

Enrollment No./Seat No.:

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**Bachelor of Vocation - SEMESTER - I EXAMINATION - SUMMER 2025**

**Subject Code: 1110501**

**Date: 21-05-2025**

**Subject Name: Database Management System**

**Time:02:30 PM TO 04:30 PM**

**Total Marks: 50**

**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.**

	<b>Marks</b>
<b>Q.1 (a)</b> What is DBA? Explain the role and responsibilities of a DBA in a DBMS.	<b>05</b>
<b>(b)</b> Explain Selection and Projection operations in Relational Algebra with examples.	<b>05</b>
<b>Q.2 (a)</b> Explain different aggregate functions with examples.	<b>05</b>
<b>(b)</b> Draw E-R diagram for Library Management System.	<b>05</b>
<b>OR</b>	
<b>(b)</b> How is an entity represented in an ER diagram? Differentiate between strong and weak entities.	<b>05</b>
<b>Q.3 (a)</b> What is normalization? List out the different forms of normalization. Explain any one with an example.	<b>05</b>
<b>(b)</b> What is Mapping Cardinality? Explain in detail.	<b>05</b>
<b>OR</b>	
<b>(a)</b> Write a short note on Materialized view.	<b>05</b>
<b>(b)</b> Consider the following relational database schema consisting of the four relation schemas: passenger ( pid, pname, pgender, pcity) agency ( aid, aname, acity) flight (fid, fdate, time, src, dest) booking (pid, aid, fid, fdate)	<b>05</b>
Answer the following questions using relational algebra queries.	
a. Get the details about all flights from Chennai to New Delhi.	
b. Get the complete details of all flights to New Delhi.	
c. Find the passenger names for passengers who have bookings on at least one flight.	
<b>Q.4 (a)</b> Differentiate between shared and exclusive locks in a lock-based protocol.	<b>05</b>

**(b)** What is Serializability? Explain Conflict Serializability with example schedules. **05**

**OR**

**(a)** Explain SQL, DML, DDL, DCL, DQL. **05**

**(b)** What is System Recovery? Explain it in detail. **05**

**Q.5 (a)** List out and Explain ACID properties of transaction. **05**

**(b)** What is Data Aggregation? Explain Generalization and Specialization with suitable examples. **05**

**OR**

**(a)** What do you mean by transaction? explain the following transaction control commands: Commit, Rollback and Savepoint. **05**

**(b)** Explain cursors with its types. **05**

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