

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2024

Subject Code:3130703

Date:29-06-2024

Subject Name: Database Management Systems

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 Logical Data Independence and Physical Data Independence. **03**
- (b) Draw and explain 3 layers of abstraction of DBMS **04**
- (c) Write relational algebra expression for following **07**
(query 1,2 and 3 carry one mark/query 4 & 5 carry two marks)
Employee(eid, ename, salary, deptid)
Department(deptid, dname)
1) List name of all employee
2) List all the departments with id > 5
3) List sum of the salary all employees.
4) Department wise count the number of employees
5) Find the name of employee earning highest salary.
- Q.2**
- (a) List various symbol used for ER diagram **03**
- (b) Define referential integrity constraint with example. **04**
- (c) List the Armstrong axioms used to compute closure of the set of functional dependency. **07**
- OR**
- (c) What is decomposition? Explain dependency preserving decomposition with the help of example. **07**
- Q.3**
- (a) Give syntax of command used to add a new column in a table. **03**
- (b) Define indexing. How will it be useful for searching data? **04**
- (c) How can we measure cost of Join query? Explain using example. **07**
- OR**
- Q.3**
- (a) Write an SQL command to modify the content of table. **03**
- (b) Explain sparse indexing with the help of diagram. **04**
- (c) Draw and explain the query processing steps **07**
- Q.4**
- (a) What is relational model? Explain schema diagram using example. **03**
- (b) Define transaction and its properties? **04**
- (c) Write a note on view serializability **07**
- OR**
- Q.4**
- (a) With the help of example explain Generalization.. **03**
- (b) Define various approach used for Log based recovery **04**
- (c) List and explain various types of Locks used for concurrency control. **07**

- Q.5** (a) How can we print output in PL/SQL block? Give example. **03**
(b) Explain cursor and its types. **04**
(c) Write SQL queries for the following **07**
(query 1,2 and 3 carry one mark/query 4 & 5 carry two marks)
Employee(eid, ename, salary, deptid)
Department(deptid, dname)
1. List name of all employee
 2. List all the departments with id > 5
 3. List sum of the salary all employees.
 4. Department wise count the number of employees
 5. Find the name of employee earning highest salary.

OR

- Q.5** (a) Define encryption and decryption. **03**
(b) List various types of Triggers. **04**
(c) What is role? How can we authorize a user using grant and revoke command? Give example. **07**
