UPES
UNIVERSITY OF TOMORROW

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Deep Learning Fundamentals   **Semester: VIII**
Program: B.Tech CSE - AI/ML   **Time: 03 hrs.**
Course Code: CSBD 4007   **Max. Marks: 100**

Instructions: All questions are Compulsory.

SECTION A (5Qx4M=20Marks)			
S. No.		**Marks**	**CO**
Q 1	Write a short note on stochastic gradient descent and its equation.	4	CO1
Q 2	Justify with explanation how to perform feature scaling before running a gradientdescent algorithm.	4	CO1
Q 3	Does hyper parametertuning lead to overfitting? Explain.	4	CO2
Q 4	Discuss the two layers of restricted Boltzmann machine.	4	CO3
Q 5	Illustrate two main strategies used in text summarization?	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q 6	When would you use MLP, CNN, and RNN?	10	CO2
Q 7	State the differences between AlexNet and RestNet. **OR** State the difference between batch gradient descent and stochastic gradient descent.	10	CO2
Q 8	What are the building blocks of Deep Neural Networks? Explain the use of perceptron.	10	CO1
Q 9	How neural networks can be used for pattern recognition? What are the 3 components of the pattern recognition?	10	CO1
SECTION-C (2Qx20M=40 Marks)			
Q 10	What do you understand by Natural Language Processing? List any two real-life applications of Natural Language Processing. **OR** Given a dataset of m training examples, each of which contains information in the form of various features and a label. Each label corresponds to a class, to which the training example belongs. In	20	CO4

	multiclass classification, we have a finite set of classes. Each training example also has n features. For example, in the case of identification of different types of fruits, "Shape", "Color", "Radius" can be featured, and "Apple", "Orange", "Banana" can be different class labels. Explain how you will solve this problem. Write an algorithm for it.		
Q 11	Can we solve the multiclass classification problems using Logistic Regression? Justify your answer with proper explanation.	**20**	**CO3**