ABC and the area of Δ ABC is 20.

The area of Δ PQR is

a) 4 sq. units b) 5 sq. units c) 6 sq. units d) 8 sq. units

1. If the area of the triangle formed by the points (1, 2), (2, 3), (x, 4) is 40 sq. units, then x is

a)  b) c) –77, 83 d) 

1. If (–1, 2), (4, 1) (7, 16) are the three vertices of a parallelogram taken in order, then the fourth vertex and also the areas of the parallelogram are

a) (–4, 3), 16 sq. units b) (2, 17), 78 sq. units

c) (–8, 3), 24 sq. units d) (10, –5) 36 sq. units

1. The locus of the point which moves so that its distance from (0, 7) is thrice its distance from

(0, 1) is

a) x2 + y2 – 4y – 23 = 0 b) x2 + y2 – 4y + 23 = 0

c) 2x2 + 2y2 – y – 10 = 0 d) x2 – y2 + 4y + 23 = 0

1. The equation of the line bisecting the joint of (3, −4) and (5, 2) and having its intercepts on the x − axis and y − axis in the ratio 2 : 1 is

a) x + y − 3 = 0 b) 2x − y = 9 c) x + 2y = 2 d) 2x + y = 7

1. The angle between the lines 3x –y + 5 =0, x + 3y – 2 =0 is

a) 1300 b) 600 c) 900 d) 450

1. The angle between the line passing through the points (1, –2) (3, 2) and the line x + 2y –7 =0 is

a)  b)  c)  d) 

1. The distance of the point P(1, −3) from the line 2y − 3x = 4 is

a) 13 b)  c)  d) none of these

1. The equation of one of the bisector bisecting the angled between the lines 3x – 4y + 7 =0 and 12x + 5y – 2 =0 is

a) 11x + 3y + 9 =0 b) 11x – 3y + 9 = 0 c) 11x – 3y – 9 =0 d) none

1. The equation of bisector of obtuse angle between the line 3x – 4y + 7 =0 and 12x + 5y – 2 =0

a) 21x + 77y – 101 =0 b) 21x – 77y – 101 =0

c) x – 7y – 10 =0 d) x + 7y – 10 = 0

1. A straight line passes through the points (5, 0) and (0, 3). The length of perpendicular from the

point (4, 4) on the line is

a) 15/ b) c) 17/2 d)

1. A line passes through (2, 2) and is perpendicular in the line 3x + y = 3 its y – intercepts is

a) 1/3 b) 2/3 c) 4/3 d) 1

1. If the straight lines 2x + 3y – 3 = 0 and x + ky + 7 = 0 are perpendicular, then the value of k is

a) 3/2 b) -3/2 c) 2/3 d) -2/3

1. Equation of line passing through the point (1, 2) and perpendicular to the line y = 3x -1

a) x + 3y = 0 b) x + 3y - 7 = 0 c) x + 3y + 7 = 0 d) x - 3y = 0

1. The equation of the line parallel to the line 3x -4y +2 =0 and passing through (-2, 3)is

a) 3x -4y + 18 =0 b) 3x -4y - 18 =0 c) 3x +4y +18 =0 d) 3x +4y - 18 =0

1. A line cuts off equal intercepts on the co-ordinate axes. The angle made by this line with the

positive direction of X-axis is

a) 1200 b) 450 c) 1350 d) 900

1. If the distance between (3, 4) and (a, 2) is , then a is

a) 5 or 1 b) 5 or – 1 c) –5 or 1 d) –5 or –1

1. If the points (7, k), (–2, 3) and (–1, –5) are collinear then k is

a) 15 b) 1/7 c) 69 d) –69

1. The value of λ such that the straight line (2x + 3y + 4) + λ (6x – y + 12) = 0 is parallel to y – axis is

a) 0 b) 1 c) 2 d) 3

1. Equation of the line passing though the point of intersection of the lines x + 2y – 3 = 0

and x + y –2 = 0 and also through the point (2, 1) is

a) y = 1 b) x = 1 c) y = 0 d) x = 0

1. Equation of the line making equal intercepts on the axes and passing through the point (2, 4) is

a) 4x − y − 4 = 0 b) 2x + y − 8 = 0 c) x + y − 6 = 0 d) x + 2y− 10 = 0

1. If θ is an acute angle between the lines y = 2x +3, y = x + 1 then the value of tan θ is

a)  b)  c)  d) 

1. If PM is the perpendicular from P(2, 3) onto the line x + y = 3, then the coordinates of M are

a) (2, 1) b) (−1, 4) c) (1, 2) d) (4, −1)

1. The image of the point P (3, 5) w.r. t the line y = x is the point Q and the image of Q along the line y = 0 is the point R (a , b), then (a, b) =

a) (5, 3) b) (5, −3) c) (5, 3) d) (−5, −3)

1. The reflection of the point (4, −13) about the line 5x + y + 6 = 0 is

a) (−1, −14) b) (3, 4) c) (0, 0) d) (1, 2)

1. If the lines 3x + 2y – 5 =0, 2x – 5y + 3 = 0, 5x + by + c = 0 are concurrent then b + c =

a) 7 b) – 5 c) 6 d) 9

1. If the line 3x + 4y – 8 = 0 is denoted by L, then the points ( 2, –5) (– 5, 2)

a) lie on L b) lie on same of L

c) Lie on opposite sides of L d) equidistant from L

1. The acute angle bisector between the lines 3x – 4y – 5 = 0, 5x + 12y – 26 = 0 is

a) 7x – 56y + 32 = 0 b) 9x – 3y + 13 = 0 c) 14x – 112y + 65 = 0d) 7x – 13y + 9 = 0

1. The distance between the lines and is

a)3/2 b) 3/10 c)6 d)None of these

1. The length of the perpendicular drawn from origin upon the straight line is

a)  b)  c) d)

1. The base of an isosceles triangle is x - axis. Then the sum of the slopes of its three sides is

a) 0 b) ∞ c) 2 d)none of these

1. If p is the length of the perpendicular from origin on the line whose intercepts on the axes

are a & b, then

a) b) c) d)

1. Distance between the lines x + 2y – 3 = 0 & x + 2y + 1 = 0 is

a) 4 b) 2 c)  d) 1

1. Equation of the line passing through (1, 2) and parallel to the line *y* = 3*x* – 1 is

a) *y* + 2 = *x* + 1 b) *y* + 2 = 3 (*x* + 1) c) *y* – 2 = 3 (*x* – 1) d) *y* – 2 = *x* – 1

1. Equations of diagonals of the square formed by the lines *x* = 0, *y* = 0, *x* = 1 and *y* = 1 are

a) *y* = *x*, *y* + *x* = 1 b) *y* = *x*, *x* + *y* = 2 c) 2*y* = *x*, *y* + *x* =1/3 d) *y* = 2*x*, *y* + *2x* = 1

1. For specifying a straight line, how many geometrical parameters should be known?

a) 1 b) 2 c) 4 d) 3

1. The point (4, 1) undergoes the following two successive transformations:

(i) Reflection about the line *y* = *x*

(ii) Translation through a distance 2 units along the positive *x*-axis

Then the final coordinates of the point are

a) (4, 3) b) (3, 4) c) (1, 4) d) (3.5, 3.5)

1. The ratio in which the line 3*x* + 4*y* + 2 = 0 divides the distance between the lines 3*x* + 4*y* + 5 = 0 and 3*x* + 4*y* – 5 = 0 is

a) 1: 2 b) 3: 7 c) 2: 3 d) 2: 5

1. A line passes through P (1, 2) such that its intercept between the axes is bisected at P.

The equation of the line is

a) *x* + 2*y* = 5 b) *x* – *y* + 1 = 0 c) *x* + *y* – 3 = 0 d) 2*x* + *y* – 4 = 0

1. The orthocenter and centroid of a triangle are then the circumcentre is

a) b) c) d)

1. Equation to the sides of a triangle are x – 3y = 0, 4x + 3y = 5and 3x + y = 0.

The line 3x – 4y = 0 passes through the…triangle

a) incentre b) centroid c) circumcentre d) orthocentre

1. P(2,1) is the image of Q(4, 3) about the line

a) x – y = 7 b) 5x – y = 2 c) x + y = 5 d) x + y = 2

1. If a line joining two points A (2, 0) and B(3, 1) is rotated about A in anticlockwise direction

through an angle 150, then equation of the line in the new position is

a) b) c) d)

1. If the length of perpendicular drawn from origin to a line is 10 and α then the equation of

line would be

a) b) c) d)

1. If the lines x + 2ay + a = 0, x + 3by + b = 0 and x + 4cy + c = 0 are concurrent,

then a, b, c are in

a) A.P. b) H.P. c) G.P. d) None

1. The angle between the lines and is

a) 900 b) 800 c) 1250 d) 450

1. The number of points on x – axis which are at a distance c unit from is

a) infinite b) c) d)

1. The inclination of the line through & the midpoint of the line joining the points

is

b) c) d)

1. The area of the triangle whose sides are along the lines x = 0, y = 0 and 4x + 5y – 20 = 0 is

a) 20 sq. units b) 10 sq. units c) 1/10 sq. units d) 1/20 sq. unit

1. The area of the quadrilateral formed by is

a) b) c) d)

1. The line joining is divided into 4 equal parts by the points

such that . The midpoint of is

b c d)

1. A line cutting off intercept – 3 from the *y*-axis and the tangent at angle to the *x-*axis is,

its equation is

a) 5*y* – 3*x* + 15 = 0 b) 3*y* – 5*x* + 15 = 0 c) 5*y* – 3*x* – 15 = 0 d) None of these

1. The line x + y = 4 divides the line joining the points (-1, 1) and (5, 7) in the ratio

a) 2 : 3 b) 1 : 2 c) 1 : 1 d) 4 : 3

1. The centroid of a triangle is (2, 7) and two of its vertices are (4, 8) and (–2, 6).

The third vertex is

a) (0, 0) b) (4, 7) c) (7, 4) d) (7, 7)

1. The circumcentre of the triangle formed by the lines x + y = 0, x – y = 0 and x – 7 = 0 is

a) (7, 0) b) (3.5, 0) c) (0, 7) d) (3.5, 3.5)

1. If a vertex of a triangle is (1, 1) and the mid points of two sides through the vertex are (-1, 2) and (3, 2), then centroid of the triangle is

a) (1/3, 7/3) b) (-1, 7/3) c) (-1/3, 7/3) d) (1, 7/3)

1. The incentre of the triangle with vertices is

a) b) c) d)

**M-08 : CONIC SECTION**

1. The area of the circle centred at (1,2) and passing through the point (4,6) is

a) b) c) d)

1. The locus of centre of the circle of radius 3 which rolls on the outside of the circle is

b)

c) d)

1. If the area of the circle is sq units then the value of k is

a) b) c) d)

1. The number of common tangents to the circles and is

a) b) c) d)

1. The number of circles that can be drawn touching all the lines and is

a) b) c) d)

1. The combined equation of the pair of tangents drawn from origin to the circle is

a) b)

c) d)

1. The chord of the circle which is bisected at (1,0) is perpendicular to the line

b) c) d)

1. The least and greatest distances of the point (10,7) from the circle

a) b) c) d)5,15

1. The length of the chord joining the points and of the circle is

a)4 b) c) d)

1. The normal at the point (3,4) meets the circle again at the point Then the equation of the circle is

a) b)

c) d)

1. The equation of the tangent to the parabola which is inclined at an angle with the x – axis is

a) b) c) d)none of these

1. The sum of the reciprocals of focal distances of a focal chord PQ of is

a) b) c) d)

1. are the parametric equations of the parabola with focus and vertex respectively at

b)

c) d)

1. The angle between the two tangents drawn from the point (1,3) to the parabola is

a) b) c) d)

1. The ends of L.R of and the vertex of the parabola form a triangle of area 72 sq units then the directrix of the parabola is

a) b) c) d)

1. A parabola has (1,1) as its focus and the line as its directrix. Then its vertex is at

b) c) d)

1. The length of the common chord of the parabolas and is

a) 8a b) c) d)

1. For the parabola the point p whose focal distance is 17 is

b)

c) d)

1. The equation of the directrix of the parabola is

b) c) d)

1. If is a tangent to then

a) b) c) d)

1. An ellipse with the eccentricity has a focus at (0,0) and the corresponding directrix is . The equation of the ellipse is

a) b)

c) d)none of these

1. If the angle between the line joining the foci of an ellipse and an extremity of the minor axis is , the eccentricity of the ellipse is

b) c) d)

1. If the length of the latus rectum is of length of minor axis of an ellipse then the eccentricity of the conic is

a) b) c) d)

1. If (2,5) and (4,5) are ends of a latus rectum and (3,1) is a focus of an ellipse then the distance between the foci is

a) b) c) d)

1. In an ellipse the triangles formed by a latus rectum with centre and an end point of major axis are of equal area. Then the ratio of the axes of the ellipse is

a) b) c) d)

1. The major axis of an ellipse is twice the minor axis and the area of the ellipse is sq units, then the sum of the focal distance of any point on it is

a) b) c) d)

1. The perimeter of triangle formed by any point on the ellipse with its two foci is

b) c) d)

1. If is a focal chord of the ellipse with eccentricity then the lengths of the major and minor axis are

a) b) c) d)none of these

1. For the ellipse the ratio of the lengths of the longest and shortest focal chords is

a) b) c) d)

1. Let P be a variable point on the ellipse . Let be foci of the ellipse. Then the maximum area of the triangle is

a) b) c) d)

1. If the distance between the directrices of a rectangular hyperbola is 16, then the distance between the foci is

a) b) c) d)

1. The eccentric angle of the hyperbola at (3,2) is

a) b) c) d)

1. If represents a hyperbola of eccentricity then

b) c) d)

1. The equation of the hyperbola of given transverse axis whose vertex bisects the distance between the centre and the focus is given by

a) b)

c) d)

1. The eccentricity of the hyperbola whose latus rectum is 8 and conjugate axis is equal to half of the distance between the foci is

a) b) c) d)none of these

1. The distance between the foci of a hyperbola is 16 and its eccentricity is its equation is

b) c) d)none of these

1. Equation of the hyperbola with eccentricity and foci at is

a) b) c) d)none of these

1. The equation of the locus of a point the difference of its distances from the point (3,0) and is 4 is

a) b) c) d)

1. A hyperbola and its conjugate hyperbola have the same eccentricity. Then its eccentricity is

b) c) d)

1. The eccentricity of the hyperbola which passes through the points (3,0) and is

a) b) c) d)

1. The end points of the latus rectum of a parabola are (2,4) and (4,2). Then the equation of its axis is

a) b) c) d)

1. The length of a LR of the conic represented by the equation

is

a) b) c) d)

1. From the point P(3,2) tangents PA and PB are drawn to the ellipse . Then the area of the quadrilateral PAOB, where O is the centre of the ellipse is (in sq units)

b) c) d)

1. The centre of a circle circumscribing the rectangle ABCD is (1,2). If and then the area of the rectangle ABCD is (in sq units)

a) b) c) d)48

1. The mid – point of the chord of the circle is

a) b) c) d)

1. The sum of the squares of the eccentricities of the conics and is

a) b) c) d)

1. The equation of the circle in the first quadrant touching each coordinate axis at a distance of one unit from the origin is

a) b)

c) d)

1. The equation of the circle having centre and passing through the point of intersection of the lines is

b)

c) d)

1. Equation of the circle which passes through (3,6) and touches the axes is

a) b)

c) d)none of these

1. Equation of a circle with origin as centre and passing through the vertices of an equilateral triangle whose median is of length 3a is

a) b) c) d)

1. The equation of the line joining the vertex of the parabola to the points on it which have abscissa 24 are

b) c) d)

1. The area of the triangle formed by the lines joining the vertex of the parabola to the ends of its latus rectum is (in sq units)

a) b) c) d)

1. If the vertex of a parabola is and the directrix is the line x+5=0 then its equation is

a) b) c) d)

1. Equation of the ellipse whose focus is the directrix the line and eccentricity is

b)

c) d)none of these

1. The length of the transverse axis along x – axis with centre at origin of a hyperbola is 7 and it passes through the point The equation of the hyperbola is

a) b) c) d)none of these

1. If the ellipse and the parabola touch each other then k =

a) b) c) d) 25

1. An equilateral triangle is inscribed in the parabola . If one vertex of the triangle is at the origin then the length of the side is

a) b) c) d)

1. A circle is drawn with minor axis of an ellipse as a diameter. If the foci lie on the circle, then the eccentricity of the ellipse is

b) c) d)

1. If are the foci of a hyperbola passing through the origin then its eccentricity is

a) b) c) d)none of these

1. The ratios of the areas of two triangles formed by LR of a rectangular hyperbola with two vertices is

a) b) c) d)none of these

**M-09 : INVERSE TRIGONOMETRIC FUNCTION**

1. If then

a) b) c) d)

1. If 3tan-1x + cot-1x = π, then x equals to

a) 0 b) 1 c) -1 d) ½

1. The domain of the function cos-1(2x-1) is

a) [0, 1] b) [-1, 1] c) (-1, 1) d) [0, π]

1. The domain of the function defined by is

a) [1, 2] b) [-1, 1] c) [0, 1] d) None

1. If , then x is equal to

a) 1/5 b) 2/5 c) 0 d) 1

1. The value of sin[2tan-1(0.75)] is

a) 0.75 b) 1.5 c) 0.96 d) sin1.5

1. The value of is

a) b) c) d)

1. The value of 2sec-1 2+sin-1(1/2) is

a) b) c) d) 1

1. If is equal to

a) b) c) d) π

1. The value of is

a) 2+ b) – 2 c) d) 5 +

1. The value of is

a) b) c) d)

1. If then

a) b) c) d) x > 0

1. The number of real solutions of the equation

in is

a) 0 b) 1 c) 2 d) ∞

1. The minimum value of n for which is

a) 1 b) 2 c) 3 d) 4

1. The number of real solutions of the equation is

a) Infinitely many b) two c) four d) one

1. The value of the expression is

a) b c d

1. If , then the value of x =

a) b) c) d)

1. The value of up to infinity

b c d

then x =

a) b) c) d)

1. The result is true when xy is

a) > 1 b) < 1 c) > -1 d) < -1

1. If , then

a) k = -, K = b) k = -, K = c) k = , K = d) k = 0, K =

1. is equal to

a) b) c) d)

1. The greatest and least values of are respectively

a) b) c) d)

1. The equation has

a)no solution b)unique solution

c)infinite number of solution d)two solution

1. The value of is

a) b) c) d)

1. If are non zero then

a) b) c) d)

1. If is a root of equation x2- 9x + 8 = 0, where

, then the principal value of is

a) b) c) d)

1. Domain of cos-1[x] is , where [x] is greatest integer of x

a) [-1,2] b) [-1,2) c) (-1,2] d) None

1. If then

a) b) c) d)

a) b)

c) d)

1. sin-1(cos20190)+cos-1(sin20190) =

a) 540 b) 780 c) 320 d) 640

1. If , then q =

a) b) c) d)

1. sin-1(sin6) =

a) 6 b) c) d)

1. If sin-1a+cos-1b+cos-1c+sin-1d = A, then cos-1a+sin-1b+sin-1c+cos-1d =

a) A b) c) d)

1. If then

a) b) c) d)

1. If then x is

a) b) c) d)

1. Which one of the following is correct?

a) b) c) d)

a) b) c) d) none

1. If , then

a) b)

c) d)

1. Solve for x, , x >0

a) -1 b) c) 1/ d) 1

1. If then

a) 0 b) 1 c) 6 d) 12

1. The principal value cos-1[cos(-6800)] is

a) 2π/9 b) -2 π/9 c) 4π/9 d) π/9

1. Range of 2sin-1x is

a) b) c) d)

1. The value of is

a) 6/17 b) 3/17 c) 4/17 d) 5/17

1. Given then the value of is

a) b) 1/ c) 1 d) -1

1. 2cos-1x = sin-1(2x) is valid for all values of x satisfying

a) 0 b) c) d)

1. sec2(tan-12) + cosec2(cot-13) =

a) 1 b) 5 c) 15 d) 16

1. If sin-1x + sin-1y + sin-1z =, then x4 + y4 + z4 + 4x2y2z2 = k(x2y2 + y2z2 + z2x2)

Where k =

a) 1 b) 2 c) 3 d) 4

1. Which of the following is the principal value branch of cosec-1x ?

a) b) c) d)

1. Let , then

a) π/3 b) π/2 c) 2π/3 d) -2π/3

1. The domain of y = cos-1[x2 - 4] is

a)[3, 5] b)[0, π] c) d) none

1. If , then A – B =

a) 00 b) 450 c) 600 d) 300

1. The value of

a) π/2 b) 0 c) 5π/12 d) π/12

1. If , then x =

a) 9 b) 22 c) 35 d) 41

1. If , then the value of x is equal to

a) b c d)

1. Statement 1 : If x < 0,

Statement 2 :

a) statement-1 is true, statement-2 is true ; statement-2 is the correct explanation

for statement-1

b) statement-1 is true, statement-2 is true ; statement-2 is NOT a correct explanation

for statement-1

c) statement-1 is true, statement-2 is false

d) statement-1 is false, statement-2 is true

1. If , then

a) x +y + xy =1 b) x + y-xy =1 c) x + y + xy +1=0 d) x + y-xy +1=0

1. The value of is

a) 1 b) 2 c) 3 d) 4

a) b) c) d)

1. If 6then

a) x = 1 b) x = 2 c) x = 3 d) x = 8

**M-10 : MATRICES AND DETERMINANTS**

1. A is a matrix and B is its adjoint matrix. If .Then

a) b) c) d)

1. If . Then

b) c) d)

1. Let . If . Then

a) b) c) d)

1. A and B are matrices such that then the matrix is a skew symmetric matrix for

a) b) c) d)

1. Let A be a square matrix with real entries such that then

a) b) c) d)

1. If then

a) b) c) d)

1. If then

b) c) d)

1. If is symmetric then

a) b) c) d)4

1. Let k be a positive real number and let and . If then ( the greatest integer less than or equal to k)

a)3 b) c) d)

1. On using elementary column operation in the following matrix equation we have

a) b)

c) d)

1. If then

a) b) c) d)

1. If

a) b) c) d)

1. If Then

b) c) d)

1. The value of n for which the  is

a) b) c) d)for no value of n

1. lies in the interval

a) b) c) d)

1. If

b) c) d)

1. A and B are matrices of order three then

a) 32 b) c) d)

1. which of the following is a factor of

b) c) d)

1. If then B is given by

b) c) d)

1. If

a) b) c) d)

1. If then

a) b) c) d)

1. If then

does not exist b) c) d)

1. If the order of the matrix , then order of and the order C is then the order of is

a) b) c) d)

1. If then

a) b) c) d)

1. If A is a square matrix of order 3 and then

a) b) c) d)

1. Let then

a) b) c) d)

1. If then determinant of is

b) c) d)

1. If A is a non singular matrix and if then

a) b) c) d)32

1. If then

a) b)

c) d)

1. The value of is

a) b) c) d)

1. If then x is

a) b) c) d)

1. If

a) b) c) d)

1. If then X is

b) c) d)

1. If the is

a) b) c) d)

1. If

a) b) c)d)

1. If

b) c) d)none of these

1. Let

a) b) c) d)

1. The equations have

a)unique solution b)no solution c)infinitely many solutions d)two solutions

1. Let then

b) c) d)

1. If A(1,3), B(0,0) and D(k,0) are the vertices of whose area is 3 sq units then the value of k is

a) b) c) d)

1. If is an imaginary cube root of unity, then the value of is

a) b) c) d)

1. If then the value of k is

a) b) c) d)

1. If

b) c) d)

1. If where I is the identity matrix of order 3, then

a) b) c) d)

1. The value of x for which the matrix product equals an identity matrix is

a) b) c) d)

1. If area of triangle is 35 sq units with vertices then

a) b) c) d)

1. Let

a) b) c) d)

1. The maximum value of is

b) c) d)

1. The value of the determinant is

a) b) c) d)

1. The number of distinct real roots of is

a) b) c) d)

1. There are two values of a which makes then sum of these numbers is

b) c) d)

1. If are the roots of the equation

a) b) c) d)

1. On using elementary row operation in the following matrix equation we have

a) b)

c) d)

1. If A is a square matrix such that then

b) c) d) 3A

1. If If the value of is

a) b) c) d)

1. Total number of possible matrices of order with each entry 2 or 0 is

a) b) c) d) 512

1. Which of the given values of x and y make the following pair of matrices equal

a) b)not possible to find

c) d)

1. If the matrix is singular. Then

b) c) d)

1. If

a) b) c) d)

1. If where A and B are square matrices then

a) b)

c) d)

**M-11 : LIMITS AND CONTINUITY**

1. 

a) b) c) d)

1. The value of n for which  is

b) c) d)

1. 

a) b) c) d)not defined

1. 

a) b) c) d)

1. 

a) b) c) d)

1. 

a) b) c) d)

1. 

b) c) d)e

1.  , where [] is greatest integer function

a) b) c) d)does not exist

1. 

a)0 b) c) d)does not exist

1. 

a) b) c) d)not defined

1. 

a) b) c) d)

1. 

a) b) c) d)

1. 

b) 3 c) 1 d) does not exist

1. 

a) b) c) d)

1. If  then

a) b) c) d)

1. 

b) c) d)

1. 
2. 1 b) c) d)does not exist

1. If and if  exist then

b) c) d) 1

1. 

b) c) d)

1. 

a) b) c) d)

1. The value of k so that the function f defined by is continuous at

a) b) c) d)

1. If is continuous at , then

b) 3 c) d) 7

1. The points of discontinuity of the composite function , where

a) b) c) d)

1. The function given by is

a)continuous at b)discontinuous at

c) d)none of these

1. The function , where [x] denotes the greatest integer function is continuous at

a) b) c) d)all of these

1. The number of points at which the function is discontinuous is

a) b) c) d)none of these

1. Which of the following statement is true?

The identity function is a discontinuous function

b)A continuous function can have some points where limits does not exist.

c)is a continuous function

d) is discontinuous at

1. The value of if the function defined by is continuous at , is

a) b) c) d)

1. The values of a and b such that the function defined by is continuous at , is

a) b) c) d)

1. The points of discontinuity of the function where

a) b) c) d)none of these

1. If defined by is continuous function , then

a) b) c) d)

1. The function given by can be made continuous at by defining as

a) b) c) d)

1. If then

 b)

c) is discontinuous at d) is continuous at

1. If then

a) is discontinuous at b) is continuous at

c) is continuous at d)none of these

1. If the derivative of the function is every where continuous and is given by then

a) b)

c) d)

1. In order that the function is continuous at must be defined as

b) c) d)

1. If then

a) b)

c) is continuous at d)none of these

1. Which of the following statements is true for graph

a)Graph shows that is continuous

b)Graph shows that is discontinuous

c)Graph is symmetric along x – axis

d)Graph finds for negative and positive values of x

1. is continuous for

b) c)only d)no value of x

1. The value of k the function defined by is continuous at is

a) b) c) d)

1. 

a) b) c) d)

1. 

a) b) c) d)

1. The value of 

b) c) d)

1. 

a) b) c) d)none

1. 

a) b) c) d)100

1. 

a) b) c) d)

1. 

a) b) c) d)

1. 

b) c) d)

1. 

a) b) c) d)

1. The functionis not continuous at x=0, because

a) b) does not exist

c)does not exist d)does not exist

1. The function is

continuous at b)not continuous at

c) d)none of these

1. Which of the following function is not continuous on R?

a) b) c) d)both (a) and (c)

1. The number points of discontinuity of the function is

a) b) c) d)

1. The left hand limit of the function at is

b) c) d)does not exist

1. The value of k if the function is continuous at

a) b) c) d) no value of k

1. The relationship between a and b so that the function defined by is continuous at is

a) b) c) d)

1. The values of a and b such that the function is continuous at

a) b) c) d)

1. 

b) c) d)infinity

1. 

a) b) c) d)

1. 

a) b)

c) d)

**M-12 : DIFFERENTIABILITY AND DIFFERENTIATION, ROLLE’S AND**

**MEAN VALUE THEOREM**

1. The function is not differentiable at

a) only b) only c) only d) only

1. If then the right hand derivative of at is

b) c) d) 3

1. If then

a) b) c) d)

1. If

a) b)

c) d)

1. If is

a) b) c) d)

1. If where [x] denote the greatest integer then 

a) b) c) d)

1. If

b) c) d)

1. If

a) b) c) d)0

1. If

a)1 b) c) d)

1. If

a) b) c) d)

1. If

a) b) c) d)

1. If

a) b) c) d)

1. If

b) c) d)

1. If

a) b) c) d)

1. If

a) b) c) d)

1. If for points on the line is

b) c) d)

1. If then the value of a is

a) 0 b)1 c)2 d)3

1. If

b) c) d)

1. If

b) c) d)

1. The differential coefficient of with respect to is

a) b) c) d)

1. Differential coefficient of with respect to is

a) b) c) d)

1. If = then

b) c) d)

1. Let

a) b) c) d)

1. Suppose

a) b) c) d)

1. If at is

a) b) c) d)

1. If

a) b) c) d)

1. The value of C in Rolle’s theorem for the function is

b) c) d)

1. The value of C in Rolle’s theorem for the function is

a) b) c) d)

1. The value of C in mean value theorem for the function is

a) b) c) d)

1. For the function the value of C for mean value theorem is

a) b) c) d)none

1. Let is

a) b) c) d)

1. The function is

a)continuous every where but not differentiable at

b)continuous and differentiable every where

c)not continuous at x = 0

d)none of these

1. If is equal to

b) c) d)

1. If is equal to

a)150 b) c) d)50

1. If

a) b) c) d)

1. If 

b) c) d)

1. If then

a) b) c) d)

1. Let

a) b) c) d)

1. The derivative of with respect to , where and is

b) c) d)

1. If is

a) b) c) d)

1. The derivative of with respect to at is

a) b) c) d)

1. If is

a) b) c) d)

1. If  then

b) c) d)

1. If

a) b) c) d)2

1. If at is

a) b) c) d)

1. If

a) b) c) d)

1. If

a) b) c) d)

0 b)1 c) d)

1. If

a) b) c) d)

1. The derivative of with respect to is

a)2 b) c) d)

1. If are two functions with then

b) c) d)

1. If , a constant then

a) b) c) d)

1. If

a) b) c) d)

1. If the function defined on [1,3] satisfies Rolle’s theorem for then

b) c) d)none

1. If is

a) b) c) d)

1. Let then

a) is every where differentiable

b) is every where differentiable but not

c) is every where continuous but not differentiable at

d)none of these

1. Differentiable coefficient of is

a) b) c) d)

1. If for some constant ‘a’ then is

b) c)does not exist d)

1. If then the value of is

a) b) c) d)

1. The set of points where the function given by is differentiable is

a) b) c) d) none of these

**M-13 : APPLICATION OF DERIVATIVES**

1. In a right angled triangle ABC , area is maximum, then sinA+sinB+sinC =

a) +1 b) -1 c) 2 d) 2

1. The equation of the tangent to the curve on it is , then is

a) b) c) d)

1. If f is a real valued differentiable function for all x and f(1)=-2, 2 for x[1,6] then

f(6)<8 bf(6) 8 cf(6)=5 d f(6)<5

1. If the function f(x) = +kx+7 is increasing in the interval [-2,2] then k is

a) >4 b) <4 c)<-6 d) >6

1. The tangent and the normal drawn to the curve cuts thex – axis at A and B respectively then the area of the triangle PAB in square units is

a) b) c) d) 4

1. If is increasing then

a) b) c) d)

1. The surface area of a ball is increasing at the rate of sq cm/sec. The rate at which the radius is increasing when the surface area is sq cm is (in cm/sec)

a) b) c) d)

1. The hypotenuse of a right angled triangle is k cm, the area is maximum, then the sides of the triangle are

a) k,k b) k, k c) , d) ,

1. A rod of length 13 meters has one end P on the X – axis and other end Q on the Y – axis. If P moves along the X – axis with a speed of 12 m/sec, then the speed of the other end Q when it is 12 meters from the origin is

a) b) c) d)

1. The maximum slope of the curve is

a) b) c) d)

1. The minimum value of is

a) b) c) d)

1. A circular sector of perimeter 60mts with maximum area is to be constructed. The radius of the circular arc in metres must be

a) b) c) d)

1. If has its extremum value at is equal to

a) b) c) d)

1. The shortest distance from the point (1,0) to the curve is

a) b) c) d)

1. The distance of that point on the curve which is closest to the straight line is

a) b) c) d)

1. The rate of change of the diagonal of a square of area A and side x w.r.to its area is

b) c) d)

1. A value of c for which the conclusion of MVT holds for the function f(x)= in

the interval [1,3] is

a) b) c) d)

1. The function is decreasing in the interval

a) b) c) d)

1. Let then a number c of the Lagrange’s mean value theorem is

a) b) c) d) none of these

1. The minimum value of is

a) 1 b) c) d)

1. There is an error of 0.5sqcm in the calculation of the surface area of a sphere, then the error in the calculation of its volume when its radius is 10cms is

a) 0.25 b) 2.5 c) 5.0 d) 1.0

1. The curve has a vertical tangent at the point

a) b)at no point c) d)

1. The medians of an equilateral triangle are increasing at the rate of . What is the rate at which its sides are increasing?

a) b) c) d)

1. A point on the curve , where the normal is parallel to the line is

a) b) c) d)

1. A rectangle has three of its vertices on the coordinate axes and fourth on the curve . Then the maximum area of the rectangle is (in sq units)

a) b) c) d)

1. The maximum height reached by the body projected upwards which moves according to the law s= ut - a ,where s is in metres,t in seconds, from the ground is (in mts) is

a) b) c) d)

1. The absolute maximum of the function

is

a) b) c) d)

1. An isosceles triangle of vertical angle is inscribed in a circle of radius a . The area of the triangle is maximum, if

b) c) d)

1. A quadratic function in x has the value 19 when and has maximum value 20 when . Then the function is

a) b) c) d)

1. If , then the minimum value of is

a) b) c) d)

1. The set of real values of x for which is increasing is

a) b) c) d)

1. P is the point of contact of the tangent from the origin to the curve . The length of the perpendicular drawn from the origin to the normal at P is

a) b) c) d)

1. If then its maximum value is

b) c) d)

1. The smallest value of the polynomial is

a) b) c) d)

1. The point of extremum of the function are

a) b) c) d)

1. If then the minimum value of is

a) b) c) d)

1. The number of points in the tangents at which to the curve are perpendicular to the Y – axis is

a) b) c) d)

1. If the line is a tangent to the curve then

a)2 b)5 c) 1 d) 4

1. The equation of the normal to the curve where the curve crosses x – axis is

b) c) d)

1. If the line touches the rectangular hyperbola then

a) b) c) d)

1. If the slope of the tangent to the curve is equal to the ordinate of P, then the coordinate of P are

a) b) c) d)

1. The tangent of any point on the hyperbola and the coordinate axes makes a triangle of area (in sq units)

b) c) d)

1. If is increasing for all real values of x, then

a) b) c) d)

1. The tangent to the curve at any point is inclined at an acute angle with the positive direction of x – axis. Then ‘a’ can take any value in the interval.

b) c) d)

1. The area of the triangle formed by the tangent to the curve and the coordinate axes is

a) b) c) d)6ab

1. If is a tangent to the rectangular hyperbola then

a) b) c) d)

1. A light is hung 6 meters vertically above, a man is walking away from the light at the rate of . If the height of the man is 2 mts, then the rate at which the shadow increases is

a) b) c) d)

1. The area of an equilateral triangle of side ‘a’ feet is increasing at the rate of . the rate at which the perimeter is increasing is

b) c) d)

1. The equation of the horizontal tangent to the curve is

a) b) c) d)

1. The denominator of a fraction is greater than 16 of the square of numerator then least value of fraction is

a) b) c) d)

1. If the tangent to the curve at the point cuts off intercepts on the coordinate axes where then the value of ‘a’ is equal to

b) c) d)

1. The approximate value of is(given )

a) b) c) d)

1. How much does the side of a square change if its area increases from 9 to 9.1 sqmts?

a) b) c) d)

1. The maximum value of is

a) b) c) d)

1. Let x be a number which exceeds its square by the greatest possible quantity , then

a) b) c) d)

1. The function has a local minimum at , then the value of

b) c) d)

1. A ladder 5 mts long standing on a horizontal floor, leans against a vertical wall. If the top of the ladder slides down wards at the rate of 10 cm/sec then the rate at which the angle between the floor and the ladder is decreasing when lower end of the ladder is 2 mts from the wall is (in radian/sec)

a) b) c) d)

1. The point on the curve where the tangent is parallel to the chord joining (3,0) and (4,1) is

b) c) d)

1. For the curve the tangent line is perpendicular to x – axis when

a) b) c) d)

1. The function satisfies all the conditions of Rolle’s theorem in then the value of c is

a) b) c) d)

**M-14 : INTEGRATION**

1. 

a) b)

c) d)

1. 

b) c) d)

1. 

a) b)

c) d)

a) b) c) d)

a) b)

c) d)

a) b) c) d)

b) c) d)

a) b) c) d)

a) b)

c) d)

a) b)

c) d)

a) b)

c) d)

a) b) c) d)

1. If

b) c) d)

a) b) c) d)

1. If then

a) b)

c) d)

1. 

b) c) d)none

1. 

a) b) c) d)

1. 

b) c) d)

1. 

b) c) d)

1. 

a) b) c) d)

1. 

a) b) c) d)

1. If stands for the greatest integer function 

3 b) c) d)

1. If is a differentiable function and . Then

a) b) c) d)

1. 

a) b) c) d)

1. The value of the integral is

a) b) c) d)

a) b) c) d)

b) c) d)

1. If then the value of is

a) b) c) d)none of these

a) b)

c) d)

a) b) c) d)

1. 

a) b) c) d)

1. The value of  is

a) b) c) d)

1.  is

b) c) d)

1. The value of is

a) b) c) d)

1. The value of  is

a) b) c) d)

1. If  then for any

b) c) d)

1. If 

a) b) c) d)

1. If then

a) b) c) d)

b)

c) d)

a) b)

c) d)

a) b) c) d)

1. If then

a) b) c) d)

b) c) d)

a) b)

c) d)

a) b) c) d)

1. If f and g are continuous functions in [0,1] satisfying and

then 

a) b) c) d)

1. 

a) b) c) d)

1. If  then 

b) c) d)

1. 

a) b) c) d)

1. 

a) b) c) d)

1. 

b) c) d)

1. 

a) b) c) d)

1. If then a =

a) b) c) d)

1. If , then is

b) c) d)

1. The value of  is

a) b) c) d)

1. The value of 

a) b) c) d) 1

1. The value of the integral 

a) b) 0 c) d)

1. 

b) c) d)

1. If then

a) b)

c) d)

1. then

a) b) c) d)

**M-15 : APPLICATION OF INTEGRALS AND DIFFERENTIAL EQUATIONS**

1. The area of the region bounded by the curve , x – axis and the lines and is (in sq units)

a) b) c) d)

1. The area of the region bounded by the parabola and lines and is (in sq units)

b) c) d) 3

1. If the area enclosed between the parabola and the line is 12 sq units then the value of ‘a’ is

a) b) c) d)

1. The area enclosed by the curve is (in sq units)

a) b) c)5 d)

1. The area of the region defined by is (in sq units)

a) b) c) d)

1. The area of the region represented by the set is equal to (in sq units)

a) b) c) d)

1. The area of the region lying in the first quadrant bounded by the line and the circle is (in sq units)

b) c) d)

1. The parabola meets x – axis at A and B and y – axis at C. The area above x – axis inside the parabola and outside the is (in sq units)

a)9 b)18 c)27 d)36

1. The area of the triangle formed by the lines is (in sq units)

a)2 b)16 c) d)

1. The area of the region bounded by the parabola and its latus rectum is (in sq units)

a) b) c) d)

1. The area bounded by the curve whose parametric equations are and is (in sq units)

a) b) c) d)

1. If the area between sq units, then

a) b) c) d)

1. The area bounded by the curve x – axis and lines and is (in sq units)

b) c) d)

1. Area of the smaller region bounded by the curve and the line is (in sq units)

a) b) c) d)

1. The area of the region bounded by the curve , y – axis and the lines is (in sq units)

a) b) c) d)

1. The area of the region bounded by the parabola and the line is (in sq units)

b) c) d)

1. Area included between is 40 sq units. Then the focus of the parabola is

a)(12,0) b)(3,0) c)(4,0) d)(2,0)

1. The area of the region bounded by the curve and the coordinate axis lying in the second quadrant is (in sq units)

b) c) d)

1. The area of the region bounded by the curve and the lines and is (in sq units)

b) c) d)

1. The area bounded by the curve is (in sq units) , x – axis

a) b) c) d)

1. The degree and order of the differential equation are respectively

a) b) c) d)

1. The order of the differential equation whose general solution is given by

is

b) c) d)

1. The curve for which the slope of the tangent at any point is equal to the ratio of the abscissa to the ordinate of the point is

a)An ellipse b)parabola c) circle d)rectangular hyperbola

1. The family of curves is a solution of the differential equation

a) b)

c) d)

1. The general solution of the differential equation is a family of

a)hyperbolas b)parabolas c)straight lines d)circles

1. The general solution of the differential equation is

a) b)

c) d)

1. The general solution of is

b)

c) d)

1. A curve passes through the point . Let the slope of the curve at each point (x,y) be . Then the equation of the curve is

a) b)

c) d)

1. The solution of the differential equation satisfying the condition is

a) b)

c) d)

1. The integrating factor of the differential equation is

a) b) c) d)none of these

1. The general solution of the differential equation is

a) b)

c) d)

1. The differential equation represents

a)a family of circles whose centres are on the y – axis

b)a family of hyperbolas

c)a family circles whose centres are on the x – axis

d)a family of parabolas

1. If p and q are respectively the order and degree of the differential equation then

b) c) d)

1. The elimination of A and B from the equation gives the differential equation of order

a)second b)first c)fourth d)third

1. Which of the following is NOT a homogeneous differential equation?

a) b)

c) d)

1. The solution of the differential equation

b)

c) d)

1. The solution of the differential equation is

a) b)

c) d)

1. Suppose satisfies the differential equation If

a) b) c) d)

1. The solution of the differential equation is

b)

c) d)

1. The solution of the differential equation is

a) b)

c) d)

1. The solution of the differential equation where

a) b) c) d)

1. The integrating factor of the differential equation is

a) b) c) d)

1. The particular solution of is

b)

c) d)

1. The degree of the differential equation is

a) b) c) d)5

1. The differential equation of all parabolas whose axes are parallel to the axis of y, is

a) b) c) d)none

1. is the general solution of the differential equation

a) b)

c) d)

1. The general solution of is

a) b)

c) d)

1. The differential equation representing the family of curves where C is a positive parameter is of

order 1, degree 3 b)order 2, degree 3

c) order 3, degree 3 d)order 4, degree 4

1. The differential equation of all non – vertical lines in a plane is

a) b) c) d)

1. A curve having the condition that the slope of the tangent at some point is two times the slope of the straight line joining the same point to the origin of coordinates is a/an

a)circle b)ellipse c)parabola d)hyperbola

1. The area bounded by the curve , x – axis and the times is (in sq units)

b) c) d)

1. The area of the region bounded by the curve and y – axis is (in sq units)

a) b) c) d)

1. The area enclosed by the curve between is (in sq units)

a) b) c) d)

1. Area bounded by the curve is (in sq units)

b) c) d)

1. The line divides the area of the region bounded by and x – axis into two regions of areas . Then

a) b) c) d)

1. The area bounded by the curve , x – axis and the lines is (in sq units)

a) b) c) d)

1. The area bounded by the lines x – axis is

a) b) c) d)

1. The area bounded between the parabola and the line is (in sq units)

b) c) d)

1. The area of the region bounded by the parabola and the line is (in sq units)

a) b) c) d)

1. The area of the region bounded by the and the straight line is (in sq units)

a) b) c) d)

**M – 16 : VECTORS**

1. The unit vector in the direction of the sum of the vectors and is

a) b) c) d)

1. The position vector of a point R which divides the line joining the two points P and Q with position vectors , respectively in the ratio 1:2 externally is

b) c) d)

1. If the points represented by the position vectors and are collinear, then the value of m is

a) b) c) d)

1. A vector of magnitude units which makes an angle of with y and z – axes respectively is

a) b) c) d)

1. A unit vector of magnitude that are perpendicular to the plane of and is

a) b) c) d)

1. The angle between the vectors is

a) b) c) d)

1. If are the points with position vectors , respectively then the projection of along is

b) c) d)

1. If then a vector such that is

a) b) c) d)

1. The value of such that the vectors are orthogonal is

a)0 b) c) d)

1. For any vector

a) b) c) d)

1. If then the range of is

a) b) c) d)

1. If

a) b) c) d)

1. Which of the following statement is /are false?

Ifthen it implies

b)If then the vectors are parallel

c)If are adjacent sides of a rhombus, then

d)both (b) and (c)

1. If is any non – zero vector then

a) b) c) d)

1. The value of k for which is parallel to holds if

a) b) c) d)

1. The vectors are the adjacent sides of a parallelogram. The acute angle between its diagonal is

b) c) d)

1. If for some non – zero vector then the value of

a) 1 b) c) d)none of these

1. The number of vectors of unit length perpendicular to the vectors and is

b) c) d)infinite

1. The vectors are coplanar if

b) c) d)

1. If are three vectors such that and then

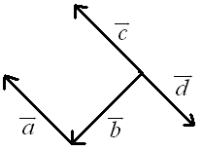
a) b) c) d)

1. A vector equally inclined to axes is

a) b) c) d)

1. The value of p such that is a unit vector is

b) c) d)

1. In the given figure, which of the vectors are collinear?

a) b)

c) d)

1. The value of if the projection of is 4 units is

a) b) c) d)

1. If two vectors are such that then the value

of

a) b) c) d)

1. If are two unit vectors and is angle between them, then

a) b) c) d)

1. The value of if is

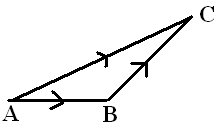
b) c) d)

1. The value of

a) b) c) d)

1. The area of the parallelogram having diagonals is (in sq units)

a) b) c) d)

1. In the given figure, which of the following is not true?

a) b)

c) d)

1. If are two collinear vectors then which of the following are incorrect?

a) for some scalar

b)

c)the respective components of are proportional

d) both the vectors have same direction but different magnitudes

1. If is a non – zero vector of magnitude a and is a non zero scalar, then is unit vector if

a) b) c) d)

1. A unit vector in XY – plane making an angle of with the positive direction of x – axis is

b) c) d)

1. A girl walks 4 km towards west, then she walks 3 km in a direction east of north and stops. The vector representation of the girl’s displacement from the initial point of departure is

a) b) c) d)

1. A vector of magnitude 5 units and parallel to the resultant of the vectors

a) b) c) d)

1. If is the angle between two vectors then only when

b) c) d)

1. Let be two unit vectors and is the angle between them. Then is a unit vector if

a) b) c) d)

1. The vectors are the sides of a .Then the length of the median through A is

a) b) c) d)

1. If G is the centroid of , then

b) c) d)

1. If then a vector of magnitude units in the opposite director of is

a) b)

c) d)

1. Let be vectors of lengths 3,4,5 respectively and each one of them being perpendicular to the sum of the other two, then

a) b) c) d)

1. If are three non – coplanar vectors, then

a) b) c) d)none of these

1. If the triangle with vertices at has centroid at then

b) c) d)

1. If then

a) b) c) d)

1. If then the angle between is

a) b) c) d)both (a) and (c)

a) b) c) d)

1. If then

a) b)

c) d)none of these

1. If then the angle between

b) c) d)

1. The area of the triangle formed by the points is (in sq units)

a) b) c) d)

1. If then which of the following is true?

a) are orthogonal and they are not orthogonal to

b) are mutually orthogonal unit vectors

c) are mutually orthogonal and is a unit vector

d) are mutually orthogonal and are unit vectors

1. If

b) c) d)

1. If from a triangle then the internal angle of the triangle between is

a) b) c) d)

1. The area of the parallelogram with as adjacent sides is 20 sq units. Then the area of the parallelogram having as adjacent sides is (in sq units)

a) b) c) d)

1. If

b) c) d)

1. If , then

a) b) c) d)both (b) and (c)

1. If are three non coplanar vectors and vectors and are coplanar then

a) b) c) d) 0

1. If are three non coplanar vectors then the value of

a) b) c) d)

1. If then the scalar triple product of the vectors

, is

b) c) d)

1. If are the adjacent sides of a parallelogram then the angle between its diagonals is

a) b) c) d)

1. Let . Then the areas of the triangles formed by with andwith are in the ratio is

a) b) c) d)

**M-17 : THREE DIMENSIONAL GEOMETRY**

1. The points (6,-1,2) , (5,2,4) and (8,-7,k) are collinear ,then k =

a) 2 b) 3 c) -2 d) 1

1. If are collinear then C divides AB in the ratio

a) internally b) externally c) internally d) externally

1. If two vertices and centroid of a triangle are respectively (3,2,-1) ,(2,-2,5)and (2,1,1) then the third vertex is

b) c) d)

1. The line  is

a) parallel to x-axis b) parallel to y-axis

c) parallel to z-axis d) perpendicular to z-axis

1. The distance between the line and the plane is

a) 10/3 b) 3/10 c) d) 10/9

1. The angle between the line and the plane x+ y + z + 5 = 0 is

a) b) c) d)

1. If the foot of the perpendicular from the plane is . Then the equation of the plane is

a) 2 x + y + 3 z = 14 b) x + 2 y + 3 z = 14 c) x + 2 y + 3 z + 14= 0 d) x + 2 y 3 z = 14

1. The equation of a line of intersection of planes 4x + 4y – 5z = 12 and8x + 12y – 13z=32 can be written as

a) = b) = c) = d) =

1. If the distance of the point (1,1,1) from the origin is half its distance from the plane x+y+z+k = 0 , then k =

a) 3 b) 6 c) -3 , 9 d) 3 , -9

1. If the lines  and  intersect , then k =

a)  b)  c) -1 d) 0

1. Equation of the plane passing through the midpoint of the line segment ofjoin of the points P(1,2,3) and Q(3,4,5) and perpendicular to it is

a)x + y + z =9 b) x + y + z = - 9 c) 2x + 3y + 4z = 9 d) 2x + 3y + 4z = -9

1. The area of the triangle formed by the plane 2x+3y+6z+9 = 0 with y-axis , z-axis

is( in sq.units)

a) 4/9 b) 9/4 c) 9 d) 9/2

1. The Cartesian equation of the line which passes through the point(-2,4,-5) and parallel

to the line given by is

a)  b) 

c)  d) None of these

1. If the projection of a line segment PQ on the coordinate axes are 2,3,6 the its

direction cosines are

a)  b) c) d)

1. The lines  and  are coplanar if

a) k = 1 or -1 b) k = 0 or -3 c) k = 3 or -3 d) k = 0 or -1

1. Equation of the plane through the points(3,-1,2) and (2,1,3) and parallel to x-axis is

a)y + 2z +5=0 b)x + y-5=0 c)y-2z + 5=0 d)2x + y-5=0

1. The direction ratios of a line are 1,-1,0 then the angle of inclination of the line with y-axis is

a) b) c)  d)

1. Let the line  lies in the plane x+3y - αz + β = 0.Then (α,β)=

a) (6,-17) b) (-6,7) c) (5,-15) d)(-5,5)

1. Let L:  and π: x-2y-z = 0 . Then

a) L is perpendicular to π b) L lies on π

c) L is parallel to π , but do not lie on π d) L and π intersect and not perpendicular to each other

1. The equation of the plane containing the line and the point (0,-1,2)is

a)x-2y-2z+2= 0 b)2x+2y-z+4= 0 c)5x-8y-9z+10= 0 d)x+y-2= 0

1. Equation of the plane passing through the line of intersection of the planes 3x-y=0 and 2z+y=0 and perpendicular to the plane 3x+4y-z-8= 0 is

a)x-2y-5z= 0 b)x-y-z= 0 c)2x-y+2z= 0 d)6x-7y-10z= 0

1. Shortest distance between the lines  and 

is

a)  b)  c) d)

1. Equation of the plane passing through (1,2,3) and having direction cosines of its

normal l, m, n is

a)lx + my +nz =1+2m+3n b)c)lx + my + nz =d)

1. Equation of the plane passing through the line of intersection of planes 3x+2y+z-1= 0

and 2x-3y-z+2= 0 parallel to 5x-y = 0 is 3x+2y+z-1+λ(2x-3y-z+2) = 0,then λ=

a)1/2 b)3/2 c)1 d)-1/2

1. A plane meets the coordinate axes at A,B,C such that the centroid of the triangleABC is (a,b,c). If the equation of the plane is , then k=

a)1 b)2 c)3 d)4

1. The angle between the normals of the planes x-y+z =3 and 3x-2y-z =5 is

a)  b) c) d)

1. The equation of the plane coplanar with the lines and

 is

a)13x+4y+19=0 b)13y+4z+19=0 c)13x+4z+19=0 d) 4x+13y-4z-19=0

1. The distance of the point(2,3,-4) from the point of intersection of the line

 and the plane 2x+3y-z-20 = 0 is

a)  b)  c)  d)

1. The equation ax+by+c=0 represents a plane perpendicular to

a)yz-plane b)xy-plane c)zx-plane d)ax+by+d=0

1. If the plane has the intercepts (a,b,c) with co-ordinate axes and is at a distance of ‘P’

from the origin then 

a)p b)1/p c) d)p2

1. Equation of the plane passing through (1,1,1) and (1,-1,-1) and perpendicular to

2x -y+z+5 = 0 is

a) 2x+5y+z-8 = 0 b) x+y-z-1 = 0 c) 2x+5y+z+4 = 0 d)x-y+z-1 = 0

1. Image of (1,2,3) w.r.t a plane is then which of the following points

lie on the plane?

a) (-1,1,-1) b)(-1,-1,-1) c) (-1,-1,1) d) (1,1,-1)

1. The equation of the plane coplanar with the lines and

 is

a)13x+4y+19=0 b)13y+4z+19=0 c)13x+4z+19=0 d) 4x+13y-4z-19=0

1. The angle between the planes 2x-y+z= 6 and x+y+2z = 7 is

a)π/3 b)π/6 c)π/4 d)π/2

1. A plane makes intercepts 3 and 4 respectively on z-axis and x-axis. If the plane is

parallel to y-axis then its equation is

a) 3x+4z = 12 b) 3z+4x = 12 c) 3y+4z =12 d) 3z+4y = 1

1. XOZ plane divides the join of (2,3,1) and (6,7,1) in the ratio

a) 3:7 b)2:7 c) -3:7 d) -2:7

1. The plane 3x-4y+5z-2 = 0 meets the co-ordinate axes at A,B,C then the co-ordinates of the centroid ‘G’ of the ∆ABC is given by

a)(3,-4,5) b)(3,4,5) c) d)none

1. The equation of plane whose intercepts are three times the intercepts made by the

plane 2x+3y+4z+5 = 0 is

a)6x+9y+12z+15 = 0 b)2x+3y+4z+3 = 0 c)2x+3y+4z+15 = 0 d)-2x-3y-4z+5 = 0

1. The distance between the linesand

is

a) b)  c)  d) 

1. Intercepts of the plane 3x+4y-5z-4=0 on the coordinate axes are

a) b)4,1,-5 c) d)3,4,-5

1. A plane is parallel to – plane so it is perpendicular to

a)x – axis b)y – axis c)z – axis d)none of these

1. The length of the foot of perpendicular drawn from the point on y – axis is

a) b) c) d)

1. If the origin is the centroid of the triangle ABC with vertices are

and then

a) b) 2 c) 1 d) 8

1. The reflection of the point in the – plane is

a) b c d)

1. If the end of a diagonal of a square are then the length of the side is

a) b) c) d)

1. The planes 2x-y+4z=5 and 5x-2.5y+10z=6 are

a)perpendicular b)parallel

c)intercept y-axis d)passes through (0,0,5/4)

1. The distance between the planes 2x+3y+4z=4 and 4x+6y+8z=12 is

a)2units b)4units c)8units d) units

1. The coordinates of the points A,B,C,D are (1,2,3), (4,5,7),(-4,3,-6) and (2,9,2) respectively. Then the angle between the lines AB and CD is

a)900  b)600 c)450 d)00 or 1800

1. The points (1,2,-3) and (-3,-1,2) w.r.to the plane 2x+y-3z-7=0 lie on

a) opposite sides of the plane b)same side of the plane

c)on the plane d)none of these

1. Distance of the plane .=1 from the origin is

a)1 b)7 c)1/7 d)none of these

1. The distance of the plane passes through (2,3,-1) and at right angles tothe vector 3i-4j+7k from the origin is

a) b) c) d)

1. The ratio in which the plane 4x+5y-3z=8 devides the line joining the points(-2,1,5) and (3,3,2) is

a)2:1 b)1:2 c)-2:1 d)3:2

1. The line is parallel to the plane

a) 2x+3y+4z = 0 b) 3x+4y+5z = 7 c) 2x+y – 2z = 0 d) x + y+ z = 2

1. The angle between a normal to the plane 2x and z- axis is

a) b) c) d)

1. If the plane 2 x is parallel to the line , thenthe value of ‘a’ is

a) 4 b) 2 c) 0 d)

1. The XY-plane divides the line joining the points (-1,3,4) and (2,-5,6) in the ratio

a) 2:3 internally b)3:2 internally c) 2:3 externally d) 3:2 externally

1. The reflection of the point (3,6,5) in the YZ-plane is

a) (3,-6,5) b) (-3,6,5) c) (-3,-6,-5) d) (3,6,0)

1. If A(2,-4,3) and B(1,3,-1) are two points ,then the point of intersection of AB

and XY-plane is

a) (1,-7,4) b)(5/2,5/2,0) c) (5/4,5/4,0) d) (5,5,0)

1. If h,k are the perpendicular distance from (1,2,3) to the x-axis,z-axis respectively,thenhk=

a) 65 b)  c)  d)

1. If two vertices of an equilateral triangle are (2,1,5) and (3,2,3) ,then

its third vertex is

a) (1,2,4) b) (4,0,4) c) (0,-4,4) d) (4,4,1)

**M-18 : PROBABILITY AND LPP**

1. A and B are events such that then

a) b) c) d)

1. Two events A and B have probabilities 0.25 and 0.5 respectively. The probability that both A and B occur simultaneously is 0.14. Then the probability that neither A nor B occurs is

b) c) d)

1. The probability that A speaks truth is , B speaks truth is . The probability that they contradict each other is

a) b) c) d)

1. Let A and B two events such that . Then the events A and B are

a)equally likely but not independent b)equally likely and mutually exclusive

c)mutually exclusive and independent d)independent but not equally likely

1. The probability of India winning a test match against west indies is . Assuming independence from match to match the probability that in a 5 match series India’s second win occurs at third test is

a) b) c) d)

1. Three distinct numbers are chosen randomly from the first 100 natural numbers. Then the probability that all the three of them are divisible by both 2 and 3 is

a) b) c) d)

1. A die is thrown. Let A be the event that number obtained is greater than 3. Let B be the event that the number obtained is less than 5. Then

b) c) d)

1. Let A and B be two events such that then

a) b) c) d)

1. If

a) b) c) d)

1. A and B are events such that then

a) b) c) d)

1. If A and B are two events such that

a) b) c) d)

1. Three persons A, B and C fire at a target, inturn starting with A. Their probability of hitting the target are 0.4, 0.3 and 0.2 respectively. The probability of two hits is

a) b) c) d)

1. Two events E and F are independent. If then

b) c) d)

1. A bag contains 5 red and 3 blue balls. If 3 balls are drawn at random without replacement the probability of getting exactly one red ball is

a) b) c) d)

1. Assume that in a family each child is equally likely to be a boy or girl. A family with three children is chosen at random. The probability that the eldest child is girl given that the family has atleast one girl is

a) b) c) d)

1. A die is thrown and a card is selected at random from a deck of 52 playing cards. The probability of getting an even number on the die and a spade card is

b) c) d)

1. A flash light has 8 batteries out of which 3 are dead. If two batteries are selected without replacement and tested the probability that both are dead is

a) b) c) d)

1. Eight coins are tossed together. The probability of getting exactly 3 heads is

b) c) d)

1. Two dice are thrown. If it is known that the sum of numbers on the dice was less than 6, the probability of getting a sum 3 is

b) c) d)

1. Which one is not a requirement of a binomial distribution is

a)There are 2 outcomes of each trial.

b)there is a fixed number of trials.

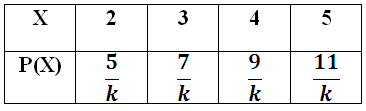
c)The outcomes must be dependent on each other

d) The probability of success must be the same for all the trials

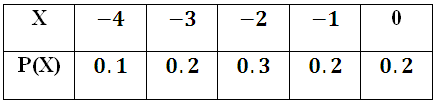
1. The probability of guessing correctly atleast 8 out of 10 answers on a true – false type examination is

a) b) c) d)

1. The probability distribution of a discrete random variable X is given below

Then the value of k is

b) c) d)

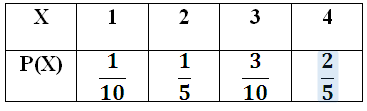


1. For the following probability distribution

Then

a) b) c) d)

1. For the following probability distribution

Then

a) b) c) d)

1. In a college 30 students fail in physics, 25 fail in Mathematics and 10 fail in both one student is chosen at random. The probability that she fails in physics, if she has failed in Mathematics is

a) b) c) d)

1. A and B are two students. Their chances of solving a problem correctly are respectively. If the probability of their making a common error is and they obtain the same answer then the probability of their answer to be correct is

a) b) c) d)

1. A box has 100 pens of which 10 are defective. What is probability that out of a sample of 5 pens drawn one by one with replacement atmost one is defective?

b) c) d)

1. If A and B are any two events such that then

a) b) c) d)

1. Out of 30 consecutive numbers, 2 are chosen at random. The probability that their sum is odd is

a) b) c) d)

1. The probability of choosing a number divisible by 6 and 8 among 1 to 90 is

a) b) c) d)

1. A dice is tossed 10 times. Getting an even number is considered as success. Then the variance of distribution of number of success is

a) b) c) d)

1. Five horses in a race. Mr.A selects two of the horses at random and bets on them. The Probability that Mr.A selected the winning horse is

a) b) c) d)

1. The mean and variance of a binomial distribution are 4 and 2 respectively. Then the probability of 2 success is

b) c) d)

1. A and B are mutually exclusive events with , the sample space then

a) b) c) d)

1. Two dice are thrown at a time and the sum of the numbers on them is 6. The probability of getting the number 4 on anyone of the dice is

a) b) c) d)

1. A fair coin is tossed repeatedly. If the tail appears on the first 4 tosses then the probability that the head appearing on the fifth toss equals

b) c) d)

1. An unbiased coin is tossed a fixed number of times. If the probability of getting 4 heads equals the probability of getting 7 heads, then the probability of getting 2 heads is

a) b) c) d)

1. Two vertices of a hexagon are selected at random then the probability that they are the end points of a diagonal is

a) b) c) d)

1. A bag contains 4 copper coins, 3 silver coins and the second bag contains 6 copper and 2 silver coins. A coin is taken out from any one bag, the probability that it is copper coin is

b) c) d)

1. A six faced die is so biased that it is twice as likely to shown even number as an odd number when thrown. It is thrown twice. The probability that the sum of two numbers thrown is even is

a) b) c) d)

1. A bag contains 3 white and 2 red balls. If two balls are drawn one by one without replacement then the probability of drawing a red ball in the second drawn is

a) b) c) d)

1. Three different numbers are selected at random from the set {1,2,..,10}. The probability that the product of two of them is equal to the third is

a) b) c) d)

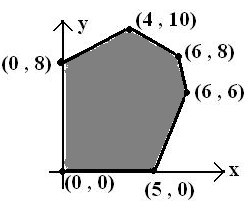
1. Corner points of feasible region for an LPP are Let be the objective function. The minimum value of F occurs at

(0,2) only

b)(3,0) only

c)the mid point of the line segment joining the points (0,2) and (3,0) only

d)any point on the line segment joining the points (0,2) and (3,0)

1. The feasible solution for a LPP in the following figure. Let be the objective function. Maximum of Z occurs at

a) b)

c) d)(4,10)

1. The region represented by the inequations is

a)unbounded b)a polygon c)bounded region d)null region

1. The probability that a person is not a swimmer is 0.3. The probability tat out of 5 persons 4 are swimmers is

a) b) c) d)

1. Suppose a random variable X follows the binomial distribution with parameters n and p, where if is independent of n and r then

a) b) c) d)

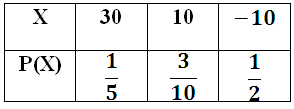
1. Let A and B be two events such that then

b) c) d)

1. A and B are events such that then

a) b) c) d)

1. Let X be a discrete random variable. The probability distribution of X is given below

Then

a) b) c) d)

1. A and B are two events such that then

b) c) d)

1. If five letters have to be placed in five addressed envelops, wheat is the probability that atleast one letter is placed in an incorrect envelope

a) b) c) d)

1. A box contains 12 bulbs of which 3 are defective. If three bulbs are chosen at random find the probability of atleast one bulb is good is

a) b) c) d)

1. If in a binomial distribution is

b) c) d)

1. In eight throws of a die 1 or 3 is considered as success. Then the standard deviation of success is

a) b) c) d)

1. A student writes an exam which contains 5 questions. He will pass the examination only if he answers atleast 3 questions correctly. The probability that he passes the exam is

a) b) c) d)

1. In a binomial distribution mean is 3 and standard deviation is then the probability distribution is

a) b) c) d)

1. Probability that a plant will survives is and the probability that another plant survives is . The probabilities that only one of them survives is

b) c) d)

1. The solution set of the inequality is

a)Half plane containing the origin

b)Half plane not containing the origin

c)whole plane except the points on the line

d)none of these

1. If the point at which maximum value of attained will be

a) b) c) d)