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 CARRY OVER THEORY EXAMINATION-AUGUST 2023

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. A group of training pairs is called as (CO1) 1

(a) training set

(b) working set

(c) logical set

(d) None of the above.

1-b. The working of ANN is similar to (CO1) 1

(a) a human brain

(b) a car working

(c) a human eye

(d) None of the above

1-c. 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) 2

(b) 21*21

(c) 20*20

(d) 25*25

1-d. SVM stands for_____ (CO2) 1

(a) Support Vector Mechanism

(b) Super Visual Machine

(c) Support Vector Machine

(d) Support Vector Model

1-e. Machine learning algorithm that is based upon the idea of bagging (CO3) 1

(a) Decision tree

(b) Random-forest

(c) Classification

(d) Regression

1-f. The machine learning techniques that helps in detecting the outliers in data (CO3) 1

(a) Classification

(b) Clustering

(c) Anomaly detection

(d) All of the above

1-g. The full form of RNN is (CO4) 1

(a) Recurring Neural Network

(b) Removable Neural Network

(c) Recurrent Neural Network

(d) None of the above

1-h. The component of learning system is (CO4) 1

(a) Model

(b) Learning rules

(c) Goal

(d) All of the above

1-i. How many layers are there in Autoencoder? (CO5) 1

(a) 2

(b) 4

(c) 3

(d) 5

1-j. In a neural network, which of the following techniques is used to deal with overfitting. (CO5) 1

(a) Dropout

(b) Batch Normalization

(c) RegularNormalization

(d) none of these

2. Attempt all parts:-

2.a. Define ridge regression. (CO1) 2

2.b. Explain pooling layer. (CO2) 2

2.c. Define padding & Edge Detection. (CO3) 2

2.d. Write down the characteristics of RNN . (CO4) 2

2.e. Why do we use binary cross entropy loss on autoencoders? (CO5) 2

SECTION B **30**

3. Answer any five of the following:-

3-a. Discuss regression with example. (CO1) 6

3-b. Discuss k-fold cross validation. (CO1) 6

3-c. Which deep learning algorithm is best for image classification? Explain. (CO2) 6

3-d. What is fine-tuning in CNN? Explain with example. (CO2) 6

3.e. Differentiate between the detection, recognition and identification of things. (CO3) 6

3.f. Define properties and types of RNNs. (CO4) 6

3.g. Give the differences between GAN and autoencoders. (CO5) 6

SECTION C **50**

4. Answer any one of the following:-

4-a. Discuss dimensionality reduction and its benefits. (CO1) 10

4-b. Explain Backpropagation Learning Algorithm. (CO1) 10

5. Answer any one of the following:-

5-a. Explain the different types of Pooling in CNN with diagram. (CO2) 10

5-b. Explain different types of CNN architectures. (CO2) 10

6. Answer any one of the following:-

6-a. "We always use ODD kernels like 3 x 3, 5 x 5 & so on why not 4 x 4 kernels(even 10

kernels)". Explain the statement. (CO3)

6-b. Explain Competitive learning using Self-Organizing Maps. (CO3) 10

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

7-a. Explain the difference between ISTM & LSTM. (CO4) 10

7-b. Explore advantages of Recurrent Neural Network over Feed Forward Neural Network. (CO4) 10

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

8-a. Analyse PCA in Terms of Dimensionality Reduction. (CO5) 10

8-b. How to reverse max pooling layer in autoencoder to return the original shape in decoder. (CO5) 10