

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 : 01-06-2023

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. Write briefly :

- a) What is machine learning?
- b) Define maximum likelihood estimation.
- c) What is gradient-based learning?
- d) What are computational graphs?
- e) Discuss the role of neuroscience in convolution networks.
- f) What are deep recurrent networks?
- g) Write a short note on recursive neural networks.
- h) What is the process of drawing samples from auto-encoders?
- i) What is bagging in machine learning?
- j) Write a short note on data augmentation.

SECTION-B

2. Explain the concept of bias and variance in machine learning with the help of an example and discuss how they affect the model performance?
3. Describe the architecture of a deep feed forward network, including the role of hidden units and the design of computational graphs.
4. Discuss the architecture and operation of convolutional neural networks, including the use of convolution and pooling layers.
5. Explain the idea of sequence modelling in machine learning and how encoder-decoder sequence-to-sequence architectures and recurrent neural networks can be used to model data sequences.
6. What are deep belief networks? Explain the main advantage of deep belief networks over traditional neural networks.

SECTION-C

7. Describe how deep feed forward networks use regularisation approaches like parameter penalties and data augmentation, and how they can enhance generalisation performance.
8. Explain how convolution networks can employ unsupervised feature learning to enhance their capacity to extract useful features from input images? Also, describe how convolution networks can be enhanced by the incorporation of knowledge from neuroscientific studies?
9. Discuss in detail with the help of examples the problems of under-fitting and over fitting and various solutions to address these problems.

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.