DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : MATHS**
Date : **DPP No. : 1**

Topic :- SETS

1. Let R_1 be a relation defined by $R_1 = \{(a,b) \mid a \geq b, a,b \in R\}$. Then, R_1 is
   a) An equivalence relation on R
   b) Reflexive, transitive but not symmetric
   c) Symmetric, transitive but not reflexive
   d) Neither transitive not reflexive but symmetric
2. On the set of human beings a relation R is defined as follows: "aRb iff a and b have the same brother". Then R is
   a) Only reflexive b) Only symmetric c) Only transitive d) Equivalence
3. In a class of 35 students, 17 have taken Mathematics, 10 have taken Mathematics but not Economics. If each student has taken either Mathematics or Economics or both, then the number of students who have taken Economics but not Mathematics is
   a) 7 b) 25 c) 18 d) 32
4. $\{n(n+1)(2n+1): n \in Z\} \subset$
   a) $\{6k : k \in Z\}$ b) $\{12k : k \in Z\}$ c) $\{18k : k \in Z\}$ d) $\{24k : k \in Z\}$
5. If $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6\}$, $C = \{3, 4, 6\}$, then $(A \cup B) \cap C$ is
   a) $\{3, 4, 6\}$ b) $\{1, 2, 3\}$ c) $\{1, 4, 3\}$ d) None of these
6. Let A be the set of all students in a school. A relation R is defined on A as follows: "aRb iff a and b have the same teacher"
   a) Reflexive b) Symmetric c) Transitive d) Equivalence
7. If P is the set of all parallelograms, and T is the set of all trapeziums, then $P \cap T$ is
   a) P b) T c) ϕ d) None of these
8. A and B are any two non-empty sets and A is proper subset of B. If $n(A) = 5$, then find the minimum possible value of $n(A \Delta B)$
   a) Is 1
   b) Is 5
   c) Cannot be determined
   d) None of these
9. If $n(A) = 4, n(B) = 3, n(A \times B \times C) = 240$, then $n(C)$ is equal to
   a) 288 b) 1 c) 12 d) 2
10. In a class, 70 students wrote two tests viz; test-I and test-II. 50% of the students failed in test-I and 40% of the students in test-II. How many students passed in both tests?
    a) 21 b) 7 c) 28 d) 14
11. Let Z denote the set of all integers and $A = \{(a,b): a^2 + 3b^2 = 28, \quad a, b \in Z\}$ and $B = \{(a, b) : a > b, a, b \in Z\}$. Then, the number of elements in $A \cap B$ is
    a) 2 b) 3 c) 4 d) 6

12. Let L be the set of all straight lines in the Euclidean plane. Two lines l_1 and l_2 are said to be related by the relation R iff l_1 is parallel to l_2. Then, the relation R is not

a) Reflexive b) Symmetric c) Transitive d) None of these

13. Let R be a relation on the set N be defined by $\{(x,y) \mid x,y \in N, 2x + y = 41\}$. Then, R is

a) Reflexive b) Symmetric c) Transitive d) None of these

14. In an office, every employee likes at least one of tea, coffee and milk. The number of employees who like only tea, only coffee, only milk and all the three are all equal. The number of employees who like only tea and coffee, only coffee and milk and only tea and milk are equal and each is equal to the number of employees who like all the three. Then a possible value of the number of employees in the office is

a) 65 b) 90 c) 77 d) 85

15. Which of the following cannot be the number of elements in the power set of any finite set?

a) 26 b) 32 c) 8 d) 16

16. The relation 'is subset of' on the power set $P(A)$ of a set A is

a) Symmetric b) Anti-symmetric c) Equivalence relation d) None of these

17. Let A and B be two non-empty subsets of a set X such that A is not a subset of B. Then,

a) A is a subset of complement of B

b) B is a subset of A

c) A and B are disjoint

d) A and the complement of B are non-disjoint

18. If A,B and C are three sets such that $A \supset B \supset C$, then $(A \cup B \cup C) - (A \cap B \cap C) =$

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

19. A survey shows that 63% of the Americans like cheese whereas 76% like apples. If x% of the Americans like both cheese and apples, then

a) $x = 39$ b) $x = 63$ c) $39 \leq x \leq 63$ d) None of these

20. If $X = \{4^n - 3n - 1 : n \in N\}$ and $Y = \{9(n-1) : n \in N\}$, then $X \cup Y$ is equal to

a) X b) Y c) N d) None of these