

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - VII EXAMINATION - WINTER 2025

Subject Code: 2170715

Date: 20-11-2025

Subject Name: Data Mining and Business Intelligence

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	Marks
Q.1 (a) Define data mining and list its features.	03
(b) Give the difference between OLAP and OLTP.	04
(c) Discuss the components of a data warehouse with a diagram.	07
Q.2 (a) Define Business Intelligence and explain its relation to Data Warehousing.	03
(b) Illustrate how drill-down and roll-up operations are performed on a cube.	04
(c) A university wants to track student enrollments, courses, and faculty details. • Design a Snowflake Schema for this scenario. • Explain the advantages and disadvantages of using Snowflake Schema in this case.	07
OR	
(c) A retail company wants to analyze its sales data by products, stores, and time periods. • Design a Star Schema for this scenario. • Describe advantages and disadvantages of Star Schema for this scenario.	07
Q.3 (a) Define noisy data and give examples of noise in datasets.	03
(b) Define data cleaning and explain its role in preprocessing.	04
(c) Draw and explain KDD process.	07
OR	
(a) Define missing values, and state common techniques to handle them.	03
(b) Discuss concept hierarchies and their importance in OLAP and Data Mining.	04
(c) Discuss the key issues and challenges in Data Mining.	07

- Q.4 (a)** Define the following terms: **03**
I) Classification II) Prediction
- (b)** Explain linear regression with suitable example. **04**
- (c)** Write and explain Apriori algorithm with suitable example. **07**
- OR**
- (a)** Explain the term attribute relevance in data mining. **03**
- (b)** Explain market-basket analysis with example. **04**
- (c)** Describe CART algorithm to generate decision tree. **07**
- Q.5 (a)** Briefly explain web mining. **03**
- (b)** Explain four V of Big Data. **04**
- (c)** Draw and explain data analytics life cycle. **07**
- OR**
- (a)** State one example of data mining application in banking & finance. **03**
- (b)** Discuss Clickstream Mining for e-commerce businesses and its benefits. **04**
- (c)** Draw and explain architecture of Hadoop. **07**
