

GYANMANJARI INNOVATIVE UNIVERSITY

Gyanmanjari Institute of Technology

B.Te h.- End Semester Examination (ESE)- Summer - 2026

Enrollment No.: _____

Subject Code: BETIT16325

Subject Name: Data Warehousing and Mining

Time: 10:30AM To 01:30PM

Instructions:

1. Question No. 1 is Compulsory.
2. Make Suitable Assumptions wherever necessary.
3. Figures to the right indicate full marks.

Date: 14/05/2026

Semester: 6

Total Marks: 100

	Marks
Q.1 (a) Explain different types of databases on which data mining can be performed.	05
(b) What is a multidimensional data model? Explain fact tables and dimension tables with examples.	05
(c) Explain feature extraction, feature transformation, and feature selection processes.	10
Q.2 (a) What is a cuboid? Explain apex cuboid and base cuboid with a diagram.	05
(b) Discuss indexing techniques used in data warehouses.	05
OR	
(b) What are the query optimization techniques in data warehouses?	05
(c) Draw and explain the topology of a multilayer feed-forward Neural Network. Explain activation function and epoch.	10
OR	
(c) Explain Ensemble methods: Bagging, Boosting, and Random Forest.	10
Q.3 (a) What is data integration? Explain the issues and approaches in data integration.	05
(b) Discuss the possible ways for integrating a data mining system with a database or data warehouse system.	05
(c) Define data cube. Explain the following OLAP operations with suitable examples: roll-up, drill-down, slice, dice, and pivot.	10
OR	
(a) Explain k-fold cross-validation and bootstrapping methods for model evaluation.	05

- (b) Write a short note on Big Data mining with reference to Hadoop and Spark. 05
- (c) Explain the following statistical concepts: Mean, Median, Mode, Variance, Standard Deviation, and Five-Number Summary with a suitable database example. 10
- Q.4 (a) Minimum salary is 20,000 Rs and Maximum salary is 1,70,000 Rs. Map the salary 1,00,000 Rs into a new range of (60,000 , 2,60,000) Rs using min-max normalization. 05
- (b) If Mean salary is 54,000 Rs and standard deviation is 16,000 Rs, find the z-score value of 73,600 Rs salary. 05
- (c) Why is Naïve Bayesian classification called "naïve"? Explain Bayes' Theorem and Naïve Bayesian classification with a suitable example. 10

OR

- (a) Explain the applications of data mining in business, scientific, and social domains. 05
- (b) Compare data mart and data warehouse. 05
- (c) Explain DBSCAN clustering algorithm. What are its advantages over K-Means? 10
- Q.5 (a) Differentiate between Star, Snowflake, and Fact Constellation schemas. 05
- (b) Differentiate between fact table and dimension table. 05
- (c) Explain Market Basket Analysis. Define support, confidence, and lift with suitable examples. 10

OR

- (a) Differentiate between KDD and Data Mining. 05
- (b) Differentiate between descriptive and predictive data mining tasks with examples. 05
- (c) Explain K-Medoids clustering algorithm. How is it different from K-Means? 10