

CBSE NET JUNE 2012 PAPER III

If two fuzzy sets A and B are given with membership functions $\mu_A(x) = \{0.2, 0.4, 0.8, 0.5, 0.1\}$ $\mu_B(x) = \{0.1, 0.3, 0.6, 0.3, 0.2\}$ Then the value of $\mu_{A \cap B}$ will be

- (A) {0.9, 0.7, 0.4, 0.8, 0.9}
- (B) {0.2, 0.4, 0.8, 0.5, 0.2}
- (C) {0.1, 0.3, 0.6, 0.3, 0.1}
- (D) {0.7, 0.3, 0.4, 0.2, 0.7}

Ans: (A)

Explanation:-

The fuzzy intersection of two fuzzy sets A and B on universe of discourse,

$X: \mu_{A \cap B}(x) = \min [\mu_A(x), \mu_B(x)]$, where $x \in X$

But here in the question, they are asking for complement of $A \cap B$ and so the answer would be $1 - \min[A(x), B(x)]$. The minimum of 0.2 and 0.1 will be 0.1, and $1 - 0.1$ will be 0.9.

The second value is $\min(0.4, 0.3) = 0.3$ and $1 - 0.3 = 0.7$

The third value is $\min(0.8, 0.6) = 0.6$ and $1 - 0.6 = 0.4$

The fourth value is $\min(0.5, 0.3) = 0.3$ and $1 - 0.3 = 0.7$

The fifth value is $\min(0.1, 0.2) = 0.1$ and $1 - 0.1 = 0.9$

So the option is (A) which having { 0.9, 0.7, 0.4, 0.7, 0.9}. Its ok if fourth value is 0.8 instead of 0.8.

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