UCS405 (Discrete Mathematical Structures)

Tutorial Sheet-2 (Set Theory)

1 If A and B are two fuzzy sets with membership functions $\mu A(x) = \{0.2, 0.5, 0.6, 0.1, 0.9\}$ $\mu B(x) = \{0.1, 0.5, 0.2, 0.7, 0.8\}$ Then the value of $\mu A \cap B$

2 If A and B are two fuzzy sets with membership functions $\mu A(x) = \{0.6, 0.5, 0.1, 0.7, 0.8\}$ $\mu B(x) = \{0.9, 0.2, 0.6, 0.8, 0.5\}$ Then the value of μ Complement $A \cup B(x)$ will be

3 If P and Q be two multisets with P = {a, a, a, c, d, d} and Q = {a, a, b, c, c}.
Find:
   a) P U Q
   b) $P \cap Q$
   c) P - Q

4 Consider the following collections of subsets of S = {1, 2, . . ., 8, 9}. Determine which of the following the partitions of Set S.
   a) [{1, 3, 5}, {2, 6}, {4, 8, 9}]
   b) [{1, 3, 5}, {2, 4, 6, 8}, {5, 7, 9}]
   c) [{1, 3, 5}, {2, 4, 6, 8}, {7, 9}]

5 Find all partitions of S = {a, b, c, d}.

6 Using set builder notation, prove the Distributive Law $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$.

7 Using a membership table, prove that $A \cup (A^c \cap B) = A \cup B$.

8 Using subset method, Show that $(B-A) \cup (C-A) = (B \cup C) - A$.