DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. :7**

Topic :-SETS

1. If S is the set of squares and R is the set of rectangles, then $(S \cup R) - (S \cap S)$ is
   a) S
   b) R
   c) Set of squares but not rectangles
   d) Set of rectangles but not squares
2. Let X be a family of sets and R be a relation on X defined by $'A$ is disjoint from B'.Then, R is
   a) Reflexive b) Symmetric c) Antisymmetric d) Transitive
3. If $A = \{x, y\}$, then the power set of A is
   a) $\{x^y, y^x\}$ b) $\{\phi, x, y\}$ c) $\{\phi, \{x\}, \{2y\}\}$ d) $\{\phi, \{x\}, \{y\}, \{x, y\}\}$
4. In a town of 10,000 familiesit was found that 40% families buy newspaper A,20% families buy newspaper B and 10% families buy newspaper C, 5% families buy A and B, 3% buy B and C and 4% buy A and C. If 2% families buy all the three newspapers, then the number of families which buy A only is
   a) 3100 b) 3300 c) 2900 d) 1400
5. Let R and S be two equivalence relations on a set A.Then,
   a) $R \cup S$is an equivalence relation on A
   b) $R \cap S$is an equivalence relation on A
   c) $R - S$is an equivalence relation on A
   d) None of these
6. Which of the following is true?
   a) $A \cap \phi = A$ b) $A \cap \phi = \phi$ c) $A \cap \phi = U$ d) $A \cap \phi = A'$
7. Let $A = \{p,q,r\}$. Which of the following is not an equivalence relation on A?
   a) $R_1 = \{(p,q),(q,r),(p,r),(p,p)\}$
   b) $R_2 = \{(r,q),(r,p),(r,r),(q,q)\}$
   c) $R_3 = \{(p,p),(q,q),(r,r).(p,q)\}$
   d) None of these
8. Let $A = \{1, 2, 3, 4\}$, $B = \{2, 4, 6\}$. Then, the number of sets C such that $A \cap B \subseteq C \subseteq A \cup B$ is
   a) 6 b) 9 c) 8 d) 10
9. If $A = \left\{p \in N : p \text{ is } a \text{ prime and } p = \frac{7n^2 + 3n + 3}{n} \text{ for some } n \in N\right\}$, then the number of elements in the set A, is
   a) 1 b) 2 c) 3 d) 4
10. Let $Y = \{1, 2, 3, 4, 5\}$, $A\{1, 2\}$, $B = \{3, 4, 5\}$ and ϕ denotes null set. If $(A \times B)$ denotes cartesian product of the sets $A$and B; then $(Y \times A) \cap (Y \times B)$ is
    a) Y b) A c) B d) ϕ

11. If $n(A)$ denotes the number of elements in the set A and if $n(A) = 4, n(B) = 5$and $n(A \cap B) = 3$, then $n[(A \times B) \cap (B \times A)]$ is equal to

a) 8 b) 9 c) 10 d) 11

12. Universal set, $U = \{x{:}x^5 - 6x^4 + 11x^3 - 6x^2 = 0\}$

And $A = \{x{:}x^2 - 5x + 6 = 0\}$

$B = \{x{:}x^2 - 3x + 2 = 0\}$

Then, $(A \cap B)'$ is equal to

a) {1, 3} b) {1, 2, 3} c) {0, 1, 3} d) {0, 1, 2, 3}

13. If R be a relation $<$ from $A = \{1,2,3,4\}$ to $B = \{1,3,5\}$ *i.e.* $(a,b) \in R \Leftrightarrow a < b$, then $R\ o\ R^{-1}$ is

a) {(1,3),(1,5),(2,3),(2,5),(3,5),(4,5)}

b) {(3,1),(5,1),(3,2),(5,2),(5,3),(5,4)}

c) {(3,3),(3,5),(5,3),(5,5)}

d) {(3,3),(3,4),(4,5)}

14. A relation between two persons is defined as follows:

$aRb \Leftrightarrow a$and$b$ born in different months. Then, R is

a) Reflexive b) Symmetric c) Transitive d) Equivalence

15. If A and B are two sets such that $n(A \cap \overline{B}) = 9, n(\overline{A} \cap B) = 10$ and $n(A \cup B) = 24$, then $n(A \times B)$ =

a) 105 b) 210 c) 70 d) None of these

16. If A and B are two sets, then $A - (A - B)$ is equal to

a) B b) $A \cup B$ c) $A \cap B$ d) $B - A$

17. If $A = \{1, 2, 3, 4\}$, then the number of subsets of A that contain the element 2 but not 3, is

a) 16 b) 4 c) 8 d) 24

18. Let A be a set of compartments in a train. Then the relation R defined on A as aRb iff "a and b have the link between them", then which of the following is true for R?

a) Reflexive b) Symmetric c) Transitive d) Equivalence

19. Let R and S be two relations on a set A.Then, which one of the following is not true?

a) $R$and$S$ are transitive, then $R \cup S$ is also transitive

b) $R$and$S$ are transitive, then $R \cap S$ is also transitive

c) $R$and$S$ are reflexive, then $R \cap S$ is also reflexive

d) $R$and$S$ are symmetric, then $R \cup S$ is also symmetric

20. The relation "is a factor of" on the set N of all natural numbers is not

a) Reflexive b) Symmetric c) Antisymetric d) Transitive