Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Mid - Term Examinations – October 2025

Date: 09-10-2025 **Time:** 09.30am to 11.00am

School: SOCSE	**Program:** B.Tech	
Course Code : IST2503	**Course Name:** Deep Learning Techniques	
Semester: V	**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

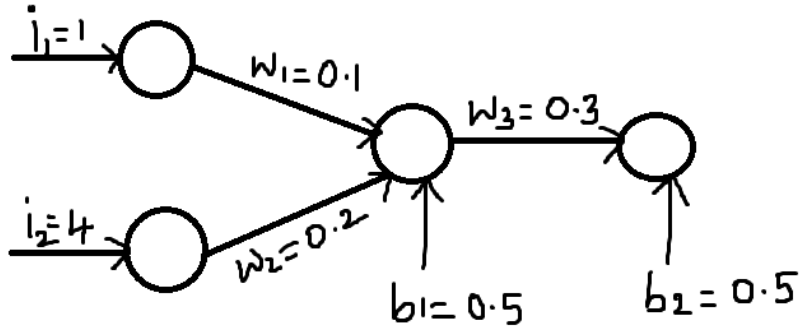
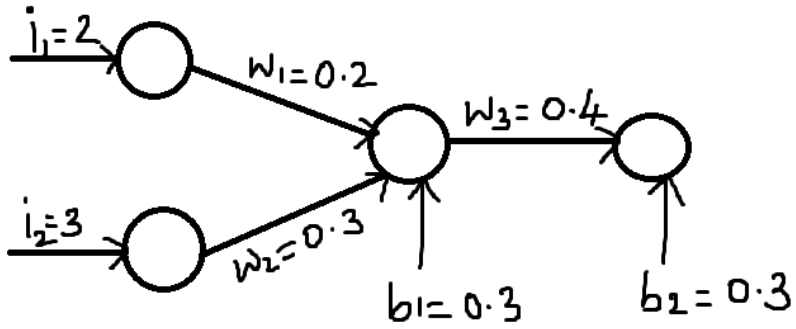
Answer ALL the Questions. Each question carries 2marks. **5Q x 2M=10M**

1	Define Deep Learning? List out the applications of Deep Learning.	**2 Marks**	**L1**	**CO1**
2	What is an Activation Function? List any 2 activation functions	**2 Marks**	**L1**	**CO1**
3	Build a NN with 2 Input neurons and 2 hidden layers each with 3 Neurons and 1 output layer with 2 neurons	**2 Marks**	**L1**	**CO1**
4	Define Regularization and list its strategies.	**2 Marks**	**L1**	**CO2**
5	Define overfitting and underfitting the model.	**2 Marks**	**L1**	**CO2**

Part B

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

6.	**a.**	Explain in detail the perceptron Neural Network with respect to Forward propagation	**10 Marks**	**L2**	**CO 1**

	b.	 Solve the given NN using Back Propagation by calculating Mean Squared Error (MSE) loss function, Sigmoid activation function for the hidden and output layer. Take learning rate=0.01. Update the weight w3 and bias b2 for one iteration.	**10 Marks**	**L3**	**CO 1**
		Or			
7.	**a.**	Explain in detail: 1. Sigmoid Activation Function 2. Leaky ReLU/Parametric ReLu	**10 Marks**	**L2**	**CO 1**
	b.	 Solve the given NN using Back Propagation by calculating Mean Squared Error (MSE) loss function, Sigmoid activation function for the hidden and output layer. Take learning rate=0.01. Update the weight w3 and bias b2 for one iteration.	**10 Marks**	**L3**	**CO 1**

8.	**a.**	Discuss the methods /approaches for hyper parameter tuning.	**10 Marks**	**L2**	**CO2**
	b.	Explain Batch Normalization with an example.	**10 Marks**	**L2**	**CO2**
		Or			
9.	**a.**	Explain the following: i) Learning rate ii) L1 Norm Regularization iii) L2 Norm Regularization	**10 Marks**	**L2**	**CO2**
	b.	Explain overfitting and underfitting the model.	**10 Marks**	**L2**	**CO2**