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Reg. No. : | | | | | | | | | | |

Question Paper Code: 59223

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Computer Science and Engineering

15UCS923- FUZZY LOGIC

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. How is Fuzzy logic different from conventional control methods CO1-U

   (a) IF and THEN approach (b) FOR approach

   (c) WHILE approach (d) DO approach

2. Involute property of the standard fuzzy complement C, for each a?[,] is CO2- U

   (a) C(C(a)) = C(a) (b) C(C(a)) = 1 (c) C(C(a)) = 0 (d) C(C(a)) = a

3. How many types of random variables are available? CO3-R

   (a) 1 (b) 2 (c) 3 (d) 4

4. Which of the following is used for probability theory sentences CO4-U

   (a) Logic (b) Conditional logic

   (c) Probability Distribution (d) Extension of Proposition logic

5. There are also operators more linguistic in nature called_____that can be applied to fuzzy set theory. CO5- R

   (a) Hedges (b) Lingual variable

   (c) Fuzzy variable (d) Probability query

PART – B (5 x 3= 15 Marks)

6.	What are the operations are used in classical sets?	CO1-U	
7.	Explain the properties of Fuzzy Relations?	CO2-U	
8.	What is fuzzy rule?	CO3-U	
9.	How multi-objective is used in decision making?	CO4-U	
10.	Give few applications where fuzzy logic are used in natural life?	CO5-U	

PART – C (5 x 16= 80 Marks)

11.	(a)	On the city of Chennai, Bangalore, there are a significant number of neighborhood ponds that store overland flow from rainstorms and release the water downstream at a controlled rate to reduce or eliminate flooding in downstream areas. To illustrate a relation using the Cartesian product, let us compare the level in the neighborhood pond system based on a 1-in-100 year storm volume capacity with the closest three rain gauge stations that measure total rainfall .	CO1- App	(16)
		Or		
	(b)	Explain in details with example of properties of classical sets.	CO1-U	(16)
12.	(a)	Explain in detail about the crisp relation and compare with Fuzzy relation?	CO2-U	(16)
		Or		
	(b)	Describe how fuzzy tolerances are used in classical and fuzzy relation with its equivalence relation?	CO2-U	(16)
13.	(a)	Explain the features and types of membership function?	CO3-U	(16)
		Or		
	(b)	What is the purpose of defuzzyfication? Name at least one method used for defuzzyfication?	CO3-U	(16)
14.	(a)	Mention the importance of Fuzzy synthetic evaluation of decision making in fuzzy information	CO4-U	(16)
		Or		
	(b)	Briefly explain the fuzzy Bayesian decision method with Example.	CO4-U	(16)

15. (a) Explain the Application of Fuzzy in Electronics and take your own electronic item which you like and describe how fuzzy used for its operation. CO5-U (16)

Or

(b) Write 3-5 fuzzy rules that determine heart attack risk, using: CO5- App (16)
Three 'universes of discourse' (UoD): diet, exercise, and risk
2 or 3 fuzzy classes per UoD, *and* their membership functions (represent graphically)
Show fuzzy inference for one set of sample data