Unit 2: Functions

1. In the function y=f(x), the 'f' is classified as
   a) name of function
   b) value of function
   c) upper limit of function
   d) lower limit of function
2. In the function y=f(x), the 'y' is classified as
   a) dependent variable
   b) independent variable
   c) upper limit of function
   d) lower limit of function
3. To state the function that value of variable y is determined by variable of x written as
   a) f=(x)y
   b) x=f(y)
   c) y=f(x)
   d) f=(y)x
4. The function written as $y=f(x)=a_1x+a_0$ is general form of
   a) linear function
   b) variable function
   c) variate function
   d) constant function
5. The formula of total cost is
   a) variable cost+ fixed cost
   b) marginal cost+ fixed cost
   c) marginal cost+variable cost
   d) variable cost- fixed cost
6. The notation of mapping input values to output is written as
   a) f:x→y
   b) f:y→x
   c) y:x→f
   d) y:x→f
7. The function of two variables in a way that u is dependent variable and v is independent variable is written as
   a) u=f(v)
   b) f=u(v)
   c) v=f(u)
   d) f=v(u)
8. The function written as y=-4x+16 is general form of
   a) linear function
   b) variable function
   c) variate function

d) constant function

9. The function which is considered as function of values of another function is classified as
   a) composite function
   b) exchange function
   c) change function
   d) view function
10. The set of all the possible input values for a function is classified as
   a) lower limit
   b) range
   c) domain
   d) upper limit
11. In the function y=f(x) is classified as
   a) upper limit variable
   b) independent variable
   c) dependent variable
   d) lower limit variable
12. The process of assigning input value to corresponding output values is referred as
   a) input assignment
   b) mapping
   c) correspondence
   d) output assignment
13. The functional relationship between two variable x and y is written as
   a) f=(x)y
   b) x=f(y)
   c) y=f(x)
   d) f=(y)x
14. The function of relationship between two variables y=f(x) is translated as
   a) y is function of x
   b) x is function of y
   c) x is not function of y
   d) y is not function of x
15. The function written as y=f(x)=a0 is general form of
   a) linear function
   b) variable function
   c) variate function
   d) constant function
16. The set of all the possible output values for a function is classified as
   a) lower limit
   b) range
   c) domain
   d) upper limit

17. The function with the general form y=f(x)=g(x)/h(x) is the form of function called
    a) marginal function
    b) rational function
    c) irrational function
    d) polynomial function
18. Let P= {10,20,30} and Q= {5,10,15,20}. Which one of the following is one-one and not onto?
    a) f={(10,5),(10,10),(10,15),(10,20)}
    b) f={(10,5),(20,10),(30,15)}
    c) f={(20,5),(20,10),(30,10)}
    d) f={(10,5),(10,10),(20,15),(30,20)}
19. Let M={5,6,7,8}and N={3,4,9,10}. Which one of the followingfunctions is neither one-one nor onto?
    a) f={(5,3),(5,4),(6,4),(8,9)}
    b) f={(5,3),(6,4),(7,9),(8,10)}
    c) f={(5,4),(5,9),(6,3),(7,10),(8,10)}
    d) f={(6,4),(7,3),(7,9),(8,10)}
20. A function f:R→R is defined by $f(x)=5x^3-8$. The type of function is
    a) One-one
    b) Onto
    c) many-one
    d) both one-one and onto
21. The function f:R→R defined as f(x)=7x+4 is both one-one and onto
    a) True
    b) False
    c) all above
    d) none of these
22. A function f:R→R defined by $f(x)=5x^4+2$ is one-one but not onto
    a) True
    b) False
    c) all above
    d) none of these
23. A function is invertible if it is
    a) Onto
    b) one-one
    c) none of above
    d) (a) and (b) both
24. Let M={7,8,9}. Determine which of the following functions is invertible for f:M→M.
    a) f={(7,7),(8,8),(9,9)}
    b) f={(7,8),(7,9),(8,9)}
    c) f={(8,8),(8,7),(9,8)}

d) f={(9,7),(9,8),(9,9)}

25. The function f: A → B defined by f(x) = 4x + 7, x ∈ R is
    a) one-one
    b) Many-one
    c) Odd
    d) Even

26. If f: R → R and g: R → R defined by f(x)= 2x + 3 and g(x)= x^2+7, then the value of x for which f(g(x))= 25 is
    a) ±1
    b) ±2
    c) ±3
    d) ±4

27. Function is said to be _____ if and only if f(a)=f(b) implies that a=b for all a and b in the domain of f.
    a) One-to-many
    b) One-to- one
    c) Many-to-Many
    d) Many-to-one

28. The function f: A → B defined by f(x) = 4x + 7, x ∈ R is
    a) One-one
    b) Many-one
    c) Odd
    d) Even

29. The relation R is defined on the set of natural numbers as {(a, b) : a = 2b}. Then, R-1 is given by
    a) {(2, 1), (4, 2), (6, 3),….}
    b) {(1, 2), (2, 4), (3, 6), ……..}
    c) R-1 is not defined
    d) None

30. A={1, 2, 3} which of the following function f: A → A does not have an inverse function
    a) {(1, 1), (2, 2), (3, 3)}
    b) {(1, 2), (2, 3), (3, 1)}
    c) {(1,3),(3, 2), (2, 1)}
    d) {(1, 2), (2, 1), (3, 1)}

31. Let P={10,20,30} & Q={5,10,15,20}. Which one of the following functions is one-one and not onto?
    a) f={(10,5),(10,10),(10,15),10,20)}
    b) f={(10,5),(20,10),(30,15)}
    c) f={(20,5),(20,10),(30,10)}
    d) f={(10,5),(10,10),(20,15),(30,20)}

32. Let M={5,6,7,8} & N={3,4,9,10}. Which one of the following functions is neither one-one and not onto?

a) f={(5,3),(5,4),(6,4),(8,9)}
b) f={(5,3),(6,4),(7,9),(8,10)}
c) f={(5,4),(5,9),(6,3),(7,10),(8,10)}
d) f={(6,4),(7,3),(7,9),(8,10)}

33. The function f : R → R defined by f(x) = 3 – 4x is
a) Onto
b) Not onto
c) Not one-one
d) None of these

34. Which of the following functions from Z into Z are bijective?
a) f(x) = x+2
b) None
c) f(x) = 2x + 1
d) f(x) = x2 + 1

35. Let f : R → R be a function defined by $f(x) = x^3 + 4$, then f is
a) Injective
b) Surjective
c) Bijective
d) none of these

36. Another name for One-One function
a) Injective
b) Surjective
c) Bijective
d) None of these

37. Co-domain is subset of range.
a) True
b) False
c) Can't say
d) None

38. The function is invertible only when it is
a) Injective
b) Surjective
c) Bijective
d) None of these

39. For the function {(0,1), (1,-3), (2,-4), (-4,1)}, write the domain and range.
a) D: {1, -3, -4,}, R: {0, 1, 2, -4}
b) D:{0, 1, 2, -4}, R:{1, -3, -4}
c) D:{0, 1, 2, 3, 4}, R:{1, -3, -4}
d) None

40. Consider the function f={(3,11),(4,18),(5,27),(6,38)}. What is the Domain?
a) {4,11,5,18}
b) {3,11,4,18}

c) {3,4,5,6}
d) {11,18,27,38}

41.If f(x)=3x-9, Find f(5).
a) f(5) = 6
b) f(5) = 16
c) f(5) = -4
d) f(5) = 24

42.If f(x) = 5x + 3, x∈R. If f(x) = 13, find the value of x.
a) 3
b) (-2)
c) (-3)
d) 2