

Z 3509

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Second Semester

MC 1654 — DATABASE MANAGEMENT SYSTEMS

(Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How is the Database Management System (DBMS) indispensable in data handling?
2. What is semantic data model?
3. What are integrity constraints in relational models?
4. What is the use of embedded SQL?
5. Define hash based indexing in data storage operations.
6. What are composite search keys? Explain with an example.
7. What do you mean by query optimization?
8. What does a query evaluation plan consist of?
9. State the purpose of locking protocol in DBMS operation.
10. What are the two important functions of recovery manager?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Narrate the advantages of DBMS systems. (6)
(ii) Discuss the steps involved in the design of database system. (10)

Or

- (b) (i) Illustrate the concept of relationships and relationship sets in Entity Relationship (ER) diagrams, with a suitable example. (10)
(ii) Elaborate on the key constraint construct in ER models, with an example. (6)

12. (a) (i) What is the use of cursors in embedded SQL? Specify the basic Cursor definition format, giving illustrative examples. (10)
- (ii) Give an example of foreign key constraint in relational models and develop a SQL statement for the same. (6)

Or

- (b) How are the relational models designed based on the ER models? Discuss with respect to the issues of tables, relationships without constraints and with key constraints. (16)
13. (a) (i) Explain the mechanism of hash based indexing with an example. (10)
- (ii) List down the main characteristics of B+ tree search structure. (6)

Or

- (b) Describe the various levels of redundancy in RAID systems in detail. (16).
14. (a) (i) Explain the working of query optimizer with a block diagram. (6)
- (ii) Explain the Query Evaluation plan using SQL and write a note on pipelined evaluation. (10)

Or

- (b) (i) Discuss the issues in implementing optimization strategies for the JOINS in queries. (10)
- (ii) Write a note on the relational algebra equivalences for the 'selection' and 'projection' operations. (6)
15. (a) (i) Illustrate on the Strict Two-phase locking, used in concurrency control with an example. (10)
- (ii) What is the role of COMMIT, ROLLBACK and SAVEPOINT, the SQL statements in transaction management? (6)

Or

- (b) Write short notes on:
- (i) Buffer Management (5)
- (ii) Shadow Paging (5)
- (iii) Transaction Table and Dirty Page Table. (6)