GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Computing Science and Engineering

Bachelor of Technology in Computer Science and Engineering
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem VI - R1UC604C - Deep Learning

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Discuss the different types of transfer function.	K2	(2)
2)	Define Gradient descent algorithm in short.	K1	(3)
3)	Distinguish Learning and Training.	K2	(4)
4)	Classify type of problems in which Artificial Neural Network can be applied.	K2	(6)
5)	Make use of sigmoid function to explain a perceptron model	K3	(6)
6)	Identify issues in Machine learning.	K3	(9)
7)	Illustrate the limitations of a single-layer perceptron in handling non-linearly separable data. Propose strategies to overcome these limitations, introducing the concept of a Multilayer Perceptron (MLP) and how it addresses the challenges posed by non-linear separability.	K4	(8)
8)	Critically analyze the suitability of Activation Functions in different scenarios. Explore instances where certain functions may outperform others and discuss considerations for selecting an appropriate Activation Function based on the nature of the data and the network architecture.	K4	(12)

OR

	a. Break down the challenges associated with vanishing gradients in the training of RNNs, and criticize their impact. Analyse how LSTM addresses these challenges and simplifies the training process [7 marks]. b. Write code to implement a Convolutional Neural Network (CNN) for image classification using a dataset such as CIFAR-10. Follow the steps below: - Classify (1 mark): Choose a dataset for image classification, e.g., CIFAR-10 and Categorize images into distinct classes relevant to the dataset. - Construct (1 mark): Break down the process of constructing a CNN architecture using your preferred programming language and deep learning framework (e.g., Python with TensorFlow or PyTorch). - Train and Evaluate (2 marks): Implement the training process for the CNN, specifying hyperparameters, loss functions, and optimization methods. -Evaluate the CNN's performance on a test set, providing accuracy metrics and confusion matrices (1 mark).	K4	(12)