

1C8114

Roll No

Total No. of Pages: **2****1C8114****MCA I- Sem. (Main / Back) Exam., -2025****MCA-105 Database Systems****Time: 3 Hours****Maximum Marks: 70
Min Passing Marks: 28***Instructions to Candidates:*

Attempt all Ten questions from Part A. All five questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(As Mentioned in form No. 205)*

1. NIL2. NIL**PART – A****[10×2=20]****(Word limit 25)**

- ✓ Q.1 Explain drawbacks of traditional file system.
- ✓ Q.2 Briefly discuss ACID properties.
- ✓ Q.3 Explain benefits of query optimization.
- ✓ Q.4 Write SQL command to create, update & delete a table.
- ✓ Q.5 What is data dictionary?
- ✓ Q.6 What do you understand by deadlock?
- ✓ Q.7 What is distributed database?

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- Q.8 Explain concept of primary and foreign key.
Q.9 What are the different levels of abstraction in DBMS?
Q.10 Explain integrity rules that exists in DBMS.

[5×4=20]

PART – B

(Word limit 100)

- Q.1 List the operations of relational algebra and the purpose of each.
Q.2 Explain various join operations with suitable example.
Q.3 Write Armstrong's inference rules. Also, explain their role in relational design.
Q.4 Define Boyce-Codd Normal Form. How it is different from 3NF and which one is stronger?
Q.5 Explain the difference between OODBMS and ORDBMS.

PART – C

[3×10=30]

(Attempt any three questions)

- Q.1 Explain two phase locking protocol and its variants. Why strict or rigorous two phase locking often preferred?
Q.2 (i) Describe shadow paging recovery technique.
(ii) How recovery from catastrophic failures is handled?
Q.3 Draw E-R diagram of college management system with following entities.
(Choose your own attributes associated with entity)
(Teacher, Student, Course, Examination, Classroom)
Q.4 Write short notes on following -
(i) Triggers
(ii) Cursors
Q.5 Write short notes on following -
(i) Advantages of emerging databases
(ii) Limitations of conventional databases