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**Presidency University**

**Bengaluru**

 **School Of Computer Science and Engineering & Information Science**

**Summer Term End-Term Examinations, Aug 2024**

**Date**: 06:08:2024

**Time**: 1:00PM – 4:00 PM

**Max Marks**: 100

**Weightage**: 50%

**Odd Semester**: 2023 - 24

**Course Code**: CSE3016

**Course Name**: NEURAL NETWORKS AND FUZZY LOGIC

**Department: CSE**

 **Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Do not write any matter on the question paper other than roll number.*

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| **Q.No** | **Questions** | **Marks** | **CO** | **RBT** |
| 1 | 1. Explain the characteristics of Neural Networks
 | 4 | CO1 | L1 |
| 1. Discuss various Neural Network Architectures
 | 6 | CO1 | L2 |
| 1. Build and realize a OR function using single layer perceptron using

LMS rule and step activation function. Learning rate is 0.6 | 10 | CO1 | L3 |
| OR |
| 2 | 1. Define Activation function
 | 4 | CO1 | L1 |
| 1. Discuss the various types of Learning in Neural Networks
 | 6 | CO1 | L2 |
| 1. Give the algorithmic steps of Learning of single layer perceptron
 | 10 | CO1 | L3 |

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| 3 | 1. Define Perceptron
 | 4 | CO2 | L1 |
| 1. Discuss on Multilayer perceptron with a neat sketch
 | 6 | CO2 | L2 |
| 1. Illustrate the development of Radial Basis function Neural Network
 | 10 | CO2 | L3 |

OR

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| 4 | 1. Define soft computing
 | 4 | CO2 | L1 |
| 1. Discuss how XOR problem led to the discovery of MLP
 | 6 | CO2 | L2 |
| 1. Using the Hebb rule, find the weights required to perform

Classifications of the given input as shown in the figure.

|  |  |  |
| --- | --- | --- |
| X1 | X2 | Y |
| -1 | -1 | -1 |
| -1 | 1 | -1 |
| 1 | -1 | -1 |
| 1 | 1 | 1 |

 | 10 | CO2 | L3 |

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| 5 | 1. State the significance of fuzzy logic
 | 4 | CO3 | L1 |
| 1. Compare and contrast Crisp and Fuzzy set with examples
 | 6 | CO3 | L2 |
| 1. Interpret the Fuzzy operations with its variants
 | 10 | CO3 | L3 |

OR

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| 6 | 1. Define Singleton with an example
 | 4 | CO3 | L1 |
| 1. Distinguish Discrete and Continuous Fuzzy set
 | 6 | CO3 | L2 |
| 1. Outline the various Fuzzy relations with proper example
 | 10 | CO3 | L3 |

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| 7 | 1. Write short notes on Fuzzy quantifiers
 | 4 | CO4 | L1 |
| 1. Distinguish Fuzzy set and Probability
 | 6 | CO4 | L2 |
| 1. Elaborate on how to evaluate truth value of a fuzzy proposition
 | 10 | CO4 | L3 |

OR

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| 8 | 1. Define Linguistic Hedges
 | 4 | CO4 | L1 |
| 1. Elaborate on four types of Fuzzy propositions
 | 6 | CO4 | L2 |
| 1. Outline the architecture of Fuzzy Logic controller
 | 10 | CO4 | L3 |

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| 9 | 1. Write the entities that represent ANN model
 | 4 | CO1 | L1 |
| 1. Compare and contrast Human brain with Neural Network
 | 6 | CO1 | L2 |
| 1. Build and realize a AND function using single layer perceptron using

LMS rule and step activation function. Learning rate is 0.6 | 10 | CO1 | L3 |

OR

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| 10 | 1. Write the limitations of Rosenblatt’s perceptron
 | 4 | CO2 | L1 |
| 1. Discuss about forward and Backward propagation
 | 6 | CO2 | L2 |
| 1. Illustrate any six Activation Functions with proper equations
 | 10 | CO2 | L3 |