

**TILAK MAHARASHTRA VIDYAPEETH, PUNE**  
**MASTER OF COMPUTER APPLICATIONS**  
**(Specialization in Artificial Intelligence & Machine Learning) /**  
**(Specialization in Data Science)**  
**EXAMINATION :MAY - 2024**  
**SEMESTER - II**  
**Sub: Machine Learning (MCAI 23-203 / MCDS23-204)**

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**Date :24/05/2024**

**Total Marks :60**

**Time: 10.00 am to 12.30 pm**

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

1. Define machine learning.
2. Define Multiple Linear Regression.
3. Define Decision Tree.
4. What is Training data?
5. Define F measure.
6. Define Classification Techniques.
7. Define Unsupervised Learning.

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

1. Differentiate Between Simple and Multiple Linear Regression.
2. Write the assumptions of Linear Regression.
3. How does the decision tree algorithm work?
4. What are the advantage and disadvantage of logistic regression?
5. What are the Properties of logistic regression coefficients?
6. Briefly explain Dimension Reduction Techniques with suitable diagram.

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

1. Define logistic regression. Write the assumptions of logistic regression?
  2. How to deal with correlated data in logistic regression?
  3. Explain principle component analysis and how it works.
  4. Define Factor analysis. What are the key aspects of factor analysis and its relevance in business applications?
  5. Explain the evolution of machine learning.
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