

ANURAG Engineering College

(An Autonomous Institution)

IV B. Tech I Semester Regular/Supplementary Examinations, Dec-2024

NEURAL NETWORKS AND FUZZY LOGIC

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours**Max. Marks: 75****Section – A (Short Answer type questions)****(25 Marks)****Answer All Questions**

	Course Outcome	B.T Level	Marks
1. List out the various activation function used in artificial neural networks.	CO1	L1	2M
2. Mention the basic parts of biological neuron along with its structure.	CO1	L2	3M
3. Define Delta Learning Rule.	CO2	L1	2M
4. State the significance of multilayer feed forward network.	CO2	L2	3M
5. What is Hebbian Learning?	CO3	L1	2M
6. Define associative memory and list its types.	CO3	L1	3M
7. Give different types of membership functions.	CO4	L2	2M
8. Define fuzzification.	CO4	L1	3M
9. Mention the advantages and drawbacks of fuzzy logic.	CO5	L1	2M
10. Write industrial applications of neural networks.	CO5	L1	3M

Section B (Essay Questions)**Answer all questions, each question carries equal marks.****(5 X 10M = 50M)**

11. A) Explain the basic architecture of McCulloch Pitts neuron model and also realize NOR gate using McCulloch Pitts model	CO1	L2	10M
OR			
B) Discuss different learning mechanisms used in artificial neural networks.	CO1	L2	10M
12. A) Explain input layer, hidden layer & output layer computations in multilayer feed forward networks.	CO2	L3	10M
OR			
B) Explain in significance of back propagation model. Also explain how errors are minimized using this method.	CO2	L3	10M
13. A) Explain the working principle of Bidirectional Associative Memory (BAM).	CO3	L2	10M
OR			
B) Elaborate the structure and function of Hopfield Network.	CO3	L2	10M
14. A) Consider two fuzzy subsets of the set X, $X = \{a, b, c, d, e\}$ referred to as A and B. $A = \{(a, 1), (b, 0.3), (c, 0.2), (d, 0.8), (e, 0)\}$ and $B = \{(a, 0.6), (b, 0.9), (c, 0.1), (d, 0.3), (e, 0.2)\}$ Find: (i) Complement. (ii) Union. (iii) Intersection	CO4	L3	10M
OR			
B) Briefly explain the concept of fuzzy logic control mechanism	CO4	L2	10M
15. A) Examine how the neural networks are used for fault diagnosis.	CO5	L3	10M
OR			
B) Discuss any one fuzzy logic application in electrical engineering.	CO5	L3	10M