Graphic Era HILL UNIVERSITY
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University under section 2(f) of UGC Act, 1956

Term Evaluation (Even) Semester Examination March 2025

Roll no.....

Name of the Course and semester: B. Tech-CSE AI&ML and 4th Semester
Name of the Paper: Deep Learning
Paper Code: TCS 464
Time: 1.5-hour
Maximum Marks: 50

Note:
(i) Answer all the questions by choosing any one of the sub questions
(ii) Each question carries 10 marks.
(iii) Please specify COs against each question.

Q1. (10 Marks) CO 4

a. How the problem of overfitting can be solved in deep neural network. Explain using suitable example of deep neural network.

OR

b. Differentiate between Gradient descent, stochastic gradient descent and mini-batch gradient descent. Discuss advantages and disadvantages of each type.

Q2. (10 Marks) CO 2

a. What are filters in convolutional neural network. Use 2X2 vertical filter and apply convolutional operation on following 4x4 image. Show the output image and discuss the outcome.

0	0	1	1
0	0	1	1
0	0	1	1
0	0	1	1

OR

b. What do you mean by padding in CNN. How padding is useful in CNN. Illustrate with example.

Q3. (10 Marks) CO 4

a. Describe activation function ReLU, Leaky ReLU and Exponentially Linear unit function. Write equation for each case with their derivative function curves.

OR

b. What do you mean by vanishing gradient problem. What is the main cause of this problem. How we can overcome this problem in deep neural network.

Q4. (10 Marks) CO 3

a. Discuss concept of forward propagation and backward propagation in neural network. Illustrate with example.

OR

b. What do you mean by chain rule. How can we apply chain rule on multi perceptron neural network. Discuss with example of multi perceptron neural network.

Q5. (10 Marks)

a. Differentiate between machine learning and deep learning. CO 1

OR

b. Elaborate the concept of Recurrent neural network. Wha is the advantage of RNN. What kind of use cases we can solve using recurrent neural network. CO 5