

**JAMIA HAMDARD**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**SCHOOL OF ENGINEERING SCIENCE & TECHNOLOGY**

**Machine Learning – MCA 302**

**M.C.A III semester 2024**

**New Delhi-110062**

**Duration: 2:30 hours.**

**Max. Marks : 60**

**Section A ( 5\*4 =20)**

Attempt all Questions

| Q. No. | Questions                                                                                                                                                                                            | Marks | CO  | BL     |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--------|
| Q1.    | Discuss Learning from experience in Machine Learning, How a ML model is trained in Reinforcement Learning using reward and punishment.                                                               | 5     | CO1 | BL2    |
| Q2.    | How a ML model can be evaluated using Confusion Matrix, explain<br>True Positive<br>True Negative<br>False Positive<br>False Negative<br>With the help of suitable example.                          | 5     | CO2 | BL4    |
| Q3.    | Justify the statement with the help of a real life example.<br>“Decision Tree Model can be clubbed to design Random Forest Model to achieve better accuracy both for regression and classification”. | 5     | CO2 | BL5    |
| Q4.    | Differentiate between the following terms<br>1. Training and Testing<br>2. Under- fitting and Over-fitting<br>3. Bias and Variance                                                                   | 5     | CO3 | BL 2,4 |

**Section B ( 10\*4=40)**

Attempt any four questions

|     |                                                                                                                                                                               |    |     |       |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|-------|
| Q1. | Prove that Clustering Algorithms are Unsupervised Learning Algorithms. Design your own Dataset and apply on<br>K-means Clustering<br>K Nearest Neighbors<br>And show results. | 10 | CO1 | BL5,6 |
| Q2. | How Time Series Analysis can be used for predictions. Use any Time Series Data for weather forecasting.                                                                       | 10 | CO2 | BL5   |

|      |                                                                                                                                                                                                                                   |    |     |        |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----|--------|
| Q3   | Why Deep Learning Algorithms are more useful for image Prediction: Discuss the relevance of hidden layers in Deep Learning Architecture. Differentiate between Machine learning and Deep Learning with help of suitable examples. | 10 | CO3 | BL1,2  |
| Q 4. | Write and explain mathematical expressions for following Machine Learning Algorithm<br><br>Linear Regression<br><br>Logistic Regression<br><br>Support Vector Machine<br><br>Neive-Bays Algorithm.                                | 10 | CO4 | BL4    |
| Q 5. | Give suitable examples for Bagging and Boosting Techniques and show with the help of suitable example how these are used to improve accuracy in any ML Models.                                                                    | 10 | CO3 | BL4,5  |
| Q 6. | Discuss all the components of scalable Learning with the help of flow diagram; Give real life examples for Constant differential Scale and Rank Order.                                                                            | 10 | CO3 | BL 2,3 |