Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE MINOR- SEMESTER–VI EXAMINATION – WINTER 2025

Subject Code:116AG01 Date:06-12-2025

Subject Name:Deep Learning and Neural Network

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Define the term "information flow" in the context of neural networks.	**03**
	(b)	Draw and explain basic architecture of ANN.	**04**
	(c)	Explain the process of training an ANN, focusing on the role of the loss function and optimization algorithms.	**07**
Q.2	**(a)**	Explain the significance of weights sharing in RNN.	**03**
	(b)	Explain the importance of multiple hidden layers in deep learning.	**04**
	(c)	Describe the concept of "memory" in RNNs. Explain how it allows RNNs to process sequential data.	**07**
		OR	
	(c)	Discuss the concept of time steps in RNNs. Explain How RNN processes sequential data differently than other neural networks.	**07**
Q.3	**(a)**	Explain the role of resizing in image classification.	**03**
	(b)	Outline the typical architecture of a CNN used for image classification.	**04**
	(c)	Explain the role of convolutional layers in a CNN. Discuss how convolutional filters work and the concept of feature maps.	**07**
		OR	
Q.3	**(a)**	Explain the role of normalization in image classification.	**03**
	(b)	Give the difference between RNN and CNN.	**04**
	(c)	Describe the purpose of pooling layers in CNNs. Compare max pooling and average pooling, including their effects on the network's performance.	**07**
Q.4	**(a)**	Give the difference between LSTM and RNN.	**03**
	(b)	State applications of RNN in real world.	**04**
	(c)	Discuss the role of each gate in an LSTM cell. Explain how each gate contributes to the flow of information.	**07**
		OR	
Q.4	**(a)**	Compare LSTM with GRU.	**03**
	(b)	Give limitations of LSTMs.	**04**
	(c)	Provide an example of a scenario where LSTMs would be preferred over standard RNNs, and explain the reasoning.	**07**
Q.5	**(a)**	Give advantages of TensorFlow.	**03**
	(b)	Explain different layers in Keras.	**04**
	(c)	Discuss steps to implement CNN using TensorFlow.	**07**
		OR	
Q.5	**(a)**	Give limitations of Keras.	**03**
	(b)	Explain types of tensors.	**04**
	(c)	Explain steps to train RNN using Keras.	**07**

****