LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – **DATA SCIENCE**

THIRD SEMESTER – **NOVEMBER 2022**

PDS 3503 – DEEP LEARNING

Date: 23-11-2022 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

Q. No **Answer ALL questions** **(10 x 2 = 20 Marks)**

1 What is the use of Adam Optimization Algorithm?

2 What are two steps involved in forward propagation Algorithm?

3 What is the role of ConvNet in CNN?

4 What is the use of Dropout Layer?

5 Define Exploding Gradients.

6 What is wrong with Naïve RNN while dealing with time series data?

7 List out the applications of Boltzmann Machine.

8 Define Restricted Boltzmann Machine.

9 What are the four important features of an image?

10 Define Integral Image.

PART – B

Answer ALL questions **(5 x 8 = 40 Marks)**

11 (a) Explain the various types of Gradient Descent technique in detail.

(OR)

(b) Describe any two Business Problem of Artificial Neural Network in detail.

12 (a) Explain the concept of RELU Layer in Convolutional Neural Network.

(OR)

(b) Illustrate the concept of Softmax and Cross Entropy in detail.

13 (a) Explain the various steps in Building the Recurrent Neural Network.

(OR)

(b) Describe the various methods in Evaluating the RNN in detail.

14 (a) State the components of Boltzmann machines and explain how it is used to solve two completely different computational problems?

(OR)

(b) Describe the Similarity and Difference between DBN and DBM in detail.

15 (a) Describe the concept of Haar-like Features with neat illustration.

(OR)

(b) How the Adaboost is used in Viola Jones algorithm for face detection?

PART – C

Answer any TWO questions **(2 x 20 = 40 Marks)**

16 Explain the following:

(a) Components of a Neural Network with neat architecture.

(b) Concept of Pooling and flattening with neat illustration.

17 Describe the following topics:

(a) LSTM architecture and its components with neat architecture.

(b) Various Hyperparameters for Tuning the Recurrent Neural Network.

18 Write a short note on the following:

(a) Architecture of Deep Belief Network with neat illustration.

(b) Cascade of Classifiers for face detection with neat diagram.

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