

Topic :- SETS

- 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) $A \cap B^c$
- If a set has 13 elements and R is a reflexive relation on A with n elements, then
a) $13 \leq n \leq 26$ b) $0 \leq n \leq 26$ c) $13 \leq n \leq 169$ d) $0 \leq n \leq 169$
- Let X be the set of all engineering colleges in a state of Indian Republic and R be a relation on X defined as two colleges are related iff they are affiliated to the same university, then R is
a) Only reflexive b) Only symmetric c) Only transitive d) Equivalence
- In the above question, the number of families which buy none of A, B and C is
a) 4000 b) 3300 c) 4200 d) 5000
- If A and B are two sets, then $A \cap (A \cup B)$ equals
a) A b) B c) Φ d) None of these
- If $A = \{1, 3, 5, 7, 9, 11, 13, 15, 17\}$, $B = \{2, 4, \dots, 18\}$ and N is the universal set, then $A' \cup ((A \cup B) \cap B')$ is
a) A b) N c) B d) none of these
- If $A = \{\Phi, \{\Phi\}\}$, then the power set of A is
a) A b) $\{\Phi, \{\Phi\}, A\}$ c) $\{\Phi, \{\Phi\}, \{\{\Phi\}\}, A\}$ d) None of these
- Let $A = \{(x, y) : y = e^x, x \in R\}$,
 $B = \{(x, y) : y = e^{-x}, x \in R\}$. Then,
a) $A \cap B = \Phi$ b) $A \cap B \neq \Phi$ c) $A \cup B = R^2$ d) None of these
- Let L denote the set of all straight lines in a plane. Let a relation R be defined by $\alpha R \beta \Leftrightarrow \alpha \perp \beta, \alpha, \beta \in L$. Then R is
a) Reflexive b) Symmetric c) Transitive d) None of these
- If A, B and C are three sets such that $A \cap B = A \cap C$ and $A \cup B = A \cup C$, then
a) $A = C$ b) $B = C$ c) $A \cap B = \Phi$ d) $A = B$
- Let $S = \{1, 2, 3, 4\}$. The total number of unordered pairs of disjoint subsets of S is equal to
a) 25 b) 34 c) 42 d) 41
- If $A = \{(x, y) : x^2 + y^2 = 4; x, y \in R\}$ and
 $B = \{(x, y) : x^2 + y^2 = 9; x, y \in R\}$, then
a) $A - B = \Phi$ b) $B - A = B$ c) $A \cap B \neq \Phi$ d) $A \cap B = A$
- Let $n(U) = 700, n(A) = 200, n(B) = 300$ and $n(A \cap B) = 100$. Then, $n(A^c \cap B^c) =$
a) 400 b) 600 c) 300 d) 200
- If $A = \{\theta : \cos \theta > -\frac{1}{2}, 0 \leq \theta \leq \pi\}$ and
 $B = \{\theta : \sin \theta > \frac{1}{2}, \frac{\pi}{3} \leq \theta \leq \pi\}$, then
a) $A \cap B = \{\theta : \pi/3 \leq \theta \leq 2\pi/3\}$

- b) $A \cap B = \{\theta : -\pi/3 \leq \theta \leq 2\pi/3\}$
 c) $A \cup B = \{\theta : -5\pi/6 \leq \theta \leq 5\pi/6\}$
 d) $A \cup B = \{\theta : 0 \leq \theta \leq \pi/6\}$
15. In a set of ants in a locality, two ants are said to be related iff they walk on a same straight line, then the relation is
 a) Reflexive and symmetric
 b) Symmetric and transitive
 c) Reflexive and transitive
 d) Equivalence
16. If $A = \{1, 2, 3\}$, $B = \{a, b\}$, then $A \times B$ mapped A to B is
 a) $\{(1, a), (2, b), (3, b)\}$ b) $\{(1, b), (2, a)\}$
 c) $\{(1, a), (1, b), (2, a), (2, b), (3, a), (3, b)\}$ d) $\{(1, a), (2, a), (2, b), (3, b)\}$
17. If A_n is the set of first n prime numbers, then $\bigcup_{n=2}^{10} A_n =$
 a) $\{2, 3, 5, 7, 11, 13, 17, 19\}$ b) $\{2, 3, 5, 7, 11, 13, 17, 19, 23, 29\}$ c) $\{3, 5\}$ d) $\{2, 3\}$
18. If $A = \{4, 6, 10, 12\}$ and R is a relation defined on A as "two elements are related iff they have exactly one common factor other than 1". Then the relation R is
 a) Antisymmetric b) Only transitive c) Only symmetric d) Equivalence
19. If R is a relation from a set A to a set B and S is a relation from B to a set C , then the relation SoR
 a) Is from A to C b) Is from C to A c) Does not exist d) None of these
20. Let n be a fixed positive integer. Define a relation R on the set Z of integers by, $a R b \Leftrightarrow n \mid a - b$. Then, R is not
 a) Reflexive b) Symmetric c) Transitive d) None of these

