

G 216

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2003.

Fourth Semester

Information Technology

IF 254 — DATA BASE MANAGEMENT SYSTEM

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define data, database, DBMS and data base system.
2. What is the difference between logical data independence and physical data independence?
3. Define foreign key.
4. What is a view in SQL? How is it defined?
5. What is a file scan and index scan?
6. What is the difference between a logical index and a physical index?
7. Define set type and set instance in Network Database Structures.
8. What are the main properties of a hierarchical schema?
9. What is the main property of a object identifier?
10. What are the association rules of data mining?

PART B — (5 × 16 = 80 marks)

11. (i) Define functional dependency with a suitable example. Explain the inference rules for functional dependencies. (6)
- (ii) List out the normal forms based in primary keys. Explain the Boyce-Codd norm form in detail. (10)
12. (a) (i) What is a relationship type? Explain the difference between a relationship instance and a relationship type. (5)
- (ii) Describe the three-schema architecture. Why do we need mappings between the different schema levels? (11)

Or

- (b) (i) Discuss the various update operations on relations and the types of integrity constraints that must be checked for each update operation. (10)
- (ii) How are the OUTER JOIN operations different from the JOIN operations? Explain with suitable example. (6)
13. (a) Discuss in detail the heuristic optimization of query trees and query graphs. (2 × 8 = 16)

Or

- (b) (i) Draw a simplified physical client-server architecture for a distributed data base system and discuss in detail. (8)
- (ii) Discuss the techniques of fragmentation, data replication used in distributed data base design. (8)
14. (a) (i) What is the hierarchical sequence? Why is it necessary to assign a record type field to each record when the hierarchical sequence is used to represent an occurrence tree? (11)
- (ii) Discuss the inherent integrity constraints of the hierarchical model. (5)

Or

- (b) (i) Discuss the two basic data structures in the network model. (10)
- (ii) Discuss the constraints specified on set membership in detail. (6)

15. (a) (i) What is versioning? Why is it important? What is the difference between versions and configurations? (8)
- (ii) How are relationship represented in an OO data model? What are inverse references? How are inverse references declared? (8)

Or

(b) Write detailed note on the following :

- (i) Classification and prediction, applications of data mining. (8)
- (ii) Data warehousing. (8)