DPP -1(SETS)

1. The set of intelligent students in a class is

(a) A null set (b) A singleton set

(c) A finite set (d) Not a well defined collection

2. Which of the following is the empty set

(a) $\{x : x$ is a real number and $x^2 - 1 = 0\}$

(b) $\{x : x$ is a real number and $x^2 + 1 = 0\}$

(c) $\{x : x$ is a real number and $x^2 - 9 = 0\}$

(d) $\{x : x$ is a real number and $x^2 = x + 2\}$

3. If $A \subseteq B$, then $A \cup B$ is equal to

(a) A (b) $B \cap A$ (c) B (d) None of these

4. If A and B are any two sets, then $A \cup (A \cap B)$ is equal to

(a) A (b) B (c) A^c (d) B^c

5. If A and B are two given sets, then $A \cap (A \cap B)^c$ is equal to

(a) A (b) B (c) ϕ (d) $A \cap B^c$

6. If $aN = \{ax : x \in N\}$ and $bN \cap cN = dN$, where b, $c \in N$ are relatively prime, then

(a) $d = bc$ (b) $c = bd$ (c) $b = cd$ (d) None of these

7. If the sets A and B are defined as

$A = \{(x, y) : y = \frac{1}{x}, 0 \neq x \in R\}$ $B = \{(x, y) : y = -x, x \in R\}$, then

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

(c) $A \cap B = \phi$ (d) None of these

8. $A = \{x : x \neq x\}$ represents

(a) {0} (b) {} (c) {1} (d) {x}

9. If $Q = \left\{x : x = \frac{1}{y}, \text{where } y \in N\right\}$, then

(a) $0 \in Q$ (b) $1 \in Q$ (c) $2 \in Q$ (d) $\frac{2}{3} \in Q$

10. Let $S = \{0,1,5,4,7\}$. Then the total number of subsets of S is

(a) 64 (b) 32 (c) 40 (d) 20

11. The number of non-empty subsets of the set {1, 2, 3, 4} is

(a) 15 (b) 14 (c) 16 (d) 17

12. The smallest set A such that A $\cup$ {1, 2} = {1, 2, 3, 5, 9} is

(a) {2, 3, 5} (b) {3, 5, 9}

(c) {1, 2, 5, 9} (d) None of these

13. If $X = \{4^n - 3n - 1 : n \in N\}$ and $Y = \{9(n-1) : n \in N\}$, then $X \cup Y$ is equal to

(a) X (b) Y (c) N (d) None of these

14. Sets A and B have 3 and 6 elements respectively. What can be the minimum number of elements in A$\cup$B

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

15. If A and B are two sets such that $n(A) = 70$, $n(B) = 60$ and $n(A \cup B) = 110$, then $n(A \cap B)$ is equal to

(a) 240 (b) 50 (c) 40 (d) 20

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

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

17. The number of proper subsets of the set {1, 2, 3} is
(a) 8 (b) 7 (c) 6 (d) 5

18. If A = {2, 3, 4, 8, 10}, B = {3, 4, 5, 10, 12},
C = {4, 5, 6, 12, 14} then $(A \cap B) \cup (A \cap C)$ is equal to
(a) {3, 4, 10} (b) {2, 8, 10}
(c) {4, 5, 6} (d) {3, 5, 14}

ANSWERS
1)D 2)B 3)C 4)A 5)D 6)A 7) C8)B 9)B10)B11)A 12)B13)B 14)B 15)D 16)B 17)C 18)A