Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – March 2026

Date: 13- 03-2026 **Time:**11.45am to 01.15pm

School: SOCSE	**Program:** CSE(AI&ML), IST, IST(AI&DS)	
Course Code: CAI2512	**Course Name:** Neural Networks and Fuzzy Logic	
Semester: VI	**Max Marks**:50	**Weightage**: 25%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**
Marks	**46**	**44**			

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Mention the advantages of sigmoid activation function.	**2 Marks**	**L1**	**CO1**
2	What is meant by synaptic weight in a neural network?	**2 Marks**	**L1**	**CO1**
3	State the Hebb learning rule.	**2 Marks**	**L1**	**CO1**
4	What is function signal?	**2 Marks**	**L1**	**CO2**
5	Compare Radial Basis Function with Multi Layered Perceptron.	**2 Marks**	**L2**	**CO2**

Part B

Answer the Questions. **Total Marks 40M**

6.	**a.**	Describe single-layer and multi-layer feed-forward networks.	**10 Marks**	**L2**	**CO1**
	b.	Explain the Leaky ReLU function and how it overcomes the limitations of the standard ReLU.	**10 Marks**	**L2**	**CO1**
		Or			
7.	**a.**	Explain Perceptron learning rule in detail.	**10 Marks**	**L2**	**CO1**
	b.	Describe the structure and functioning of biological neurons. Compare them with artificial neurons used in neural networks.	**10 Marks**	**L2**	**CO1**

8.	**a.**	Explain the architecture of self-organizing map in detail	**10 Marks**	**L2**	**CO2**
	b.	Explain the working principle of the Backpropagation learning algorithm with necessary steps and equations.	**10 Marks**	**L2**	**CO2**
		Or			
9.	**a.**	Explain various heuristics used to improve the learning performance of Backpropagation in Multilayer Perceptron.	**10 Marks**	**L2**	**CO2**
	b.	Explain linear separability using XOR.	**10 Marks**	**L2**	**CO2**