Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA INTEGRATED - SEMESTER - VII EXAMINATION - SUMMER 2025

Subject Code: 4470622 **Date: 06-06-2025**

Subject Name: Data Warehousing

Time: 02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions

1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

4. Use of simple calculators and non-programmable scientific calculators are permitted.

			Marks
Q.1	**(a)**	Answer the following: 1. What is a data warehouse? 2. Which model is typically used for analytical processing in data warehouses? 3. What is the full form of OLAP? 4. What kind of data is stored in a data warehouse—current or historical? 5. Name one OLAP operation used to view data at a higher aggregation level. 6. What is a Data Mart? 7. Which ETL process phase involves cleaning and formatting data?	**07**
	(b)	Explain the structure of a data warehouse, outline the typical process of building it, and discuss granularity with its issues, benefits, and examples.	**07**
Q.2	**(a)**	Explain the role of data models in a data warehouse. Differentiate between mid-level and physical data models. Also, describe the relationship between data modeling and iterative development.	**07**
	(b)	Differentiate between direct and indirect access to data warehouse data with examples. Explain star joins and their significance in querying. Also, define data marts and their role in a data warehouse architecture.	**07**
		OR	
	(b)	Explain the concept of granularity in a data warehouse. Discuss the basic aspects of granularity and illustrate with examples the different levels of granularity and their implications.	**07**
Q.3	**(a)**	Discuss the importance of indexing and monitoring in a data warehouse environment. Explain different types of indexes used and how data monitoring supports performance and data quality.	**07**
	(b)	Explain the role of context and content in data warehousing. Describe the three types of contextual information and how they are captured and managed in a data warehouse environment.	**07**
		OR	
	(a)	What is meant by data warehousing across multiple storage media? Explain its significance, challenges, and benefits. Give examples of different storage media used in such architectures.	**07**

	(b)	What is meant by refreshing a data warehouse? Explain different methods of data refresh and the importance of testing in the data warehousing process.	**07**
Q.4	**(a)**	Explain the key OLAP operations: drill-down, roll-up, slice, and dice. Illustrate each with an example and discuss their importance in multidimensional data analysis.	**07**
	(b)	Differentiate between detailed and summarized data in the context of Executive Information Systems (EIS). How does EIS utilize both types of data for effective decision-making? Provide examples.	**07**

OR

	(a)	What is an Executive Information System (EIS)? Discuss its key features, components, and benefits. How does it support strategic decision-making in an organization?	**07**
	(b)	What is meant by migration to the architected environment in data warehousing? Explain the need, process, and challenges involved in migrating legacy systems to a data warehouse architecture.	**07**
Q.5	**(a)**	Compare the Relational Model and the Multi-dimensional Model in the context of data warehousing. Discuss their structures, use cases, and advantages.	**07**
	(b)	What is an Operational Data Store (ODS)? Explain its role, features, and differences from a data warehouse. Provide suitable examples of its use in business operations.	**07**

OR

	(a)	Differentiate between structured and unstructured data. How is textual data handled in data warehousing? Provide examples and techniques used for managing and analyzing textual data.	**07**
	(b)	What is a two-tiered data warehouse architecture? Explain its components, advantages, and limitations. How does it differ from the three-tiered architecture?	**07**

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