CHECK YOUR GRASP

SETS

EXERCISE-I

- If A and B are two sets, then A \cap (A \cup B)' is equal 1. to-
 - (1) A

(2) B

(3) ¢

- (4) none of these
- 2. If A is any set, then-
 - (1) $A \cup A' = \phi$
- (2) $A \cup A' = U$
- (3) $A \cap A' = U$
- (4) none of these
- If A, B be any two sets, then $(A \cup B)'$ is equal to-3.
 - (1) $A' \cup B'$
- (2) A' ∩ B'
- (3) A ∩ B
- (4) A ∪ B
- 4. If A and B be any two sets, then $(A \cap B)'$ is equal
 - (1) $A' \cap B'$ (2) $A' \cup B'$ (3) $A \cap B$ (4) $A \cup B$

- 5. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}, A = \{1, 2, 5\},\$ $B = \{6, 7\}$ then $A \cap B'$ is-
 - (1) B'
- (2) A
- (3) A'
- (4) B.
- 6. If A and B are two sets, then $A \cup B = A \cap B$ iff-
 - (1) $A \subseteq B$
- (2) $B \subseteq A$
- (3) A = B
- (4) none of these
- 7. Let A and B be two sets in the universal set. Then A - B equals-
 - (1) $A \cap B'$
- (2) A' ∩ B
- (3) A ∩ B
- (4) none of these
- 8. Two sets A, B are disjoint iff-
 - (1) $A \cup B = \phi$
- (2) $A \cap B \neq \phi$
- (3) $A \cap B = \phi$
- (4) A B = A
- 9. Which of the following is a null set?
 - $(1)\{0\}$
 - (2) $\{x : x > 0 \text{ or } x < 0\}$
 - (3) $\{x : x^2 = 4 \text{ or } x = 3\}$
 - (4) $\{x : x^2 + 1 = 0, x \in R\}$
- **10.** If $A \subset B$, then $A \cap B$ is equal to-
 - (1) A
- (2) B
- (3) A'
- (4) B'
- 11. If A and B are any two sets, then $A \cup (A \cap B)$ is equal to-
 - (1) A
- (2) B
- (3) A'
- (4) B'

- 12. If A and B are not disjoint, then $n(A \cup B)$ is equal to-
 - (1) n(A) + n(B)
 - (2) $n(A) + n(B) n(A \cap B)$
 - (3) $n(A) + n(B) + n(A \cap B)$
 - (4) n(A).n(B)
- **13.** If $A = \{2, 4, 5\}$, $B = \{7, 8, 9\}$ then n(A B) is equal to-
 - (1) 6
- (2) 9
- (3) 3
- (4) 0
- 14. Let A and B be two sets such that n(A) = 70, n(B) = 60 and $n(A \cup B) = 110$. Then $n(A \cap B)$ is equal to-
 - (1) 240
- (2) 20
- (3) 100
- (4) 120
- 15. Which set is the subset of all given sets?
 - $(1) \{1, 2, 3, 4,\}$
- $(2)\{1\}$

 $(3)\{0\}$

(4) { }

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

- (1) $0 \in Q$ (2) $1 \in Q$ (3) $2 \in Q$ (4) $\frac{2}{3} \in Q$
- 17. $A = \{x : x \neq x\}$ represents-
 - $(1) \{0\}$
- (2) { }
- $(3)\{1\}$
- $(4)\{x\}$
- **18.** Which of the following statements is true?
 - (1) 3 \subseteq {1, 3, 5}
- $(2) \ 3 \in \{1, 3, 5\}$
- $(3) \{3\} \in \{1, 3, 5\}$
- $(4)\ \{3,5\}\in\{1,3,5\}$
- 19. Which of the following is a null set?
 - (1) $A = \{x : x > 1 \text{ and } x < 1\}$
 - (2) $B = \{x : x + 3 = 3\}$
 - (3) $C = \{\phi\}$
 - (4) $D = \{x : x \ge 1 \text{ and } x \le 1\}$
- **20**. $P(A) = P(B) \Rightarrow$
 - (1) $A \subseteq B$
- (2) $B \subseteq A$
- (3) A = B
- (4) none of these

ANSWER KEY															
Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	2	2	2	2	3	1	3	4	1	1	2	2	2	4
Que.	16	17	18	19	20										
Ans.	2	2	2	1	3										

PREVIOUS YEAR QUESTIONS

SETS

EXERCISE-II

- 1. The set S: {1, 2, 3,, 12} is to be partitioned into three sets A, B, C of equal size. Thus $A\cup B\cup C=S,\,A\cap B=B\cap C=A\cap C=\varphi.$ The number of ways to partition S is- [AIEEE 2007]
 - $(1) 12!/3!(4!)^3$
- $(2) 12!/3!(3!)^4$
- $(3) 12!/(4!)^3$
- $(4) 12!/(3!)^4$
- 2. If A, B and C are three sets such that $A \cap B = A \cap C \text{ and } A \cup B = A \cup C, \text{ then } :-$

[AIEEE- 2009]

- (1) B = C
- (2) $A \cap B = \phi$
- (3) A = B
- (4) A = C
- 3. Let X = {1, 2, 3, 4, 5}. The number of different ordered pairs (Y, Z) that can be formed such that $Y\subseteq X,\ Z\subseteq X$ and $Y\cap Z$ is empty, is :

[AIEEE - 2012]

- $(1) 5^3$
- $(2) 5^2$
- (3) 3⁵
- (4) 2⁵

ANSWER KEY															
Que.	1	2	3												
Ans.	3	1	3												