1 A = {8n-7n-1 : nєN}, B= {49n-49:nєN} then

(a) AB (b) A=B (c) AA (d) A∩B = ɸ

2 Two finite sets have m and n elements, the number of subsets of the first set is 112 more than that of the second set. The values of m and n are respectively.

(a) 4,7 (b) 44 (c) 7,4 (d) 7,7

3. Two finite sets have m and n elements, the number of subsets of the first set is 56 more than that of the second. The values of m and n are

(a) 7,6 (b) 5,1 (c) 8,7 (d) 6,3

4. If sets A and B are defined as

A = {(x,y) : y= 1/x, 0 xєR} B = {(x,y) : y= -x, xєR} then

(a) A∩B = A (b) A∩B = B (c) A∩B = ɸ (d) AUB = A

5. A survey shows that 63% of the people watch a news channel whereas 76% watch another channel. If x% of the people watch both the channels then

(a) x=35 (b) x = 63 (c) 39< x<63 (d) x = 39

6. A and B are two sets containing respectively m1 and m2 elements if x <n(AB) < y then the values of x and y are

(a) x = max{m1, m2} y = (m1+m2) (b)m1+m2= x. y=m1

(c) x=m1, y= m2 (d) None

7. If x and y are two sets, then x∩ (XY)1 is equal to

(a) X (b) Y (c) X∩Y (d) ɸ

8. Set A has 3 elements and set B has 4 elements. The number of injection that can be defined from A to B is

(a) 144 (b) 12 (c) 24 (d) 64

9. is defined under 

(a) 8 (b) -1 (c) 11 (d) None

9 Let X= {0, -1, 1, 2} and Y= {0,1,2,3,4,6} Let f: X→Y be defined as f (x)=x2+x for all xєX then range of f is.

(a) {1,2,6} (b) {0,2,6} (c) {3,5,6} (d) None

10 If f: R→R is defined by f (x) = x/x2+1, then f (f (2)) is

(a) 10/29 (b) 8/29 (c) 3/19 (d) 4/29

11. Which one of the following is an odd function

(a) f (x)= lxl (b) f (x) = cos x(c) f(x)= Sin2x (d) f (x)= 1/x

12. R is a relation from {11,12,13} to {8,10,12} defined by y = x-3 then R-1 is

(a) {(8,11) (10,13)} (b) {(11,8) (13,10)} (c) {(10,13) (8,11) (12 10)}(d) None

13. If f is defined by f (x) = x-4 and g is defined by 

then λ is such thatf (x) = g (x)

(a) λ=4 (b) λ= -4 (c) λ=16 (d) λ= -8

14. The domain of f (x)= is

(a) R- {1,5} (b) R- {1,4} (c) R- {2,3} (d) None

15. The range of f (x)= is

(a) (-, 0) U () (b) {3,2} (c) R- {2} (d) R- }

16. The domain of the function f (x) = is

(a) 0, (b) R (c) (d) 1

17. The domain of the function f(x) = is

(a) R (b) (2,3 ) (c) (d) None

18. The function f:R→R is defined by f(x)= cos2x + sin4x then f (R) is

(a) (b) () (c) (d) ()

19. The range of the function f (x) = x

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

20. If f(x) = 64x3+and are the roots of 4x+=3. Then,

(a)f ()= f ()= -9 (b) f ()= f ()= 63 (c) f () f () (d) None of these

21. If for all non zero x, then f(x)=

(a)  (b) 

(c)  (d) None of these

22. If f:R

f(x)=Then,

(a) f(x)= f (1-x) (b) f(x)+f(1-x)=0 (c) f(x)+f(1-x)=1 (d) f(x)+f(x-1)=1

23. If =, x(-10,10) and f(x)= kf , then k =

(a) 0.5 (b) 0.6 (c) (d) 0.8

24. If R is defined by





(a) (b) (c) (d)

25. If f is a real valued function given by f (x) = 27+ and

3x + = 12. Then,

(a) f () (b) f () = 10 (c) f () (d) None of these

26. If f (x) = sin x, where denotes the greatest integer less than or equal to x, then

(a) f() = 1 (b) f =2 (c) f() = - 1 (d) None of these

27. The range of the function f (x) = is

(a) R- (b) R (c) (d) None of these

28. If f:R and g:RR are defined by f(x)=2x+3 and g(x)=+7, then the values of x such that g

(a)1,2 (b) -1,2 (c) -1, -2 (d) 1, -2

29. If z = then the value of arg (z) is

(a) (b) (c) (d)

30. If a = cos

(a) cot (b) cot (c) icot (d)

31. If (1+i) (1+2i) (1+3i)……(1+ni) = a+ib, then 2.5.10.17……(1+ ) =(a) a-ib (b) - (c) +(d)

32. If 

(a) (b) (c) (d) None of these

33. The least positive integer n such that is a positive integer, is

(a) 16 (b) 8 (c) 4 (d) 2

34. If (x+iy)1/3 = a + ib, then + =

(a)0 (b) 1 (c) -1 (d) None of these

35. The argument of is

(a) 600 (b) 120 (c) 2100 (d) 2400

36. If  then z4 equals

(a) 1 (b) -1 (c) 0 (d) None of these

37. If z = 1-cos+ i sin, then |z| =

(a) 2 sin (b) 2 cos (c) 2 |sin | (d) 2 |cos |

38. If f(x) = [ x ] then f ( - 3/2 ) is :

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

39. If f(x) = [ x ] then f ( 11/2 ) is :

(a) -5 (b) -2 (c) 5 (d) 3 .

40. The range of the function f(x) = x2 + 2x + 2 is :(a) (1,∞ ) (b) (2,∞ )

(c) [1,∞ ) (d) (4,∞ )

41. If f : R 🡪R defined by f(x) = , then f(2) is : (a)  (b)  (c)  (d) .

42. The greatest value of sin x cos x is :

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

43. The minimum value of 3 cos x + 4 sin x + 8 is :

(a) 1 (b) 3 (c) 2 (d) 15

44. If sin A + sin A = 1, then the value of sin 2A is :

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

45. Value of sin 765 ois :

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

46. Cos ( is equal to :

(a) cos x (b) sin x

(c) – cos x (d) – sinx .

47. Period of sinx is :

(a) π (b) 3 π (c) 2 π (d) 1.

48 Period of cot x is :

(a) π (b) 3 π (c) 2 (d) 1.

49 The function F(x) = x2 + 4x +8 is a :

(a) Even (b) Odd

(c) Both even and odd (d) None of these.

50. Let f(x) =,then f(-3) is equal to :

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

51. The maximum value of 2 sinx + 5 cos x is :

(a) √29 (b) 31 (c) 29 (d) 5 .

52. If x lies in third quadrant then sin x and tanxhave :

(a) Same sign (b) Opposite sign

(c) Same value (d) None of these .

53. If xn - 1 is divisible by x – k then least positive value of k is : (a) 1 (b) 3 (c) -3 (d) -1.

54. For each n ϵ N ,n ( n+1 ) ( 2n + 1 ) is divisible by :

(a) 1 (b) 3 (c) 6 (d) 9.

55. For each n ϵ N , 4n – 3n - 1 is divisible by :

(a) 15 (b) 3 (c) 6 (d) 9.

56. Sum of the three cube rots of unity is :

(a) 1 (b) 3 (c) 0 (d) -1.

57. Product of the three cube rots of unity is :

(a) 1 (b) 3 (c) 0 (d) -1.

58. Modulus of complex number 3i – 4 is :

(a) 1 (b) 3 (c) 0 (d) 5 .

59. i-35  is equal to :

(a) 1 (b) i (c) 0 (d) - i.

60. Complex conjugate of 3i – 7 is :

(a) 3i + 7 (b) – 3i - 7 (c) -7 (d) 3i .

61. If 

(a) x ϵ ( -13 ,7 ) (b) x ϵ ( -13 ,7 ]

(c) x ϵ ( -∞,-13] U [7, ∞ ) (d) x ϵ ( -∞,-13] U [3, ∞ ) .

62. In how many ways a committee consisting of 3 men 2 women, can be chosen from 7 men and 5 women ?

(a) 150 (b) 50 (c) 350 (d) 15.

63. The number of signals that can be sent by 5 flags of different colours , taking one or more at a time is :

(a) 1956 (b) 950

(c) 350 (d) 156.

64. The number of words that can be formed by using all the letters of the word**‘ PROBLEM ’**only once is ;

(a) 4! (b) 3! (c) 7! (d) 5! .

65. The value of 4! – 3! Is :

(a) 18 (b) 3 (c) 6 (d) 9.

66. The number of seven digit integers , with sums of the digits equal to 10 and formed by using the digits 1,2and 3 only is :

(a) 35 (b) 42 (c) 77 (d) 9.

67. A polygon has 65 diagonal . The number of its sides is equal to : (a) 18 (b) 31 (c) 16 (d) 13

68. A coin is tossed n times , the number of all the possible outcomes is : (a) 2n (b) n2 (c) 2n (d) n.