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

Total No. of Questions : 08

M.Tech. (Computer Science & Engg.) (Artificial Intelligence) (Sem.–2)

ADVANCED DEEP LEARNING

Subject Code : MTAI-PE-10-20

M.Code : 92284

Date of Examination : 04-07-22

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

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWELVE marks.**

1. Explain the following terms :

   a) Overfitting and underfitting

   b) Bias and variance

   c) Supervised and unsupervised learning

   d) Shallow and deep networks.

2. Explain the working of backpropagation algorithm in detail with the help of an example.

3. What is optimization and why it is needed? Explain different techniques for optimizing the model parameters.

4. What is Ensemble Learning? Explain in detail about bagging, boosting and stacking techniques.

5. a) What is a Prior? Differentiate between weak, strong and infinitely strong prior.

   b) Explain about unshared and tiled convolution.

6. a) What do you mean by sequence modelling? Write various applications of sequence modelling.

   b) What are computational graphs and what is their significance? Explain the concept of unfolding a recurrent computation into a computational graph that has a repetitive structure.

7. What effect do the hyperparameters have on the performance of a model? Explain in detail about the manual and automatic hyperparameter tuning approaches.

8. a) How do you determine whether more data has to be gathered for a model? What effect does the data has on the performance of the model?

   b) Explain about various applications of deep learning.

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