

Topic :-SETS

- If $n(A_i) = i + 1$ and $A_1 \subset A_2 \subset A_3 \subset \dots \subset A_{99}$, then $n(\cup_{i=1}^{99} A_i) =$
a) 99 b) 98 c) 100 d) 101
- 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) $m = 7, n = 6$ b) $m = 6, n = 3$ c) $m = 5, n = 1$ d) $m = 8, n = 7$
- Let A be the set of all animals. A relation R is defined as " aRb iff a and b are in different zoological parks". Then R is
a) Only reflexive b) Only symmetric c) Only transitive d) Equivalence
- Let X and Y be the sets of all positive divisors of 400 and 1000 respectively (including 1 and the number). Then, $n(X \cap Y)$ is equal to
a) 4 b) 6 c) 8 d) 12
- Let R be a relation from a set A to a set B , then
a) $R = A \cup B$ b) $R = A \cap B$ c) $R \subseteq A \times B$ d) $R \subseteq B \times A$
- If X and Y are two sets, then $X \cap (Y \cup X)'$ equals
a) X b) Y c) ϕ d) None of these
- If $A = \{1, 2, 3, 4, 5, 6\}$, then how many subsets of A contain the elements 2, 3 and 5?
a) 4 b) 8 c) 16 d) 32
- For any three sets A_1, A_2, A_3 , let $B_1 = A_1, B_2 = A_2 - A_1$ and $B_3 = A_3 - (A_1 \cup A_2)$, then which one of the following statement is always true
a) $A_1 \cup A_2 \cup A_3 \supset B_1 \cup B_2 \cup B_3$
b) $A_1 \cup A_2 \cup A_3 = B_1 \cup B_2 \cup B_3$
c) $A_1 \cup A_2 \cup A_3 \subset B_1 \cup B_2 \cup B_3$
d) None of these
- If A is a non-empty set, then which of the following is false?
 p : There is at least one reflexive relation on A
 q : There is at least one symmetric relation on A
a) p alone b) q alone c) Both p and q d) Neither p nor q
- In an election, two contestants A and B contested $x\%$ of the total voters voted for A and $(x + 20)\%$ for B . If 20% of the voters did not vote, then $x =$
a) 30 b) 25 c) 40 d) 35
- Let $A = \{1, 2, 3, 4\}$, and let $R = \{(2, 2), (3, 3), (4, 4), (1, 2)\}$ be a relation on A . Then, R is
a) Reflexive b) Symmetric c) Transitive d) None of these
- In a rehabilitation programme, a group of 50 families were assured new houses and compensation by the government. Number of families who got both is equal to the number of

families who got neither of the two. The number of families who got new houses is 6 greater than the number of families who got compensation. How many families got houses?

- a) 22 b) 28 c) 23 d) 25
13. Let \mathcal{U} be the universal set for sets A and B such that $n(A) = 200, n(B) = 300$ and $n(A \cap B) = 100$. Then, $n(A' \cap B')$ is equal to 300, provided that $n(\mathcal{U})$ is equal to
a) 600 b) 700 c) 800 d) 900
14. An integer m is said to be related to another integer n if m is a multiple of n . Then, the relation is
a) Reflexive and symmetric
b) Reflexive and transitive
c) Symmetric and transitive
d) Equivalence relation
15. Three sets A, B, C are such that $A = B \cap C$ and $B = C \cap A$, then
a) $A \subset B$ b) $A \supset B$ c) $A \equiv B$ d) $A \subset B'$
16. Let R be a relation on the set N of natural numbers defined by $nRm \Leftrightarrow n$ is a factor of m (i.e. $n \mid m$). Then, R is
a) Reflexive and symmetric
b) Transitive and symmetric
c) Equivalence
d) Reflexive, transitive but not symmetric
17. If $a \mid N = \{a x : x \in N\}$ and $b \mid N \cap c \mid N = d \mid N$, where $b, c \in N$ are relatively prime, then
a) $d = bc$ b) $c = bd$ c) $b = cd$ d) None of these
18. In rule method the null set is represented by
a) $\{ \}$ b) Φ c) $\{x : x \neq x\}$ d) $\{x : x = x\}$
19. Let A be a set represented by the squares of natural number and x, y are any two elements of A . Then,
a) $x - y \in A$ b) $xy \in A$ c) $x + y \in A$ d) $\frac{x}{y} \in A$
20. Let $A_1, A_2, A_3, \dots, A_{100}$ be 100 sets such that $n(A_i) = i + 1$ and $A_1 \subset A_2 \subset A_3 \subset \dots \subset A_{100}$, then $\bigcup_{i=1}^{100} A_i$ contains... elements
a) 99 b) 100 c) 101 d) 102