

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FIFTH SEMESTER INTEGRATED MCA DEGREE EXAMINATION (R), DECEMBER 2023
(2020 SCHEME)****Course Code: 20IMCAT305****Course Name: Introduction to RDBMS and SQL****Max. Marks: 60****Duration: 3 Hours****PART A****(Answer all questions. Each question carries 3 marks)**

1. What is data redundancy in the context of databases, and why is it a concern in database design?
2. Explain the Crow's Foot notation with an example.
3. Define degree and cardinality of a relation. Find the degree and cardinality for the following relation.

RollNo	Name	Mark1	Mark2	Mark3
1	Sharma	76	87	77
2	Mohan	87	76	88
3	Tomy	67	56	88
4	Jennifer	56	77	66

4. Differentiate DBMS and RDBMS.
5. Distinguish between HAVING and WHERE clause in SQL with an example.
- 6.

EmpId	EmpName	Salary	Branch
E101	Arun	20000	Mumbai
E102	Sunita	30000	Bangalore
E103	Tom	25000	Mumbai
E104	Arjun	18000	Cochin

For the above relation "employee" write the following SQL queries.

- i. Write a query to display all the employees who are from Mumbai.
 - ii. Write a query to display all the employees whose name starts with 'A'.
 - iii. Write a query to find all the employees whose salary greater than 20000.
7. What are the different anomalies in a database?
 8. Write a short note on BCNF.
 9. Explain *inner join* with an example.
 10. What is the significance of views in SQL?

PART B**(Answer one full question from each module, each question carries 6 marks)****MODULE I**

11. Write down the functions of DBMS. (6)

OR

12. Write down the different steps for creating an E-R Diagram. Draw an E-R diagram for a hospital management system with the following scenario.

- Hospital has a set of patients. (6)
- Hospital has a set of doctors.
- Doctors are associated with each patient.
- Each patient has record of various test and examination conducted.

MODULE II

13. Describe indexes in databases with a suitable diagram. (6)

OR

14. List and describe Codd's relational database rules. (6)

MODULE III

15. Write a short note on DCL and TCL commands with an example. (6)

OR

16. For the following relation write the SQL queries.

EmpId	Name	Salary	Designation	Department
101	Sanjay	100000	Manager	HR
102	Ananya	75000	Admin	Admin
103	Rohan	90000	Executive	Account
104	Sonia	85000	Manager	HR
105	Ankit	85000	Lead	Admin

- i. List all employees who are managers.
- ii. Display the details of employee who draws the higher salary in the organization.
- iii. List all the employees who belongs to HR department.
- iv. Display the maximum salary for each department.
- v. Display the average salary for each department.
- vi. List all the employees whose name ends with letter 'a'.

MODULE IV

17. Explain the Armstrong's axioms of functional dependency. (6)

OR

18. What is Normalization? Explain 1NF, 2NF and 3NF with a suitable example. (6)

MODULE V

19. Explain the different relational set operators in SQL. (6)

OR

20. Describe the concept of procedures in database. Write a procedure to print the prime numbers up to 1000. (6)
