Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech. (CSE) (Sem.–7, 8)

DEEP LEARNING

Subject Code : BTCS704-18

M.Code : 90495

Date of Examination : 17-01-2025

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1) Answer briefly :

a) What is underfitting?

b) Which models have high variance?

c) Define Bias.

d) What is bagging?

e) Explain the importance of auto-encoders.

f) What do you mean by validation loss?

g) Explain the applications of sequence-to-sequence architectures.

h) What is recursive neural networks?

i) Explain the role of sigmoid belief networks.

j) What is regularization?

SECTION-B

2) Differentiate between supervised and unsupervised learning. Explain with the help of an example.

3) Explain the importance of gradient descent algorithm in training the model.

4) Explain the importance of back-propagation while training the model.

5) Consider a 2D convolutional layer With a kernel size of 3×3, a stride of 2, and no padding. If the input image is 28×28 with a single channel, calculate the dimensions of the output feature map.

6) What is the difference between Boltzmann machine and neural network? Elaborate in detail.

SECTION-C

7) Discuss the advantages of using Bidirectional RNNs over traditional Unidirectional RNNs. Provide a real world example where Bidirectional RNNs could be beneficial and explain how they would work in that scenario.

8) Explain Convolutional Neural Networks (CNNs). List and explain different layers used in CNN with an example to each.

9) **Write a short note on the following :**

   a) Boltzmann machine.

   b) Deep belief networks.

   c) Restricted Boltzmann machine.

   d) Directed generative net.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.