Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE(MINOR) - SEMESTER–VI EXAMINATION – SUMMER 2023

Subject Code:116AG01 Date:10-08-2023

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)**	Compare Artificial Neural Network with Biological Neural Network.	**03**
	(b)	Explain the concept of perceptron with a neat diagram.	**04**
	(c)	Write and describe backpropagation algorithm in Artificial Neural Networks.	**07**
Q.2	**(a)**	You are designing a deep learning based system to detect driver fatigue in trucks. It is crucial that that your model detects fatigue, to prevent any accidents. Which of the following is the most appropriate evaluation parameter: Accuracy, Precision, Recall, Loss Value? Justify your answer.	**03**
	(b)	Determine the shape of output matrix of an image of size 19 x 19 that uses a padding size 2, stride size 2, and a 5 x 5 filter.	**04**
	(c)	Compare overfitting and under fitting using the concept of Bias and Variance. Give examples.	**07**
		OR	
	(c)	Discuss any four regularization techniques in deep learning.	**07**
Q.3	**(a)**	Give three benefits of using convolutional layers instead of fully connected ones for visual tasks.	**03**
	(b)	Compare and contrast RNN with CNN.	**04**
	(c)	How deep learning plays a remarkable role in medical image classification. Explain with example.	**07**
		OR	
Q.3	**(a)**	Compare Tanh and sigmoid activation functions.	**03**
	(b)	Explain the role of hyper parameter tuning in neural network training.	**04**
	(c)	Discuss the role of deep learning in cyber security.	**07**
Q.4	**(a)**	"Deep Learning requires dedicated hardware." – Justify.	**03**
	(b)	State pros and cons of LSTM.	**04**
	(c)	Draw and explain the architecture of RNN.	**07**
		OR	
Q.4	**(a)**	"Deep learning is different from traditional machine learning." – Justify.	**03**
	(b)	State applications of RNN in real world.	**04**
	(c)	Draw and explain the architecture of LSTM.	**07**
Q.5	**(a)**	Give limitations of TensorFlow.	**03**
	(b)	Explain types of tensors.	**04**
	(c)	Discuss steps to implement CNN using Keras.	**07**

OR

Q.5	**(a)**	Give advantages of Keras.	**03**
	(b)	Explain the role of pooling layer in Keras.	**04**
	(c)	Explain steps to train RNN using TensorFlow.	**07**

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