

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR  
(AUTONOMOUS)**

**B.Tech IV Year I Semester Supplementary Examinations June-2024**

**NEURAL NETWORKS AND FUZZY LOGIC**

*(Electrical and Electronics Engineering)*

**Time: 3 Hours**

**Max. Marks: 60**

**PART-A**

(Answer all the Questions 5 x 2 = 10 Marks)

- |   |   |  |     |    |    |
|---|---|--|-----|----|----|
| 1 | a | List out the learning mechanisms used in Artificial Neural Networks. | CO1 | L1 | 2M |
|   | b | Define learning rate.  | CO2 | L1 | 2M |
|   | c | Define associative memory.   | CO3 | L1 | 2M |
|   | d | Give different ways of assigning membership function.                | CO4 | L1 | 2M |
|   | e | Give three defuzzyfication methods.                                  | CO5 | L1 | 2M |

**PART-B**

(Answer all Five Units 5 x 10 = 50 Marks)

**UNIT-I**

- |   |   |   |     |    |    |
|---|---|---|-----|----|----|
| 2 | a | Explain organization of human brain.          | CO1 | L2 | 5M |
|   | b | Discuss the functioning of biological neuron. | CO1 | L2 | 5M |

**OR**

- |   |  |   |     |    |     |
|---|--|---|-----|----|-----|
| 3 |  | Explain types of activation function & Explain Neural dynamics. | CO1 | L2 | 10M |
|---|--|---|-----|----|-----|

**UNIT-II**

- |   |  |   |     |    |     |
|---|--|---|-----|----|-----|
| 4 |  | Explain ANN approach to load forecasting problem. | CO2 | L2 | 10M |
|---|--|---|-----|----|-----|

**OR**

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|---|---|--|-----|----|----|
| 5 | a | Explain why single layer perceptron network couldn't solve even EX-OR problem. | CO2 | L2 | 5M |
|   | b | Derive the equation for weight change for discrete perceptron network.         | CO2 | L2 | 5M |

**UNIT-III**

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|---|---|--|-----|----|----|
| 6 | a | Discuss the concept hamming distance.                            | CO3 | L2 | 5M |
|   | b | Explain how Associative memories work based on hamming distance. | CO3 | L2 | 5M |

**OR**

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|---|--|---|-----|----|-----|
| 7 |  | Explain how noisy patterns are recognized in auto associative memory with an example. | CO3 | L2 | 10M |
|---|--|---|-----|----|-----|

**UNIT-IV**

- |   |  |   |     |    |     |
|---|--|---|-----|----|-----|
| 8 |  | Explain Composition operation performed on fuzzy relation with example. | CO4 | L2 | 10M |
|---|--|---|-----|----|-----|

**OR**

- |   |   |   |     |    |    |
|---|---|---|-----|----|----|
| 9 | a | Explain Operations performed on crisp sets. | CO4 | L2 | 5M |
|   | b | Give the properties of crisp sets.          | CO4 | L2 | 5M |

**UNIT-V**

- |    |  |  |     |    |     |
|----|--|--|-----|----|-----|
| 10 |  | Explain the process of fuzzification in fuzzy logic. | CO5 | L2 | 10M |
|----|--|--|-----|----|-----|

**OR**

- |    |   |  |     |    |    |
|----|---|--|-----|----|----|
| 11 | a | List out different defuzzification methods available.              | CO5 | L1 | 4M |
|    | b | Discuss any one fuzzy logic application in electrical engineering. | CO5 | L2 | 6M |

\*\*\* END \*\*\*

