Printed Page:- 04 **Subject Code**:- **ACSML0602**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2023 - 2024)

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

(a) Complex model, Overfit

(b) Complex model, Underfit

(c) Simple model, Underfit

(d) Simple model, Overfit

1-b. A single iteration over the entire training set is called as an (CO1) 1

(a) Epoch

(b) clock

(c) cycle

(d) None of the above

1-c. CNN is mostly used when there is an (CO2) 1

(a) Unstructured data

(b) Structured data

(c) None of the above

(d) All of above

1-d. The input image has been converted into a matrix of size 28×28 and a kernel/filter of size 7×7 with a stride of 1. What will be the size of the convoluted matrix (CO2) 1

(a) 22*22

(b) 21*21

(c) 20*20

(d) 25*25

1-e. Choose the correct from the following statements is true when you use 1×1 convolutions in a CNN. (CO3) 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. Identify the kind of learning algorithm for “facial identities for facial expressions”. (CO3) 1

(a) Prediction

(b) Recognition patterns

(c) Recognizing anomalies

(d) Generating patterns

1-g. RNN can memorize previous inputs (CO4) 1

(a) Due to their external memory

(b) RAM

(c) internal memory

(d) ROM

1-h. Types of RNN are . (CO4) 1

(a) 1

(b) 2

(c) 3

(d) 4

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

(a) Shallow Neural Networks

(b) Convolution Neural Networks

(c) ANN

(d) Recurrent Neural Networks

2. Attempt all parts:-

2.a. Elaborate unstructured data (CO1) 2

2.b. Define Convolution. (CO2) 2

2.c. Explain Detection (CO3) 2

2.d. Explain the tool that can be used to draw RNN models .(CO4) 2

2.e. Discuss the Uses of Autoencoders. (CO5) 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. Define delta rule. (CO1) 6

3-b. Define curse of dimensionality .(CO1) 6

3-c. Elaborate feed forward in Convolution Neural Network (CO2) 6

3-d. Describe computational graph in Deep Learning. (CO2) 6

3.e. Elaborate 1x1 convolution mean in a neural network (CO3) 6

3.f. Compare with the Unfolding Computational Graphs and Bidirectional RNNs . (CO4) 6

3.g. How can Neural Networks be used to create Autoencoders (CO5) 6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a. Differentiate between RMSE and MSE in a linear regression model (CO1) 10

4-b. Explain Perceptron Convergence Theorem. (CO1) 10

5. Answer any <u>one</u> of the following:-

5-a. Discuss some techniques you can use to improve accuracy for image classification tasks (CO2) 10

5-b. How neural network architecture is best for image classification (CO2) 10

6. Answer any <u>one</u> of the following:-

6-a.	How can you do face detection in Open cv and what is the Difference between face detection and Recognition (CO3)	10
6-b.	Differentiate between 1x1 convolution and fully connected layer (CO3)	10

7. Answer any <u>one</u> of the following:-

7-a.	Define unfolding in time and bi-directional RNNs. (CO4)	10
7-b.	Explain in following in details i) LSTM, ii) Deep LSTM (CO4)	10

8. Answer any <u>one</u> of the following:-

8-a.	Give the Uses of Autoencoders? Explain in brief. (CO5)	10
8-b.	Distinguishes GANs from auto-encoders with example (CO5)	10