

Printed Pages: 02

Sub Code: KCS - 078

Paper Id:

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