Printed Page:- 04

Subject Code:- ACSAI0613

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: VI - THEORY EXAMINATION (2022-2023)

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. Deep learning is also called as (CO1) 1

(a) feature learning

(b) representation learning

(c) example based learning

(d) None of the above

1-b. Predicting the price of a house given its size is an example of (CO1) 1

(a) supervised learning

(b) Unstructured learning

(c) remote learning

(d) None ..

1-c. Of the following statements is true when you use 1×1 convolutions in a CNN (CO2) 1

(a) It can help in dimensionality reduction

(b) It suffers less over fitting due to small kernel size

(c) It can be used for feature pooling

(d) All of the above

1-d. Common types of pooling layers (CO2) 1

(a) 2

(b) 3

(c) 4

(d) 5

1-e. Among the following option identify the one which is not a type of learning (CO3) 1

(a) Semi unsupervised learning

(b) Supervised learning

(c) Reinforcement learning

(d) Unsupervised learning

1-f. Choose the general limitations of the backpropagation rule among the following.(CO3) 1

(a) Slow convergence

(b) Scaling

(c) Local minima problem

(d) All of the above

1-g. Sentiment Analysis is the example of (CO4) 1

(a) One-to -one RNN

(b) One-to-Many RNN

(c) Many-to-One RNN

(d) Many-to-many RNN

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

(a) Model

(b) Learning rules

(c) Goal

(d) All of the above

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

(a) Feed forward

(b) feed back ward

(c) back propogation

(d) They do not require Training

1-j. Which of the following techniques perform similar operations as dropout in a neural network? (CO5) 1

(a) Bagging

(b) Stacking

(c) Non Stacking

(d) None of these

2. Attempt all parts:-

2.a. Are classification and clustering are same or different ,Justify. (CO1) 2

2.b. Explain CNN features in deep learning. (CO2) 2

2.c. Describe the advantages of SDD over Faster R-CNN. (CO3) 2

2.d. Compare Feed Forward with the RNN networks. (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. List the differences between supervised and unsupervised learning. (CO1) 6

3-b. Discuss, How Data Science and Machine Learning are related to each other. (CO1) 6

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

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

3.e. Discuss deep learning algorithms that are used to detect objects. (CO3) 6

3.f. Illustrate Clipping Gradients and Regularizing to Encourage Information Flow .(CO4) 6

3.g. Explain stacked autoencoder and semi supervised learning. (CO5) 6

SECTION C **50**

4. Answer any one of the following:-

4-a. Difference between Linear Activation Function and Non-linear Activation Function. (CO1) 10

4-b. Differentiate between Grid search and random search. (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 the limitations of feedforward neural networks (FNN) for image processing. (CO2) 10

6. Answer any one of the following:-

6-a.	Elaborate the application of image processing in real-time object detection and recognition. (CO3)	10
6-b.	Justify the advantage of auto encoder over principal component analysis for dimensionality reduction. (CO3)	10

7. Answer any one of the following:-

7-a.	Define deep Recurrent Neural Networks (RNNs) and augmenting Recurrent Neural Networks (RNNs) with the help of suitable examples. (CO4)	10
7-b.	Explain the following in detail: (CO4) i) Backpropagation Through Time (BTT) ii) Sequence Model.	10

8. Answer any one of the following:-

8-a.	Give two actual case studies where autoencoders have been used. (CO5)	10
8-b.	Differentiate between overcomplete and undercomplete autoencoders. (CO5)	10