

TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF COMPUTER APPLICATIONS
(Specialization in Artificial Intelligence & Machine Learning) /
(Specialization in Data Science)
EXAMINATION : JANUARY - 2025
SEMESTER - II
Sub: Machine Learning (MCAI 23-203 / MCDS23-204)

Date :10/01/2025

Total Marks :60

Time: 02.00 pm to 04.30 pm

Instruction:

1. All questions are compulsory unless and otherwise stated.
2. Bold figures to the right of every question are the maximum marks for that question.
3. Candidates are advised to attempt questions in order.
4. Answers written illegibly are likely to be marked zero.
5. Use of scientific calculators, Log tables, Mollier Charts is allowed.
6. Draw neat and labelled diagram wherever necessary.

Q.1. Answer the following in 2-3lines. (Any 5) (10)

1. Define Confusion matrix.
2. Define F measure.
3. Define Multiple Linear Regression.
4. Define Classification Techniques.
5. Define Unsupervised Learning.
6. What is statistical learning?
7. What is cluster analysis?

Q. 2. Answer the following in short. (Any 4) (20)

1. Differentiate between Parametric vs. Nonparametric modeling?
2. Write the assumptions of Linear Regression.
3. What are the advantage and disadvantage of R-squared?
4. How does the decision tree algorithm work?
5. Briefly explain Dimension Reduction Techniques with suitable diagram.
6. Describe how principle component analysis work.

Q. 3. Answer the following in detail. (Any 3) (30)

1. Define machine learning. Explain briefly the types of machine learning
2. Define logistic regression. Write the assumptions of logistic regression?
3. What are the objectives of Simple Linear regression? Explain Simple Linear Model Equation and its graph?
4. Define Decision Tree. How does the Decision Tree algorithm work with suitable example?
5. Define Factor analysis. What are the key aspects of factor analysis and its relevance in business applications?
