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**Presidency University**

**Bengaluru**

 **SCHOOL OF ENGINEERING**

 **MAKE-UP EXAMINATION JULY 2024**

**Course Code**: CSE 3006

**Course Name**: Neural Network and Fuzzy Logic

**Program & Sem**: B Tech

**Date**: 15-07-2024

**Time**: 01:30 PM – 04:30 PM

**Max Marks**: 100

**Weightage**: 50%

 **Instructions:**

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

**Part A [Memory Recall Questions]**

**Answer all the Questions. Each question carries TWO marks. (10Qx 2M= 20M)**

1. What are various Computational paradigms? (C.O.No.2) [Knowledge]

2. Enlist different types of soft computing techniques? (C.O.No.1) [Knowledge]

3. What do you understand by neural networks? . (C.O.No.1) [Knowledge]

4. What are benefits of neural networks? (C.O.No.2) [Knowledge]

5. Draw a comparison between human brain & neural net. (C.O.No.2) [Knowledge]

6. What is Fuzzy set? (C.O.No.3) [Knowledge]

7. Write any two applications of Fuzzy Logic Controller. (C.O.No.3) [Knowledge]

8. Enlist various membership function shapes. (C.O.No.3) [Knowledge]

9. Write any two differences between fuzzy logic and probability. (C.O.No.3) [Knowledge]

10. What is domain in Fuzzy relation? (C.O.No.3) [Knowledge]

**Part B [Thought Provoking Questions]**

**Answer all the Questions. Each question carries TEN marks. (5Qx10M=50M)**

11. Why sigmoid/ logistic activation function suffers from vanishing gradient? (C.O.No.2) [Application]

12. Why multilayer layer perceptron is required? (C.O.No.3) [Application]

13. Why should we use the non-linear activations functions in a neural network? (C.O.No.3) [Application]

14. What are the types of Fuzzy Compositions? Explain with an example.

(C.O.No.3) [Application]

15. Design a membership function for parameter temperature ranging from 0 to 50 degree Celsius and humidity in percentage.

(C.O.No.3) [Application]

**Part C [Problem Solving Questions]**

**Answer all the Questions. Each question carries FIFTEEN marks. (2Qx15M=30M)**

16. Implement OR gate using single layer perceptron. (Assume initial weights as w1=0.9, w2=0.9 and learning rate=0.5 and threshold value=0.5. (C.O.No.2) [Application]

17. Explain in details all operations on Fuzzy sets with example. (C.O.No.3) [Application]