Week 5 : Assignment 5

Your last recorded submission was on 2025-02-19, 19:39 IST Due date: 2025-02-26, 23:59 IST.

1) When multiplying two triangular fuzzy numbers, what is a possible outcome? *1 point*

- (a) Always a triangular fuzzy number
- (b) A trapezoidal fuzzy number
- (c) A crisp number
- (d) Not guaranteed to maintain triangular shape

2) Which property ensures that a fuzzy set's α-cuts are intervals? *1 point*

- (a) Normality
- (b) Convexity
- (c) Symmetry
- (d) Completeness

3) For continuous fuzzy numbers, division involves: *1 point*

- (a) Summing membership values
- (b) Integrating over the domain
- (c) Subtracting supports
- (d) Multiplying α-cuts
- (e) None of the above

4) Dividing two fuzzy numbers might result in: *1 point*

- (a) A non-convex set
- (b) A non-normal set
- (c) Both (a) and (b)
- (d) Always a valid fuzzy number

5) Why is the universe of discourse critical in fuzzy arithmetic? *1 point*

- (a) To enforce binary logic compatibility
- (b) To limit operations to meaningful ranges

(c) To speed up computations

(d) To ensure symmetry

6) The complement of a fuzzy set A with membership $\mu_A(x)$= 0.7 is: ***1 point***

(a) 0

(b) 1/0.7

(c) 1 - 0.7

(d) 0.7^2

7) If Sugeno's complement parameter λ approaches infinity, what happens? ***1 point***

(a) Complement approaches 0

(b) Complement approaches 1

(c) Complement equals 1 - μ

(d) Complement becomes undefined

8) In Yager's complement, if w=2, the complement of μ=0.5 is: ***1 point***

(a) $\sqrt{1-0.5^2}$

(b) $(1-0.5)^{\frac{1}{2}}$

(c) $1-0.5$

(d) $\sqrt{0.5}$

9) Which T-norm produces the highest membership value for intersection between $\mu_A(x)$ = 0.6 and $\mu_B(x)$ = 0.8? ***1 point***

(a) Minimum

(b) Algebraic product

(c) Bounded product

(d) Drastic product

10) Which axiom is unique to T-norms but not S-norms? ***1 point***

(a) $T\,(1,a)=a$

(b) $S\,(0.a)=a$

(c) Associativity

(d) Non-decreasing

You may submit any number of times before the due date. The final submission will be considered for grading.

Submit Answers