

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III(NEW) EXAMINATION – SUMMER 2023****Subject Code:3130703****Date:28-07-2023****Subject Name:Database Management Systems****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. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Explain the different types of database users.	03
(b) What are the responsibilities of a DBA?	04
(c) Explain database system 3 tier architecture with clear diagram in detail.	07
Q.2 (a) Explain candidate key, primary key and foreign key.	03
(b) Explain Mapping Cardinalities.	04
(c) Explain Entity Relationship model with example.	07
OR	
(c) What is join? Explain various type of joins with example.	07
Q.3 (a) Explain query optimization process.	03
(b) Explain 3NF with example	04
(c) What is functional dependency? Explain its types in detail.	07
OR	
Q.3 (a) What are anomalies in database design? How can we solve it?	03
(b) Explain BCNF with example.	04
(c) Enlist and explain the basic steps in Query Processing.	07
Q.4 (a) Explain log based recovery and mention all its types.	03
(b) Explain Two phase commit protocol?	04
(c) What is a transaction? Explain the ACID properties.	07
OR	
Q.4 (a) Write short note on data encryption.	03
(b) Explain deadlock detection.	04
(c) Explain conflict serializability and view serializability.	07
Q.5 (a) Describe GRANT and REVOKE commands	03
(b) Explain Transaction Control Commands	04
(c) Consider the following employee database, primary keys are underlined :	07
employee (<u>employee-name</u> , street, city)	
works (<u>employee-name</u> , company-name, salary)	
company (<u>company-name</u> , city)	
manages (<u>employee-name</u> , manager_name)	
Give an expression in SQL for each of the following queries:	

1. Find the names of all employees who work for First Bank Corporation.
2. Give all employees of First Bank Corporation a 10 percent raise.
3. Find the names and cities of residence of all employees who work for First Bank Corporation.
4. Find the names, street addresses, and cities of residence of all employees who work for First Bank Corporation and earn more than \$10,000.
5. Find all employees in the database who live in the same cities as the companies for which they work.
6. Find all employees in the database who do not work for First Bank Corporation.

OR

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| Q.5 | (a) Explain DDL,DML,DCL with example | 03 |
| | (b) Discuss aggregate functions with example(s). | 04 |
| | (c) Explain stored procedures and stored functions. | 07 |

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