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 (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. For a neural network, which one of these structural assumptions is the one that most affects the trade-off between underfitting and overfitting (co1) 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) 1

(a) Complex model, Overfit

(b) Complex model, Underfit

(c) Simple model, Underfit

(d) Simple model, Overfit

1-c. Deep learning algorithms are _____ more accurate than machine learning algorithms in image classification (CO2) 1

(a) 0.0037

(b) 0.0041

(c) 0.33

(d) 0.004

1-d. How many layers of Deep learning algorithms are constructed (CO2) 1

(a) 3
(b) 4
(c) 2
(d) 5

1-e. Choose from the following which would have a constant input in each epoch of training a Deep Learning model (CO3) 1

(a) Weight between input and hidden layer
(b) Weight between hidden and output layer
(c) Biases of all hidden layer neurons
(d) Activation function of output layer

1-f. Sentiment analysis using Deep Learning is a many-to one prediction task (CO3) 1

(a) True
(b) FALSE
(c) Can be true and false
(d) Can not say

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

(a) Feed Forward
(b) feed back
(c) Back Propagation
(d) They do not require Training

1-j. _____ is a recommended Model for Pattern Recognition in Unlabeled Data.(CO5) 1

(a) CNN
(b) Auto encoder
(c) auto decoder
(d) RNN

2. Attempt all parts:-

2.a.	Elaborate unstructured data (CO1)	2
2.b.	Explain flattening layer in CNN architecture (CO2)	2
2.c.	Define Recognition (CO3)	2
2.d.	Define different processes to convert "English to French " data sequencing .(CO4)	2
2.e.	Define Autoencoders. (CO5)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Define delta rule.(CO1)	6
3-b.	Define curse of dimensionality .(CO1)	6
3-c.	How can hyperparameters be trained in neural networks (CO2)	6
3-d.	Give some examples of classification text (CO2)	6
3.e.	Draw and explain the architecture of convolutional network .(CO3)	6
3.f.	Define properties and types of RNNs .(CO4)	6
3.g.	How can Neural Networks be used to create Autoencoders (CO5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Explain the three-layered neuron architecture.(CO1)	10
4-b.	Explain Perceptron Convergence Theorem.(CO1)	10

5. Answer any one of the following:-

5-a.	Discuss some techniques you can use to improve accuracy for image classification tasks (CO2)	10
5-b.	Explain the different types of Pooling in CNN with diagram.(CO2)	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)	10
6-b.	Explain filtering, stride and padding in Convolutional Neural Network (CO3)	10

7. Answer any one of the following:-

7-a.	Explain a modeling sequences Conditioned on Context with RNNs (CO4)	10
7-b.	Prepare an example of sequence model or sequence-to-sequence RNN architecture (CO4)	10

8. Answer any one of the following:-

8-a.	Give the Uses of Autoencoders? Explain in brief.(CO5)	10
8-b.	Describe Bottleneck, and Why is it Used (CO5)	10