For 23BCS-603,604,720, 719-All

Assignment-1

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1. Out of 500 car owners investigated, 400 owned car *A* and 200 owned car *B*, 50 owned both *A* and *B* cars. Is this data correct?

2. In a colony, 275 families buy Tamil newspaper, 150 families buy English newspaper, 45 families buy Hindi newspaper, 125 families buy Tamil and English newspapers, 17 families buy English and Hindi newspapers, 5 families buy Tamil and Hindi newspapers and 3 families buy all the three newspapers. If each family buy at least one of these newspapers then find

(i) Number of families buy only one newspaper

(ii) Number of families buy at least two newspapers

(iii) Total number of families in the colony.

3. A survey of 1000 farmers found that 600 grew paddy, 350 grew ragi, 280 grew corn, 120 grew paddy and ragi, 100 grew ragi and corn, 80 grew paddy and corn. If each farmer grew atleast any one of the above three, then find the number of farmers who grew all the three.

4. Find the inverse of the function, y = - 3x + 7.

5. $If\ A$ = {1,2,3,4,5,} B = {4,5,6,8} C = {3,5,9} U = {1,2,3,4,5,6,7,8,9}, Then find the following

(I) $A \cup B\cup$ (II). $A' \cap C$ (III) $(A\cup B)-C$ (IV). $A\cap(B\cap C)$ (V) $B -(A\cup C)$ (VI) $(A\cup B)\cap C$ (VII) $A'\cup B'$ (VIII) $(A\cup B)'\cup C$

6. State and prove De-Morgan's law.

7. Give an example of a relation which neither symmetric nor anti-symmetric.

8. Let the function f: $R \rightarrow R$ be defined by $(x) = 4x - 7$, $x \in R$ find f^{-1}.

9. Prove that R is symmetric iff R = R-1 6 70. Consider the functions f, g : R → R defined by

$f(x) = x^2 + 3x + 1$, $g(x) = 2x - 3$ Find the composition function

a) f ∘ f b) f ∘ g c)g ∘ f

10. Determine whether each of the following relations are reflexive, symmetric, and transitive Relation R in the set A = {1, 2, 3, 4, 5, 6} as R = {(x, y): y is divisible by x}.