Printed Page:-03 Subject Code:- ACSML0702

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VII - THEORY EXAMINATION (2024 - 2025)

Subject: Deep Learning

Time: 3 Hours Max. Marks: 100

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A 20

1. Attempt all parts:-

1-a. For a neural network, which one of these structural assumptions is the one that most affects the trade-off between underfitting and overfitting (Co1,K3) 1

(a) Decrease, Decrease

(b) Increase, Decrease

(c) Decrease, Increase

(d) Increase, Increase

1-b. _____ refers to a model that can neither model the training data nor generalize to new data (CO1,K3) 1

(a) Complex model, Overfit

(b) Complex model, Underfit

(c) Simple model, Underfit

(d) Simple model, Overfit

1-c. Neural network that has only one hidden layer between the input and output (CO2,K2) 1

(a) Deep neural network

(b) Feed-forward neural networks

(c) Recurrent neural networks

(d) Shallow neural network

1-d. Deep learning algorithms are _____ more accurate than machine learning 1

.

algorithms in image classification (CO2,K4)

(a) 0.0037

(b) 0.0041

(c) 0.33

(d) 0.004

1-e. Choose the correct from the following statements is true when you use 1×1 convolutions in a CNN.(CO3,K3) 1

(a) It can help in dimensionality reduction

(b) It can be used for feature pooling

(c) It suffers less overfitting due to small kernel size

(d) All of the above

1-f. In a simple MLP model with 8 neurons in the input layer, 5 neurons in the hidden layer and 1 neuron in the output layer, The size of the weight matrices between hidden output layer and input hidden layer?(CO3,K3) 1

(a) [1 X 5] , [5 X 8]

(b) [5 x 1] , [8 X 5]

(c) [8 X 5] , [5 X 1]

(d) [8 X 5] , [1 X 5]

1-g. The following option that is not the disadvantage of recurrent neural network. (CO4,K2) 1

(a) Inputs of any length can be processed in this model

(b) Exploding and gradient vanishing is common in this model

(c) Training an RNN is quite a challenging task

(d) It cannot process very long sequences if using ‘tanh’ or ‘relu’ as an activation function

1-h. In which type of neural network, the connection is feedforword, self connection or connections to the units in the previous layers (CO4,K4) 1

(a) Radial Basis Functions Neural Network

(b) Modular Neural Network

(c) Convolution Neural Network

(d) Recurrent Neural Network

1-i. Autoencoders are trained using.(CO5,K3) 1

(a) Feed Forward

(b) feed back

(c) Back Propagation

(d) They do not require Training

1-j. De-noising and Contractive are examples of _____.(CO5,K3) 1

(a) Shallow Neural Networks

(b) Convolution Neural Networks

.

(c) ANN

(d) Recurrent Neural Networks

2. Attempt all parts:-

2.a.	Disscuss about bias-variance trade-off(CO1,K2)	2
2.b.	Explain flattening layer in CNN architecture (CO2,K4)	2
2.c.	Explain Detection (CO3,K1)	2
2.d.	Explain RNN(CO4,K2)	2
2.e.	Explain about Autoencoders Function.(CO5,K2)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Elaborate perception in deep learning (CO1,K1)	6
3-b.	write a short note on - p value and precision recall.(CO1,K2)	6
3-c.	Elaborate feed forward in Convolution Neural Network (CO2,K3)	6
3-d.	Give some examples of classification text (CO2,K2)	6
3.e.	Differentiate between the detection, recognition and identification of things(CO3,K3)	6
3.f.	Define RNN and its uses.(CO4,K3)	6
3.g.	Describe the approach used in Denoising Autoencoders. (CO5,K3)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Explain the three-layered neuron architecture.(CO1,K3)	10
4-b.	Explain the basic structure of a cell in an BNN(CO1,K2)	10

5. Answer any one of the following:-

5-a.	Discuss some techniques you can use to improve accuracy for image classification tasks (CO2,K6)	10
5-b.	Explain the different types of Pooling in CNN with diagram.(CO2,K4)	10

6. Answer any one of the following:-

6-a.	Differentiate between a convolutional layer and an inception module in a Google net network architecture (CO3,K3)	10
6-b.	Explain filtering, stride and padding in Convolutional Neural Network (CO3,K3)	10

7. Answer any one of the following:-

7-a.	Prepare an example of sequence model or sequence-to-sequence RNN architecture (CO4,K2)	10
7-b.	Compare feed-forward and RNN networks.(CO4,K3)	10

8. Answer any one of the following:-

8-a.	Name some of the Autoencoder Variations. Also, explain them(CO5,K3)	10
8-b.	Give the Uses of Autoencoders? Explain in brief.(CO5,K3)	10