Chapter 1: Set and Function

1. If A = {1, 2, 3, 4, 5} what is the number of elements of P(A)? [All B.18]
ⓐ 5 ⓑ 16 ⓒ 31 ⓓ 32 **d**

2. If S = {(x, y): $x^2 + y^2 - 36 = 0$}, then — [All B.18]
i. the relation is not a function
ii. the graph of relation is a circle
iii. the graph of relation intersect y-axis at (6,0)
Which one of the following is correct?
ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii **a**

3. If $A \subset B$, then which one of the following is correct? [D.B.17]
ⓐ $A \cup B = A$ ⓑ $A \cap B = A$
ⓒ $A \cap B = B$ ⓓ $A' \subset B'$ **b**

4. If n(A) = 3, n(B) = 4 and $A \cap B = \phi$, then $n(A \cup B)$ = ? [D.B.17, C.B.15]
ⓐ 3 ⓑ 4 ⓒ 7 ⓓ 12 **c**

5. If A is any subset of the universal set U, then what is the value of A\(A\A)? [Dj.B.17]
ⓐ A′ ⓑ A ⓒ ∅ ⓓ {0} **b**

6. If n(M) = 7, n(N) = 4 and $n(M \cap N) = 5$, then $n(M \cup N)$ = ? [C.B.17]
ⓐ 2 ⓑ 6 ⓒ 8 ⓓ 16 **b**

7. If U is the Universal set and the sets A = {2, 3} and B = {5} then $(A \cap B)'$ is equal to— [J.B.17]
ⓐ A ⓑ B ⓒ U ⓓ $A \cup B$ **c**

8. Which country belongs to George Cantor? [J.B.16]
ⓐ Britain ⓑ Italy
ⓒ France ⓓ Germany **d**

9. If $A \subset B$ which is the correct of the following? [D.B.16]
ⓐ $A \cap B = B$ ⓑ $A \cup B = B$
ⓒ $A \cup B = A$ ⓓ $A \cup B = A \cap B$ **b**

10. If U = {x : x ∈ N, x ≤ 10}; A = {x : x ∈ N, x ≤ 8 and x even number}, B = {x : x ∈ N, x multiples of 3}, then $A \cap B$ is— [B.B.16]
ⓐ ∅ ⓑ {6}
ⓒ {6, 8} ⓓ {2, 3, 4, 6, 8} **b**

11. If a member of the set number n, then the number of proper subset is — [B.B.16]
ⓐ $2^n + 2$ ⓑ 2^{n+2}
ⓒ $2^n - 1$ ⓓ $2^n - 2$ **c**

12. If A = {a, b, c, d, e} find the elements of P(A) = ? [D.B.16]
ⓐ 5 ⓑ 10 ⓒ 25 ⓓ 32 **d**

13. If B = {x ∈N : 6 < 2x < 17} then, which of the following is an element of P(B)? [R.B.16]
ⓐ 2^3 ⓑ 2^4 ⓒ 2^5 ⓓ $2^4 + 1$ **c**

14. How many elements of power set of the set A = {1, 2, 3, 4, 5}? [S.B.16]
ⓐ 5 ⓑ 10 ⓒ 25 ⓓ 32 **d**

15. If U = {1, 3, 5, 6}, A = {3, 6}, what will be the number of elements of P(A′)? [C.B.16]
ⓐ 1 ⓑ 2 ⓒ 4 ⓓ 8 **c**

16. If A = {5, 6, 7}, B = {2, 3} then $A \cap B$ = ? [R.B.16]
ⓐ {ϕ} ⓑ ϕ
ⓒ {2, 3, 5, 6} ⓓ {0} **b**

17. Among a certain group of students, 60 like cricket, 40 like football and 25 like both the game. How many students like at least one of the games? [S.B.16]
ⓐ 25 ⓑ 75 ⓒ 100 ⓓ 125 **b**

18. If A set has 3 elements then what is the number of proper subsets? [D.B.15]
ⓐ 3 ⓑ 6 ⓒ 8 ⓓ 7 **d**

19. If A = {a, b, c, d} then how many elements do P (A) have ? [R.B.15]
ⓐ 4 ⓑ 8 ⓒ 16 ⓓ 32 **c**

20. If A′ is the complement set of A, then $A \cap A'$ =? [R.B.15]
ⓐ U ⓑ ∅ ⓒ A ⓓ A′ **b**

21. A = {x : $x^2 - 4 = 0$} and B = {x : $x^2 - x - 6 = 0$} then $A \cap B$ = ? [R.B.15]
ⓐ {–2, –3, 2} ⓑ {–2}
ⓒ {–3} ⓓ (2} **b**

22. Which one is the one-one function? [R.B.17]
ⓐ $F(x) = \frac{1}{x-2}, x \neq 2$ ⓑ $F(x) = x^2 + 1$
ⓒ $F(x) = (x-2)^2$ ⓓ $F(x) = (3+x)^2$ **a**

23. Which one is the domain of $f(x) = \sqrt{3-x}$? [R.B.17]
ⓐ {x ∈ R : x < 3} ⓑ {x ∈ R : x ≤ 3}
ⓒ {x ∈ R : x ≥ 3} ⓓ {x ∈ R : x = 3} **b**

24. If (x) = 3x + 1, 0 ≤ x ≤ 2, then range of *f* is— [Dj.B.17, Ctg.B.17]
ⓐ {y ∈ R: 0 ≤ y ≤ 2} ⓑ {y ∈ R : 1 ≤ y ≤ 2}
ⓒ {y ∈ R : 0 ≤ y ≤ 7} ⓓ {y ∈ R : 1 ≤ y ≤ 7} **d**

25. If A = {x : $x^2 + 5x = 6$}, then what is the tabular form of A? [S.B.17]
ⓐ {5, 6} ⓑ {–1, 6}
ⓒ {1, –6} ⓓ {2, 3} **c**

26. $F(x) = \sqrt{x-2}$, dom F = ? [S.B.17]
ⓐ {x ∈ R : x ≠ 2} ⓑ {x ∈ R : x ≥ 2}
ⓒ {x ∈ R : x ≤ 2} ⓓ {x ∈ R : x > 2} **b**

27. Which one is the domain of the relation {(1, 5), (2, 10), (2, 12), (3, 15), (4, 20)}? [J.B.17]
ⓐ {1, 2, 3, 4} ⓑ {1, 2, 2, 3, 4}
ⓒ {5, 10, 12, 15, 20} ⓓ {1, 2, 12, 15, 20} **a**

28. Which one of the following is the domain of the function $f(x) = \sqrt{2x-3}$? [B.B.17]
ⓐ $\left\{x \in R: x > \frac{2}{3}\right\}$ ⓑ $\left\{x \in R : x \geq \frac{2}{3}\right\}$
ⓒ $\left\{x \in R : x > \frac{3}{2}\right\}$ ⓓ $\left\{x \in R : x \geq \frac{3}{2}\right\}$ **d**

29. What is the coordinate of centre from circle equation $(x-2)^2 + (y+3)^2 = 25$? [B.B.17]
ⓐ (–3, 2) ⓑ (2, –3)
ⓒ (–2, 3) ⓓ (3, –2) **b**

30. Which one of the following image set of $F(x) = x^2 - 2x$; for the domain X = {–1, 0, 1}? [Ctg.B.16]
ⓐ {–1, 0} ⓑ {3, 0, –1}
ⓒ {–1, 0, 3} ⓓ {–1, 0, 1} **b**

31. What is the domain of the function $F(x) = \frac{1}{x-5}$? [S.B.16]
ⓐ {x : x ∈ R and x ≠ 5} ⓑ {x : x ∈ R}
ⓒ {x : x ∈ R and x ≥ 5} ⓓ {x : x ∈ R and x > 5} **a**

32. If $F(x) = \sqrt{x-1}$, which one is the domain of F(x)? [D.B.16]

ⓐ $\{x \in \mathbb{R} : x \leq 1\}$ ⓑ $\{x \in \mathbb{R} : x \geq -1\}$
ⓒ $\{x \in \mathbb{R} : x \leq -1\}$ ⓓ $\{x \in \mathbb{R} : x \geq 1\}$ **d**

33. Which one is the domain of the function $F(x) = \sqrt{5-x}$? [Dj.B.16]

ⓐ $\{x : x \in \mathbb{R} \text{ and } x \leq 5\}$ ⓑ $\{x : x \in \mathbb{R} \text{ and } x < 5\}$
ⓒ $\{x : x \in \mathbb{R} \text{ and } x \geq 5\}$ ⓓ $\{x : x \in \mathbb{R} \text{ and } x > 5\}$ **a**

34. If $f(x) = \sqrt{1-2x}$, which one of the following is the domain of the function? [C.B.16]

ⓐ Dom $F = \{x \in R : x \leq \frac{1}{2}\}$ ⓑ Dom $F = \{x \in E : x < \frac{1}{2}\}$
ⓒ Dom $F = \{x \in R : x = \frac{1}{2}\}$ ⓓ Dom $F = \{x \in R : x \geq \frac{1}{2}\}$ **a**

35. If $S = \{x : x \in \mathbb{R}, F(x) = \sqrt{2-x}\}$, then dom S is— [B.B.16]

ⓐ $\{x \in \mathbb{R}, x \geq 2\}$ ⓑ $\{x \in \mathbb{R}, x \leq 2\}$
ⓒ $\mathbb{R} - \{2\}$ ⓓ $\mathbb{R} + \{2\}$ **b**

36. If $F(x) = |x|$ then which one is the value of $F(-3)$? [J.B.16]

ⓐ -3 ⓑ 0 ⓒ 3 ⓓ ± 3 **c**

37. If $f(x) = \frac{4x-9}{x-2}$, then value of $f^{-1}(3)$ is— [B.B.16]

ⓐ 3 ⓑ 1 ⓒ $\frac{3}{5}$ ⓓ -3 **a**

38. Which one is the domain of the relation {(0, 0), (1, 1), (–1, 1), (2, 4)}? [R.B.16]

ⓐ $\{0, 1, -1, 2\}$ ⓑ $\{0, 1, 4\}$
ⓒ $\{0, 1, -1, 4\}$ ⓓ $\{0, 1, 2, 4\}$ **a**

39. If S = {(1, 4), (2, 1), (3, 0), (4, 1), (5, 4)}, then— [Ctg.B.-17]

i. the range of the relation S is {4, 1, 0}
ii. the inverse relation of S is {(4, 1), (1, 2), (0, 3), (1, 4), (4, 5)}
iii. S is a function

Which one is correct?

ⓐ i and ii ⓑ i and iii
ⓒ ii and iii ⓓ i, ii and iii **d**

Answer to the questions no. 40 and 41 to the information given bellow: [Ctg.B.-17]

$F(x) = \sqrt{x-1}$

40. If F(x) = 5, then the value of 'x' = ? [Ctg.B.17]

ⓐ $\sqrt{10}$ ⓑ $\sqrt{26}$
ⓒ 10 ⓓ 26 **d**

41. Which is true? [Ctg.B.17]

ⓐ Dom $F = \{x \in \mathbb{R} : x \neq 1\}$
ⓑ Dom $F = \{x \in \mathbb{R} : x \geq 1\}$
ⓒ Dom $F = \{x \in \mathbb{R} : x \leq 1\}$
ⓓ Dom $F = \{x \in \mathbb{R} : x < 1\}$ **b**