

2056

B.E. (Information Technology) Eighth Semester
OEIT-801: Business Intelligence and Analytics

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following

- (a) Define Business Intelligence (BI). How does it differ from traditional data processing?
- (b) What is OLAP? Distinguish between OLAP and OLTP.
- (c) What do you understand by data preprocessing? Why is it necessary?
- (d) Define a decision tree. What is the role of entropy in tree induction?
- (e) What is K-means clustering? State its key steps. (5x2)

UNIT - I

- II. (a) Explain the types of analytics: descriptive, diagnostic, predictive, and prescriptive, with suitable examples from a business context.
(b) Discuss the key drivers of Business Intelligence & Analytics in modern enterprises.(6,4)
- III. (a) With a neat diagram, explain the technical architecture of a Business Intelligence system. Describe the role of ETL in data management.
(b) Differentiate between OLTP and OLAP systems with respect to design, usage, and performance. (6,4)
- IV. (a) What is a data warehouse? Explain the Star Schema and Snowflake Schema with examples.
(b) Define a data cube. Explain the OLAP operations: Roll-up, Drill-down, Slice, Dice, and Pivot. (6,4)

UNIT - II

- V. (a) Explain the concept of classification and describe the working of the Naïve Bayesian Classifier with an example. How is classifier performance evaluated?
(b) What are ensemble methods in classification? Briefly explain Bagging and Boosting. (6,4)

P.T.O.

(2)

- VI. (a) Explain the K-means clustering algorithm with a step-by-step example. How is cluster quality measured?
- (b) Discuss various measures of distance used in cluster analysis. Which measure is most appropriate for high-dimensional data, and why? (6,4)
- VII. (a) Describe the architecture and training algorithm of an Artificial Neural Network (ANN). Explain back-propagation with a suitable example.
- (b) How are ANNs applied for financial time series modelling? Discuss any one real-world business application of data mining. (6,4)

x-x-x