Unit 5 – Set & Functions

Multiple Choice Questions

Q.1 Multiple choice questions. Four possible answers are given for the following questions. Tick mark (✓) the correct answer.

1. A collection of well-defined distinct objects is called:
   (a) Subset (b) power set
   (c) set (d) none of these

2. A set $Q = \left\{ \frac{a}{b} \mid a,b \in Z \wedge b \neq 0 \right\}$ is called a set of :
   (a) Whole numbers
   (b) Natural numbers
   (c) Irrational numbers
   (d) Rational numbers

3. The different number of ways to describe a set are:
   (a) 1 (b) 2
   (c) 3 (d) 4

4. A set with no element is called:
   (a) Subset (b) empty set
   (c) Singleton set (d) super set

5. The set $\{x / x \in W \wedge x \leq 101\}$ is:

(a) Infinite set (b) subset

(c) Null set (d) finite set

6. The set having only one element is called:
(a) Null set (b) power set

(c) Singleton set (d) subset

7. Power set of an empty set is:
(a) ϕ (b) $\{a\}$

(c) $\{\phi,\{a\}\}$ (d) $\{\phi\}$

8. The number of elements in power set $\{1,2,3\}$ is:
(a) 4 (b) 6

(c) 8 (d) 9

9. If $A \subseteq B$ then $A \cup B$ is equal to:
(a) A (b) B

(c) ϕ (d) None of these

10. If $A \subseteq B$ then $A \cap B$ is equal to:
(a) A (b) B

(c) ϕ (d) None of these

11. If $A \subseteq B$ then $A - B$ is equal to:
(a) A (b) B
(c) ϕ (d) None of these

12. $(A \cup B) \cup C$ is equal to:
(a) $A \cap (B \cup C)$ (b) $(A \cup B) \cap C)$

(c) $A \cup (B \cup C)$ (d) $A \cap (B \cap C)$

13. $A \cup (B \cap C)$ is equal to:
(a) $(A \cup B) \cap (A \cup C)$

(b) $A \cap (B \cap C)$

(c) $(A \cap B) \cap (A \cap C)$

(d) $A \cup (B \cup C)$

14. If A and B are disjoint sets, then $A \cup B$ is equal to:
(a) A (b) B

(c) ϕ (d) $B \cup A$

15. If number of elements in set A is 3 and in set B is 4, then number of elements in A×B is:
(a) 3 (b) 4

(c) 12 (d) 7

16. If number of elements in se A is 3 and in set B is 2, then number of binary relations in A×B is:
(a) 2^3 (b) 2^6

(c) 2^8 (d) 2^2

17. The domain of R
$=\{(0,2),(2,3),(3,3)(3,4)\}$ is:
(a) {0,3,4} (b) {0,2,3}

(c) {0,2,4} (d) {2,3, 4}

18. The Range of R
$=\{(1,3),(2,2),(3,1)(4,4)\}$ is:
(a) {1,2,4} (b) {3,2,4}

(c) {1,2,3,4} (d) {1,3,4}

19. Point (-1,4) lies in the quadrant:
(a) I (b) II
(c) III (d) IV

20. The relation $\{(1,2),(2,3),(3,3)(3,4)\}$ is:
(a) Onto function

(b) Into function

(c) Not a function

(d) one-one function

21. If A∩B= ϕ, then set A and B are ….sets.
(a) Sub (b) over lapping

(c) Disjoint (d) power

22. If $A \subseteq B$ and $B \subseteq A$, then:
(a) A = B (b) A ≠ B

(c) A ∩ B = ϕ (d) A ∪ B = ϕ

23. The complement of U is:
(a) U (b) ϕ

(c) Impossible (d) union

24. The complement of ϕ is:
(a) U (b) ϕ

(c) Impossible (d) union

25. $A \cap A^c = \ldots\ldots$
(a) U (b) A
(c) A^c (d) ϕ

26. $A \cup A^c = \ldots\ldots$
(a) U (b) A
(c) A^c (d) ϕ

27. The set $\{ x \mid x \in A \text{ and } x \notin B \}$ is:
(a) $A \cup B$ (b) $A \cap B$
(c) $A - B$ (d) $B - A$

28. The point $(-5, -7)$ lies in … quadrant.
(a) I (b) II 1
(c) III (d) IV

29. The point (4, –6) lies in …. Quadrant.
(a) I (b) II
(c) III (d) IV

30. y co-ordinate of every point on x–axis is:
(a) +ve (b) –ve
(c) Zero (d) 1

31. x co-ordinate of every point on y–axis is:
(a) +ve (b) –ve
(c) zero (d) 1

32. The domain of {(a,b), (b,c), (c,d)} is:
(a) {a,b,c} (b) {b,c,d}
(c) {a,b} (d) {a, b,c,d,}

33. The range of {(a,a), (b,b), (c,c)} is:
(a) {a,b} (b) {a,b,c}
(c) {a} (d) ϕ

34. Venn diagram was first used by:
(a) John Venn (b) Newton
(c) Arthur Clayey d) John Napier

35. A subset of $A \times A$ is called……in A.
(a) Set (b) relation
(c) Function (d) into function

36. If $f: A \to B$ and range of $f = B$, then f is an:
(a) Into function (b) onto function
(c) Objective function (d) function

37. If $f: A \to B$ and range of $f \neq B$, then f is an:
(a) Into function
(b) Onto function
(c) Objective function
(d) Function

38. The relation $\{(a,b),(b,c),(a,d),\}$ is:
(a) a function (b) not a function
(c) range (d) domain

39. By definition, which of the following is a set?
(a) $\{a,b,c,a\}$ (b) $\{1,2,3,2\}$
(c) $\{\ell, m, n, o\}$ (d) $\{0,1,2,3,1\}$

40. Which of the following is true?
(a) $W \subseteq N$ (b) $Z \subseteq W$
(c) $N \subseteq P$ (d) $P \subseteq W$

41. Which of the following is true?
(a) $P \subseteq N \subseteq Z \subseteq W$
(b) $P \subseteq N \subseteq W \subseteq Z$
(c) $P \subseteq W \subseteq N \subseteq Z$
(d) $P \subseteq Z \subseteq N \subseteq W$

42. Which of the following is true?
(a) N and $W \subseteq Z$
(b) P and $O \subseteq W$
(c) O and $E \subseteq W$
(d) P and $E \subseteq N$

43. $N \cap W = \ldots\ldots\ldots$
(a) ϕ (b) $\{0\}$
(c) N (d) W

44. $N \cup W = \ldots\ldots\ldots$
(a) ϕ (b) $\{0\}$
(c) N (d) W

45. $N - W = \ldots\ldots\ldots$

(a) ϕ (b) $\{0\}$

(c) N (d) W

46. $W - N = ...$

(a) ϕ (b) $\{0\}$

(c) N (d) W

47. $O \cap E = ...$

(a) ϕ (b) O

(c) E (d) Z

48. $O \cup E = ...$

(a) ϕ (b) O

(c) E (d) Z

49. $E - O = ...$

(a) ϕ (b) O

(c) E (d) Z

50. $O - E = ...$

(a) ϕ (b) O

(c) E (d) Z

51. Which of the following is complete description of Real numbers?

(a) $N \cup W = R$ (b) $O \cup E = R$

(c) $P \cup Q = R$ (d) $Q \cup Q' = R$

52. If $x \in A$ and $x \in B$, then $\{x\}$ is equal to:

(a) $A - B$ (b) A^c

(c) $A \cap B$ (d) B^c

53. If $x \in A$ and $x \notin B$, then $\{x\}$ is equal to:

(a) $A - B$ (b) $B - A$

(c) $A \cap B$ (d) A^c

54. If $x \in U$ and $x \notin A$, then $\{x\}$ is equal to:

(a) U^C (b) A^C

(c) ϕ^C (d) $A - U$

55. Which of the following is De-Morgan's law?

(a) $(A \cup B) \cup C = A \cup (B \cup C)$

(b) $(A \cap B)^C = A^C \cup B^C$

(c) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(d) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

56. Which of the following is associative law of union?

(a) $A \cup (B \cup C) = (A \cup B) \cup C$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(d) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

57. Which of the following is associative law of intersection?

(a) $A \cup (B \cup C) = (A \cup B) \cup C$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(d) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

58. Which of the following is distributive property of union over intersection?

(a) $A \cup (B \cup C) = A \cup (B \cup C)$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(d) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

59. Which of the following is distributive property of intersection over union?

(a) $A \cup (B \cup C) = A \cup (B \cup C)$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(d) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

60. Which of the following is commutative law?

(a) $A \cup (B \cup C) = (A \cup B) \cup C$

(b) $A \cap (B \cap C) = (A \cap B) \cap C$

(c) $A \cap B = B \cap A$

(d) $(A \cup B)^C = A^C \cap B^C$

61. Two sets having no common element are called ..... sets.

(a) subset (b) overlapping

(c) disjoint (d) super

62. If two sets have some elements common but not all are called….sets.

(a) sub (b) overlapping

(c) disjoint (d) super

63. If set A has all its elements common with set B then set A is called….set.

(a) sub (b) overlapping

(c) disjoint (d) super

64. A and A^C are ……..sets.

(a) Universal (b) overlapping

(c) disjoint (d) super

65. If union and intersection of two sets are equal then sets are ……sets.

(a) Disjoint (b) overlapping

(c) Equal (d) super

66. If A is subset of U, then $\left(A^C\right)^C$ = ...

(a) A (b) A^c

(c) ϕ^C (d) U^c

1.	c	2.	d	3.	c	4.	b	5.	d
6.	c	7.	d	8.	c	9.	b	10.	a
11.	c	12.	c	13.	a	14.	d	15.	c
16.	b	17.	b	18.	c	19.	b	20.	c
21.	c	22.	a	23.	b	24.	a	25.	d
26.	a	27.	c	28.	c	29.	d	30.	c
31.	c	32.	a	33.	b	34.	a	35.	b
36.	c	37.	a	38	b	39.	c	40.	d
41.	b	42.	a	43,	c	44.	d	45.	a
46.	b	47.	a	48.	d	49.	c	50.	b
51.	d	52.	c	53.	a	54.	b	55.	b
56.	a	57.	b	58.	c	59.	d	60.	c
61.	c	62.	b	63.	a	64.	c	65.	c
66.	a								