

Reg. No. : 

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**K 3532**

M.C.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Second Semester

MC 1654 — DATABASE MANAGEMENT SYSTEM

(Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Compare and contrast file processing system and DBMS.
2. Differentiate between total participation and partial participation.
3. What are the pitfalls of relational database design?
4. Give example for any two additional set operations on relations.
5. Compare RAID level 1 with RAID level 2.
6. Differentiate between closed hashing with open hashing.
7. Write the steps involved in query processing.
8. What do you mean by query optimization?
9. What benefit is provided by strict two-phase locking? What disadvantages result?
10. How atomicity is ensured?

PART B — (5 × 16 = 80 marks)

11. (a) Draw neatly database system structure and explain each component. (16)

Or

- (b) (i) Explain different record-based logical models with examples. (9)
- (ii) Explain the need for aggregation in E-R diagram. (7)

12. (a) (i) Discuss how integrity and security are implemented in relational databases. (10)
- (ii) With example, discuss any three set operations. (6)

Or

- (b) (i) Consider the employee database
- employee (employee-name, street, city)
- works (employee-name, company-name, salary)
- company (company-name, city)
- manager (employee-name, manager-name)

Give an expression in SQL for each of the following queries.

- (1) Find the names of all employees who work for 'First Bank Corporation'.
- (2) Find the names and cities of residence of all employees who work for First Bank Corporation.
- (3) Find the names, street address, and cities of residence of all employees who work for 'FBC' and each more than Rs. 10,000.
- (4) Find all employees in the database who live in the same cities as the companies for which they work. (4 × 2 = 8)
- (ii) Explain the normal forms used in relational database design with examples. (8)
13. (a) Explain how file is organised. What are the different methods available? Give the advantages and disadvantages. (16)

Or

- (b) (i) Discuss on how the hashing technique overcomes drawbacks in sequential file organization. (8)
- (ii) Explain how the B+ Tree and B Tree are used for data storage and indexing. (8)

14. (a) Discuss on different join operations with suitable examples. (16)

Or

(b) Write down the procedure to perform heuristic optimization and explain. (16)

15. (a) Discuss how deadlock problem is handled with examples. (16)

Or

(b) Write short notes on :

(i) Transaction state. (4)

(ii) Locking protocol. (8)

(iii) ACID properties. (4)