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1012E1022

Candidate's Seat No : _____

MBA in BI Sem.-3 Examination

BI-E-107

FML

Time : 2-30 Hours]

December-2024

[Max. Marks : 70

- Instructions:** (1) This paper contains **FIVE** questions.
(2) All questions are compulsory.
(3) Question No.2, 3 & 4 has internal options.
(4) Figures in the right side in parenthesis indicate marks

- Q:1** What is Machine Learning? What are the different types of Machine Learning. (14)
Provide a detailed explanation of Supervised and Unsupervised Learning, highlighting their key differences and applications?
- Q:2** Answer the following: (14)
A. What is Linear Regression? Explain its assumptions and use cases.
B. What is Logistic Regression? How does Logistic Regression differ from Linear Regression? Provide an example.

OR

- Q:2** Answer the following: (14)
A. Explain the key differences between classification and regression in machine learning. Additionally, differentiate between training data and testing data, highlighting their respective roles in model development.
B. Define overfitting and underfitting in machine learning models. Discuss the causes, implications, and strategies to address each issue.
- Q:3** Write a short note on "Machine learning Applications" in detail for all the following domains/fields? (14)
1. Healthcare
2. Social Media & Marketing
3. Finance & Risk Management

OR

Q:3 Write a short note on “Machine learning Applications” in detail for all the following domains/fields? (14)

1. Supply Chain & Logistics Management
2. Agriculture, Food Systems & Climate
3. Astronomy & Planetary Sciences

Q:4 Answer the following: (14)

- A. Describe Support Vector Machines (SVM) in detail and their role in classification tasks? Discuss Hyperplane in SVM.
- B. What is a Decision Tree? Explain how it makes predictions and how it is evaluated in terms of accuracy and decision-making efficiency? Describe the working of the Random Forest algorithm and how it improves upon a single Decision Tree.

OR

Q:4 Answer the following: (14)

- A. What is Bayes’ Theorem? Provide a detailed explanation of the Naive Bayes algorithm, including its working and applications.
- B. Describe the K-Nearest Neighbors (KNN) algorithm. Explain its working with a suitable example.

Q:5 Define the following concepts in brief: (14)

1. Regression
2. Classification
3. Clustering
4. Training Data
5. Test Data
6. Overfitting
7. Underfitting
8. L1 regularization
9. L2 regularization
10. Confusion matrix
11. Precision
12. Recall
13. F1 Score
14. Reinforcement Learning