Q.P. Code: 19EE0231 **R19**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech IV Year I Semester Regular Examinations November/December-2022

NEURAL NETWORKS AND FUZZY LOGIC

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain characteristics of Artificial neural network.	L1	6M
	b	Implement a perceptron to solve simple AND problem with two inputs.	L3	6M

OR

2	a	What is generalization? Explain about generalization	L2	6M
	b	How artificial neuron is inspired from the biological neuron? Explain.	L2	6M

UNIT-II

3		Explain input layer, hidden layer &output layer computations in multi-layer feed forward networks.	L3	12M

OR

4		Explain the weight adjustment procedure in MLFFN using back propagation algorithm.	L3	12M

UNIT-III

5		Discuss about the bidirectional associative memory with an example.	L4	12M

OR

6		Explain in detail recurrent associative memory.	L3	12M

UNIT-IV

7	a	Consider two fuzzy subsets of the set X, X = {a, b, c, d, e} referred to as A and B. A = {1/a, 0.3/b, 0.2/c 0.8/d, 0/e) and B = {0.6/a, 0.9/b, 0.1/c, 0.3/d, 0.2/e} Find:. (i) Complement. (ii) Union. (iii) Intersection (iv) Difference	L3	8M
	b	Explain fuzzy intersection operation	L1	4M

OR

8	a	Two Fuzzy sets $\tilde{A}$ and $\tilde{N}$ are defined on X as follows.	L3	6M

	X_1	X_2	X_3	X_4	X_5
$\tilde{A}$	0.1	0.3	0.7	0.8	0.6
$\tilde{N}$	0.9	0.2	0.3	0.6	0.5

Find the following α cut sets

(i) $(\tilde{A} \cap \tilde{N})_{0.2}$

(ii) $(\tilde{A} \cup \tilde{N})_{0.5}$

(iii) $(\tilde{A} \cap \tilde{A})_{0.8}$.

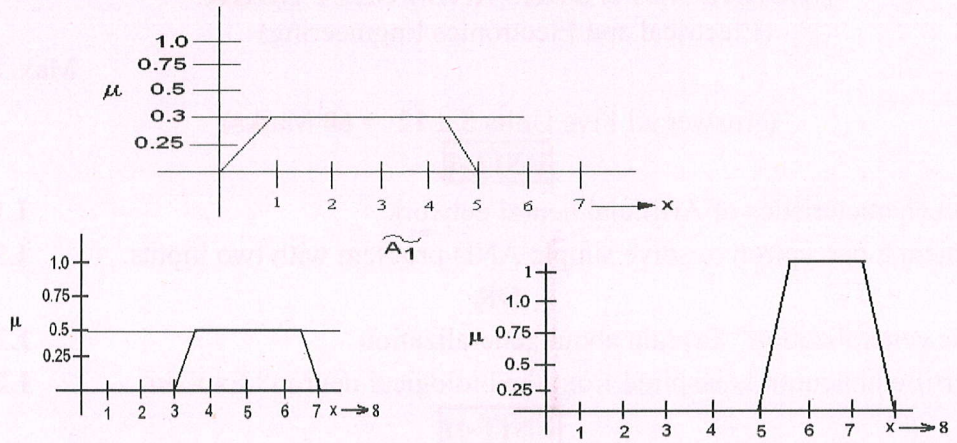
	b	With neat block diagram explain the fuzzy control.	L2	6M

UNIT-V

9	a	Discuss any one fuzzy logic application in electrical engineering	L5	10M
	b	List the advantages and disadvantages of fuzzy logic control	L2	2M

OR

10	a	Obtain defuzzified value by using centroid method for the following membership functions.	L5	8M



	b	List the de-fuzzification methods. Explain any one method with a simple example.	L3	4M

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