

D 026

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2003.

Third Semester

Computer Science and Engineering

CS 234 — DATABASE MANAGEMENT SYSTEM

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Distinguish between physical and logical data independence.
2. What is a data dictionary? What are the informations stored in the data dictionary?
3. What is a view and how is it created? Explain with an example.
4. In what way is an Embedded SQL different from SQL? Discuss.
5. Which condition is called referential integrity? Explain its basic concepts.
6. Explain with a simple example, the lossless-join decomposition.
7. How to choose the best evaluation plan for a query? Explain.
8. What is a timestamp-ordering scheme? Specify two simple methods for implementing this scheme.
9. Give a comparison of object-oriented and object-relational databases.
10. Which are the two models used for discovering rules from database? Give the general form of rules to express knowledge.

PART B — (5 × 16 = 80 marks)

11. (i) What are data models and how are they grouped? (6)
- (ii) Explain in detail any two data models with sample databases. (10)
12. (a) (i) Discuss the fundamental operations in the relational algebra. (8)
- (ii) For each operation give an example. (8)

Or

- (b) (i) SQL language has several parts. What are they? (4)
- (ii) How many clauses are there in the basic structure of an SQL? Explain. (12)
13. (a) (i) Discuss the various pitfalls in a relational database design using a sample database. (8)
- (ii) Explain at least two of the desirable properties of decomposition. (8)

Or

- (b) (i) What are the merits and demerits of a B⁺ tree index structure? (4)
- (ii) Describe the structure of a B⁺ tree. (6)
- (iii) How update operations are performed on B⁺ trees? (6)
14. (a) With the help of a neat diagram, explain the basic steps involved in processing a query. (16)

Or

- (b) (i) What are the different types of storage media? (6)
- (ii) Explain with a diagram, the block storage operations. (10)

15. (a) (i) Draw a neat sketch to indicate the architecture of a distributed system. (2)
- (ii) Explain the basic failure types in a distributed environment. (4)
- (iii) Diagrammatically represent the network topology used in a distributed system and explain the advantages and disadvantages of each configuration. (10)

Or

- (b) (i) Explain the architecture of a data warehouse with a neat diagram. (8)
- (ii) What are the various issues to be considered while building a warehouse? Explain. (8)