

**67197-N**

**MCA- 4th Semester w.e.f. 2020-21 (Only Re-appear)**

**Examination, November-2023**

**MACHINE LEARNING & PYTHON PROGRAMMING (i)**

**Paper -21MCA24DB1**

*Time allowed : 3 hours]*

*[Maximum marks : 80*

***Note : Attempt five questions in all by selecting one question from each unit and Question No. 1 is compulsory. All questions carry equal marks.***

1.
  - (a) What do you mean by ensemble learning?
  - (b) How is bagging different from boosting?
  - (c) What is logistic regression?
  - (d) What do you mean by Pandas?
  - (e) What is semi-supervised learning?
  - (f) What is Q-learning? State its relevance.
  - (g) What are K-nearest neighbours?
  - (h) What are multiple plots?

**8×2=16**

**Unit-I**

2. (a) What do you mean by SVM? How does it work? Illustrate its significance by giving suitable example. 8
- (b) What is machine learning? How a learning system can be designed? Discuss the concept of learning association in context of machine learning. 8
3. Differentiate the following:
- (a) Training and Testing 5
- (b) Overfitting and Underfitting 6
- (c) Finite and Infinite Hypothesis 5

**Unit-II**

4. What is unsupervised learning? How is it different from supervised learning? How does it work? What are different techniques under this category? Illustrate.

5. Explain the following:

- (a) K-means Clustering and its use 8
- (b) Dimensionality Reduction and its essence 8

### Unit-III

6. What is Python? What are its salient features? Why is Python suitable for Machine Learning? Outline the syntax and use of the following in Python programming: 16

- (a) Loops and Iterations
- (b) Modules and Packages
- (c) Lists and Strings

7. Illustrate the purpose and usage of the following:

- (a) Arrays and Matrices 5
- (b) Exception Handling 5
- (c) Functions 6

## Unit-IV

8. (a) What do you mean by visualization? What are 2D and 3D Visualization? How are these relevant in Machine Learning? How does Python implement the same? Illustrated. 8
- (b) What is Metaplotlip module? What is its purpose and use in Python programming? Illustrate its use through a suitable Python program segment. 8
9. Explain the following:
- (a) Parametric plots 5
- (b) Data distribution 5
- (c) Database and its usage in Python 6