

Topic :-SETS

- Let Z denote the set of integers, then
 $\{x \in Z : |x - 3| < 4\} \cap \{x \in Z : |x - 4| < 5\} =$
a) $\{-1, 0, 1, 2, 3, 4\}$ b) $\{-1, 0, 1, 2, 3, 4, 5\}$ c) $\{0, 1, 2, 3, 4, 5, 6\}$ d) $\{-1, 0, 1, 2, 3, 5, 6, 7, 8, 9\}$
- Let R be a reflexive relation on a finite set A having n elements, and let there be m ordered pairs in R . Then,
a) $m \geq n$ b) $m \leq n$ c) $m = n$ d) None of these
- Let $A = \{1, 2, 3\}, B = \{3, 4\}, C = \{4, 5, 6\}$. Then, $A \cup (B \cap C)$ is
a) $\{3\}$ b) $\{1, 2, 3, 4\}$ c) $\{1, 2, 5, 6\}$ d) $\{1, 2, 3, 4, 5, 6\}$
- If $A = \{(x, y) : y = \frac{4}{x}, x \neq 0\}$ and $B = \{(x, y) : x^2 + y^2 = 8, x, y \in R\}$, then
a) $A \cap B = \phi$
b) $A \cap B$ contains one point only
c) $A \cap B$ contains two points only
d) $A \cap B$ contains 4 points only
- If $R = \{(a, b) : |a + b| = a + b\}$ is a relation defined on a set $\{-1, 0, 1\}$, then R is
a) Reflexive b) Symmetric c) Anti symmetric d) Transitive
- If $n(A \cap B) = 5, n(A \cap C) = 7$ and $n(A \cap B \cap C) = 3$, then the minimum possible value of $n(B \cap C)$ is
a) 0 b) 1 c) 3 d) 2
- The relation $R = \{(1, 3), (3, 5)\}$ is defined on the set with minimum number of elements of natural numbers. The minimum number of elements to be included in R so that R is an equivalence relation, is
a) 5 b) 6 c) 7 d) 8
- If $A = \{1, 2, 3\}$, then the relation $R = \{(1, 1), (2, 2), (3, 1), (1, 3)\}$ is
a) Reflexive b) Symmetric c) Transitive d) Equivalence
- Let R be a relation on a set A such that $R = R^{-1}$, then R is
a) Reflexive b) Symmetric c) Transitive d) None of these
- In Q.No. 6, $\bigcap_{n=3}^{10} A_n =$
a) $\{3, 5, 7, 11, 13, 17, 19\}$ b) $\{2, 3, 5\}$ c) $\{2, 3, 5, 7, 11, 13, 17\}$ d) $\{3, 5, 7\}$
- The number of elements in the set $\{(a, b) : 2a^2 + 3b^2 = 35, a, b \in Z\}$, where Z is the set of all integers, is
a) 2 b) 4 c) 8 d) 12
- If $A = \{a, b, c\}, B = \{b, c, d\}$ and $C = \{a, d, c\}$, then $(A - B) \times (B \cap C)$ is equal to
a) $\{(a, c), (a, d)\}$ b) $\{(a, b), (c, d)\}$ c) $\{(c, a), (d, a)\}$ d) $\{(a, c), (a, d), (b, d)\}$

13. A class has 175 students. The following data shows the number of students opting one or more subjects. Mathematics 100; Physics 70; Chemistry 40; Mathematics and Physics 30; Mathematics and Chemistry 28; Physics and Chemistry 23; Mathematics, Physics and Chemistry 18. How many students have offered Mathematics alone?

- a) 35 b) 48 c) 60 d) 22

14. If $A = \{1, 2, 3\}$, $B = \{3, 4\}$, $C = \{4, 5, 6\}$. Then, $A \cup (B \cap C)$ is

- a) $\{1, 2\}$ b) $\{\phi\}$ c) $\{4, 5\}$ d) $\{1, 2, 3, 4\}$

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

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

16. If $n(U) = 100, n(A) = 50, n(B) = 20$ and $n(A \cap B) = 10$, then $n\{(A \cup B)^c\}$

- a) 60 b) 30 c) 40 d) 20

17. If A is a non-empty set, then which of the following is false?

p : Every reflexive relation is a symmetric relation

q : Every antisymmetric relation is reflexive

Which of the following is/are true?

- a) p alone b) q alone c) Both p and q d) Neither p nor q

18. Two points P and Q in a plane are related if $OP = OQ$, where O is a fixed point. This relation is

- a) Partial order relation
b) Equivalence relation
c) Reflexive but not symmetric
d) Reflexive but not transitive

19. In a city 20% of the population travels by car, 50% travels by bus and 10% travels by both car and bus. Then, persons travelling by car or bus is

- a) 80% b) 40% c) 60% d) 70%

20. If $n(A \cap B) = 10, n(B \cap C) = 20$ and $n(A \cap C) = 30$, then the greatest possible value of $n(A \cap B \cap C)$ is

- a) 15 b) 20 c) 10 d) 4