

QP CODE: 25804081



Reg No :

Name :

I.M.C.A DEGREE EXAMINATION, OCTOBER 2025

Third Semester

Faculty of Technology and Applied Sciences

Integrated MCA

Core - IMCA3C03 - DBMS AND NO SQL

2020 Admission Onwards

C90D60EF

Time: 3 Hours

Maximum: 75 Marks

Part A

*Answer any **ten** questions*

*Each question carries **3** marks*

1. Discuss the advantages of DBMS.
2. Explain query processor.
3. Illustrate participation constraints in an ER diagram.
4. Design a suitable table to denote and detail Referential Integrity Constraint.
5. What are weak entity sets?
6. What are Data Manipulation Languages Commands in SQL?
7. Discuss Unique Constraint?
8. Differentiate Dynamic and Embedded SQL
9. Compare 2PL with Strict 2PL.
10. List the advantages of Steal- No Force Approach.
11. List features of NoSql.
12. Describe Auto sharding.

(10×3=30 marks)





Part B

Answer *all* questions

Each question carries **9** marks

- 13. a) Demonstrate the advantages and disadvantages of using a database management system.

OR

- b) Construct an E-R diagram for the following schema and explain. Employee(ssn:int, ename: string, address: string, salary: int) , Department (dept_no: int, dept_name:string, dept_locn: string, Project(pno: int, pname:string, plocn:string) Employee(ssn:int, ename: string, address: string, salary: int) Department (dept_no: int, dept_name:string, dept_locn: string) Project(pno: int, pname:string, plocn:string)

- 14. a) Analyse the features of Key constraint and Participation constraint in detail.

OR

- b) What are relational models? Specify the rules involved in converting ER model to relational model?

- 15. a) Consider the following schema:

Sailors (sid, sname, rating, age) **Boats** (bid, bname, color) **Reserve** (sid, bid, day)

Develop SQL expressions for the following

- i. Find the names of sailors who have reserved Boats 501
- ii. Find the names of sailors who have reserved a green and red boat.
- iii. Find the sid of sailors with age over 30 and who have not reserved a green boat.

OR

- b) Consider the following relation:

R (A, B, C, D, E)

The primary key of the relation is AB and holding the following functional dependencies:

AB -----> C
 A -----> D
 B -----> E

Is R in normalized form? If relation R is not normalized, discuss the reasons why relation R is not normalized, and Normalize relation R.

- 16. a) Explain Transaction with its properties.

OR





- b) What is Dead lock? How DBMS handles Dead Lock.
17. a) Illustrate types of NoSql databases with suitable example.

OR

- b) Explain Peer-to-Peer Replication in NoSQL.

(5×9=45 marks)

