MCA (Sem.–3)

RELATIONAL DATABASE MANAGEMENT SYSTEM-I
Subject Code : MCA-304
Paper ID : [B0113]

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION TO CANDIDATES :
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY carrying TWENTY marks in all.**
3. Use of non-programmable **scientific calculator** is allowed.

SECTION-A

1. Describe any five components of DBMS environment and discuss how they relate to each other.

2. Discuss the structure of distributed database. Explain how fragmentation and replication affects the design of distributed database.

SECTION-B

3. Compare Hierarchical, Network and Relational data model. What are distinguishing features of Relational data model that make it so popular?

4. What is ER model? What are its objectives? Explain the concept of specialization, generalization and aggregation by taking suitable examples.

SECTION-C

5. What is normalization? What are its objectives? Explain different normal forms by taking suitable examples.

6. What is relational calculus? How different operations are carried out in relational calculus? Also explain the differences between relational algebra and relational calculus.

SECTION-D

7. What are various problems arising out of concurrency? How concurrency is handled in database systems?

8. What is Oracle ? What are various object oriented features of Oracle ?

SECTION-E

9. Write briefly :

    i) What is physical and logical data independence?

    ii) Explain how relation is different from table.

    iii) What is weak and strong entity? Explain with examples.

    iv) Explain how Object Oriented Database is different from Object Relational Database.

    v) Define and explain cardinality and degree of relation.

    vi) What are advantages of client server architecture?

    vii) What is shadow paging? What are its advantages?

    viii) What is multi-valued dependency? Explain with example.

    ix) What is Two Phase locking? Explain.

    x) List various threats to data security.