

**K 1022**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2004.

Third Semester

Computer Science and Engineering

CS 234 — DATABASE MANAGEMENT SYSTEMS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Discuss briefly any three major disadvantages of keeping organizational information in a file – processing system.
2. Specify the various levels of abstraction in a Database system.
3. What is the data structure used to describe relational model? Give an example of a relational database.
4. Why is a key essential? Write the different types of keys.
5. Is it possible for several attributes to have the same domain? Illustrate your answer with suitable examples.
6. Define functional dependency.
7. How does pipelining improve query – evaluation efficiency? Explain.
8. What are the various properties of transaction that the database system maintains to ensure integrity of the data?
9. What are the advantages of distributed database?
10. What are object classes?

PART B — (5 × 16 = 80 marks)

11. (i) With the help of a block diagram explain the basic architecture of a database management system. (8)
- (ii) What are the advantages of having a centralized control of data? Illustrate your answer with suitable examples. (8)

12. (a) (i) Describe the basic structure of an SQL expression and give the format of a typical SQL query. (8)
- (ii) What is embedded SQL? What are its advantages? (4)
- (iii) Write a short notes on DDL statement with an example. (4)

Or

- (b) (i) With the help of suitable examples, explain the traditional set operations. (8)
- (ii) What are aggregate functions? Discuss with examples, the five built in aggregate functions offered by SQL. (8)
13. (a) (i) Explain the logical structure of a database with the help of a sample E-R diagram. (8)
- (ii) Discuss in detail two of the most important types of mapping constraints with respect to an E-R enterprise schema. (8)

Or

- (b) (i) What is the use of an index structure and explain the concept of ordered indices.
- (ii) Describe a hash file organization.
14. (a) (i) What are the basic steps in query processing? Illustrate your answer with a suitable diagram. (6)
- (ii) Illustrate the different state of transaction processing. (10)

Or

- (b) (i) When do you say that a system is in a deadlock? Explain. (4)
- (ii) Explain the two approaches to deadlock prevention. (12)
15. (a) Explain in detail the various approaches used for storing a relation  $r$  in the distributed database. (16)

Or

- (b) Explain in detail the several aspects of the object-oriented data model. (16)