Seat No:_____ **Enrolment No:_____**

LOK JAGRUTI KENDRA UNIVERSITY
MCA Semester – 1 Winter 2023 Exam

Subject Code: 140110103 **Date: 03/10/2023**

Subject Name: Relational Database Management System (RDBMS)

Duration: 02:30 Hours **Total Marks: 50**

Instructions:

1. Attempt all the questions
2. Figures on the right indicate the marks.
3. Draw the figures and give suitable examples as and where necessary.

Q - 1 Answer The Following Questions.

1.	What is Data? What is the difference between data and information?	1
2.	Give any two difference between relational and non-relational database management system.	1
3.	List the components of DBMS?	1
4.	What is data dictionary? What are the two types of data dictionary? Write any 2 information stored in it.	3
5.	List different types of users of the database. Explain the role of database administrator.	4
	OR	
5.	What are the advantages of using database systems? (Write major 4 advantages).	4

Q - 2 Answer The Following Questions.

6.	Explain entity and entity type	1
7.	Define the term "Degree of Relation" and give one example	1
8.	Give an example for relationship type attribute.	1
9.	Explain all three types of cardinality with suitable example for each	3
10.	Draw an ER Diagram using the following statements. A college contains many departments. Each department can offer any number of courses. Many instructors can work in a department. An instructor can work only in one department. For each department there is a Head. An instructor can be head of only one department. Each instructor can take any number of courses. A course can be taken by only one instructor. A student can enroll for any number of courses. Each course can have any number of students.	4
	OR	

10. Draw an ER Diagram for Project Management System of an IT Company. The company handles different projects from clients. It Manages client information. Project contains different task and duration. Employee has to maintain the daywise timesheet for the task completed for his assigned project. 4

Q - 3 Answer The Following Questions.

11. Define the first normal form to normalize the database. 1

12. Define the terms Dependent and Determinant in any functional dependency 1

13. Differentiate between candidate key and primary key. 1

14. What is functional Dependency? Explain which type of FD is not allowed in 3NF and decompose the relation to convert it into 3NF. 3

EMP_ID	EMP_NAME	EMP_ZIP	EMP_STATE	EMP_CITY
222	Harry	201010	UP	Noida
333	Stephan	02228	US	Boston
444	Lan	60007	US	Chicago
555	Katharine	06389	UK	Norwich
666	John	462007	MP	Bhopal

15. Normalize the given relation and give explanation for decomposition of the relation to convert it into 2NF and 3NF. 4

BRANCH (Branch_No, Branch_Addr, ISBN, Title, Author, Publisher, Num_copies)

Consider few functional dependancies like
Branch_No -> ISBN,
ISBN -> Title,
{Branch_No, ISBN} -> Num_Copies

OR

15. What is Normalization? Explain 2NF, 3NF and BCNF with suitable example. 4

Q - 4 Answer The Following Questions.

16. Write a syntax for join query with suitable example. 1

17. What is sub query? Give one example of a subquery. 1

18. Write a syntax to modify the record in the table. 1

19. 1. How to change the name of a table? Write the syntax and one example [1] 3

2. Write a query to delete records from the existing table. Explain the difference between Drop and Truncate. [2]

20. Write appropriate SQL statement to solve following queries. 4
Consider two relations Employee and Department as below.
EMP(Id, Name, DoB, JoiningDt, Dept_No, Salary)
DEPT(No, Name, Location)

1. Display Name and Salary of all the employees who works for 'Sales' department. [2]
2. Display all the employees who are working in the same department as that of employee 'Amit'. [2]

OR

20. What are the set operations available in SQL? Explain any one with syntax and example. 4

Q - 5 Answer The Following Questions.

21. Write two major benefits of trigger 1

22. Write two major differences between the procedure and the function in PLSQL. 1

23. Differentiate between ROUND() and TRUNC() in SQL. 1

24. Write a syntax to create a table 3

TEST_DETAILS (Stud_ID, Test_ID, Test_Date, Marks) with following constraint
Stud_ID: Must start with a letter 'A' and should be of length 4, It will be the foreign key from Stud_Master Table
Marks: Must not be greater than 0 and less than 50
Test_ID: Starts with 'T' and is length of 4, Foreign Key from Test_Master Table.

25. Write a PLSQL block to calculate the bonus of each employee of "Sales" department which is based on the 5% of their salary. If the salary in less than 25000, then raise the exception. 4

Use the relation given below:
EMP (Emp_Id, Name, Salary, Department, Bonus)

OR

25. Write a subprogram to delete the products of user mentioned Category (Cat_Id). Use the relation given below: 4

PRODUCTS (Prod_ID, Prod_Name, Supplier_ID, Cat_ID, Unit, Price)

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