Printed Pages: 02 **Sub Code: KCS - 078**

Paper Id: | 2 | 3 | 1 | 5 | 4 | 7 | **Roll No.** | | | | | | | | | | | | |

B.TECH
(SEM VII) THEORY EXAMINATION 2022-23
DEEP LEARNING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

(a) What are the applications of Machine Learning?
(b) Describe the Boltzmann Machine.
(c) Is it possible to build deep learning models based solely on linear regression? Explain.
(d) Define the different layers of a convolutional neural network.
(e) Explain the linear models
(f) Why is it important to introduce non-linearities in a neural network?
(g) What are the limitations of using a perceptron?
(h) Why do we use convolutions for images instead of using fully connected layers?`
(i) Why are GPUs important for implementing deep learning models?
(j) Which is the best algorithm for face detection ?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

(a) Difference between Deep and Shallow Network.
(b) Draw and explain the architecture of Convolutional Networks.
(c) Why CNN is preferred over ANN for Image Classification tasks even though it is possible to solve image classification using ANN?
(d) Explain LSTM (Long Short Term Memory). Give some famous applications of LSTM.
(e) Explain Image Captioning in Deep Learning.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the difference between Gradient Descent and Stochastic Gradient Descent.
(b) ExplainGAN and its models. Name and describe different types of GANs.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Examine the Semi –Supervised learning.
(b) Demonstrate deep learning. Explain its uses, application and history.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain Back propagation with its algorithm.

(b) Write short notes :-
i) Deep Reinforcement
ii) Autoencoder Architecture
iii) VGG
iv) SOA

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Compare PCA (Principle Component Analysis) and RNN.

(b) Discuss how batch gradient descent and stochastic gradient descent are different.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Demonstrate how the privacy will be affected when facial recognition gets used by private companies?

(b) How AI and Neuroscience drive each other forwards? Explain.