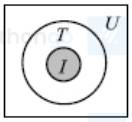
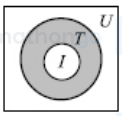
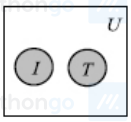
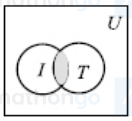
1. Identify the Venn diagram in which shaded area represents the 'Some triangles are not isosceles', Where T is a set of all triangles and I is the set of all isosceles triangles -

(1) 

(2) 

(3) 

(4) 

2. Given $n(A) = 11,\ n(B) = 13,\ n(C) = 16,\ n(A \cap B) = 3,\ n(B \cap C) = 6,\ n(A \cap C) = 5$ and $n(A \cap B \cap C) = 2$, then the value of $n[A^c \cap (B \Delta C)] =$

(1) 4 (2) 7

(3) 13 (4) 23

3. If in a class there are 200 students in which 120 take Mathematics, 90 take Physics, 60 take Chemistry, 50 take Mathematics & Physics, 50 take Mathematics & Chemistry, 43 take Physics & Chemistry and 38 take Mathematics, Physics & Chemistry, then the number of students who have taken exactly one subject is

(1) 42 (2) 56

(3) 270 (4) 98

4. 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

(1) 2 (2) 4

(3) 8 (4) 12

5. Let S be the relation on set of positive real number defined by $S = \left\{\left(x, y\right) \middle| \frac{y}{2} \leq x \leq 2y\right\}$

(1) Reflexive only (2) Transitive only

(3) Symmetric only (4) Reflexive and symmetric only

6. Let P be the relation defined on the set of all real numbers such that $P = \{(a, b)$: $\sec^2 a - \tan^2 b = 1\}$. Then P is

(1) reflexive and symmetric but not transitive (2) symmetric and transitive but not reflexive

(3) reflexive and transitive but not symmetric (4) an equivalence relation

7. The relation R defined in N as $aRb \Leftrightarrow b$ is divisible by a is

(1) Reflexive but not symmetric (2) Symmetric but not transitive

(3) Symmetric and transitive (4) None of these

8. Let $R = \{(3,\ 3),\ (6,\ 6),\ (9,\ 9),\ (12,\ 12),\ (6,\ 12),\ (3,\ 9),(3,\ 12),\ (3,\ 6)\}$ be a relation on the set $A = \{3,\ 6,\ 9,\ 12\}$. The relation is

(1) An equivalence relation (2) Reflexive and symmetric only

(3) Reflexive and transitive only (4) Reflexive only void

9. A relation R is defined as $(x,\ y) \in R \Rightarrow x^y = y^x$ for $x,\ y \in I - \{0\}$, where I is the set of all integers. Then the relation R is:

(1) reflexive but not symmetric (2) svmmetric but not reflexive

(3) reflexive and symmetric both (4) equivalence relation

10. R is a relation from $\{11,\ 12,\ 13\}$ to $\{8,\ 10,\ 12\}$ defined by $y = x - 3$. Then R^{-1} is

(1) $\{(8,\ 11),\ (10,\ 13)\}$ (2) $\{(11,\ 18),\ (13,\ 10)\}$

(3) $\{(10,\ 13),\ (8,\ 11)\}$ (4) None of these