DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 3**

Topic :- SETS

1. 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) $A \cap B^c$
2. 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) $0 \leq n \leq 169$
3. 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
4. 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
5. If A and B are two sets, then $A \cap (A \cup B)$ equals
   a) A b) B c) ϕ d) None of these
6. If $A = \{1,3,5,7,9,11,13,15,17\}, B = \{2,4...,18\}$ 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
7. 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
8. 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
9. 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
10. 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) $A = B$
11. 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
12. 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) $A \cap B = A$
13. Let $n(\mathcal{U}) = 700, n(A) = 200, n(B) = 300$ and $n(A \cap B) = 100$. Then, $n(A^c \cap B^c) =$
    a) 400 b) 600 c) 300 d) 200
14. If $A = \left\{\theta : \cos\theta > -\frac{1}{2}, 0 \leq \theta \leq \pi\right\}$ and $B = \left\{\theta : \sin\theta > \frac{1}{2}, \frac{\pi}{3} \leq \theta \leq \pi\right\}$, 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