

Registration No.:

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Total Number of Pages: 01

Course: M.Sc.I  
Sub\_Code: FBEF812

8<sup>th</sup> Semester Regular Examination: 2024-25

SUBJECT: Data Mining  
BRANCH(S): M.Sc.I (MC)

Time: 3 Hours

Max Marks: 70

Q.Code: S213

Answer Question No.1 (Part-I) which is compulsory, any five from rest (Part-II)

The figures in the right hand margin indicate marks.

Part-I

Q1 Answer the following questions: (2 x 10)

- What is Data Mining? Name the Data Mining techniques.
- What is the difference between Supervised Machine Learning and Unsupervised Machine Learning?
- What is the difference between the Apriori Algorithm and FP-Growth?
- Explain Support and Confidence.
- Define Association Rules.
- Explain data mining as a step in the process of knowledge discovery.
- Explain the Various steps in data pre-processing.
- How prediction is different from classification.
- What are OLAP?
- Name the methods of classification.

Part-II

Long Answer Type Questions (Answer Any five)

- Q2 Explain the various OLAP operations in detail. Illustrate each operation with suitable examples, and discuss how these operations help in data analysis. (10)
- Q3 What is a Decision Tree in Data Mining? Find the information, gain of the first node for the following given data. (10)  
(I) Total number of days --14 (II) Number of days we can play (yes) -- 09 (III) Number of days we cannot play (no)--05 (IV) Entropy = 0.692
- Q4 What is regression? Explain Linear, Polynomial, and Logistic Regression with examples. Explain the types of variables in regression. (10)
- Q5 What is Machine Learning? Write the types of Machine Learning, and explain each one. (10)
- Q6 Define and explain the concepts of Frequent Item Sets and Association Rules in the context of data mining. Discuss their significance, relevant metrics, and real-world applications. (10)
- Q7 Explain Bayesian Classification and Sequential Pattern Mining in detail with suitable examples. Discuss their working principles and applications. (10)
- Q8 Explain the K-Means Clustering algorithm in detail. Describe its working principle with the help of a simple numerical example. Also, discuss its advantages and limitations. (10)