SCOA AI

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BE Comp-2

Q.1) Explain classical set Vs Fuzzy set?

Classical set	Fuzzy Set
1) Classical set is a collection of distinct object.	1) Fuzzy set is set having degree of membership between 1 & 0
2) Each individual entity in a set is called a member or an element of the set.	2) Fuzzy sets are represents with the tilde character (~)
3) Element is either the member of aset or not	3) Elements are allowed to be partially included in the se
4) It is defined by precise and certain characteristics	4) It is prescribed by vague or ambigous properties.
5) Widely used in digital system design	5) Used in fuzzy controlless.

Q.2) Difference between fuzzification & defuzzification

Fuzzification	Defuzzification
1) Fuzzification is the process of transformation a crip set to a Fuzzy Set or Fuzzy set to Fuzzier Set.	1) Defuzzification is the process of reducing a fuzzy set into a crisp set or converting fuzzy member into a crisp member
2) It converts a precise data into imprecise data	2) It converts an imprecise data into precise data.
3) It uses Inference Rank ordering; Angolor Fuzzy sets Neural Network	3) Maximum membership principle centroid method weighted average method centes of sums.
4) Fuzzification is easy	4) Defuzzification is quite complex to implement.
5) Fuzzification uses if then rules to fuzzyfy the crisp values	5) Defuzzification uses center of gravity method to get centroid of sets.
6) Example Voltmeter	6) Example, stepper motor, D/A convertor.

Q.3] Consider the two fuzzy sets.

$$B_1 = \left\{ \frac{1}{1.0} + \frac{0.75}{1.5} + \frac{0.3}{2.0} + \frac{0.15}{2.5} + \frac{0}{30} \right\}$$

$$B_2 = \left\{ \frac{1}{1.0} + \frac{0.6}{1.5} + \frac{0.2}{20} + \frac{0.1}{2.5} + \frac{0}{3.0} \right\}$$

1] $B1 \cup B2$
2] $B1 \cap B2$
3] $B1$
4] $B2$
5] $B1 / B2$

Ans: 1] $B1 \cup B2 = \left\{ \frac{1}{1.0} + \frac{0.75}{1.5} + \frac{0.3}{2.0} + \frac{0.15}{2.5} + \frac{0}{30} \right\}$

2] $B1 \cap B_2 = \left\{ \frac{1}{1.0} + \frac{0.6}{1.5} + \frac{0.2}{2.0} + \frac{0.1}{2.5} + \frac{0}{3.0} \right\}$

3] $B1 = \left\{ \frac{1}{1.0} + \frac{0.75}{1.5} + \frac{0.3}{2.0} + \frac{0.15}{2.5} + \frac{0}{3.0} \right\}$

4] $B_2 = \left\{ \frac{1}{1.0} + \frac{0.6}{1.5} + \frac{0.2}{2.0} + \frac{0.1}{2.5} + \frac{0}{3.0} \right\}$

5] $B_1/B_2 = \left\{ \frac{0.75}{1.5} + \frac{0.3}{2.0} + \frac{0.15}{2.5} \right\}$