F 9208 (Pages : 2) Reg. No.....2.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2011

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

DATABASE MANAGEMENT SYSTEM (R, T)

(Regular/Improvement/Supplementary)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

Each question carries 4 *marks.*

1. What is meant by the terms entity and attribute ? What are the different types of attributes ?
2. Briefly explain the concept of an object oriented data model.
3. What is meant by a relational database schema ? When is a relational database considered to be in a valid state ?
4. Explain the concept of referential integrity in a relational database. How is it enforced ?
5. What is meant by the system log of a database ? What is its utility ?
6. Explain the desirable properties of a transaction.
7. What is meant by a transitive dependency ? Explain with examples.
8. Explain the concept of a full functional dependency with an example.
9. Explain the concept of data transparency in a distributed database. What are the different kinds of transparencies ?
10. What is meant by data fragmentation ? Discuss the different types of fragmentation.

(10 × 4 = 40 marks)

Part B

Each question carries 12 *marks.*

11. (a) Explain the components modules of a DBMS with neat diagram.

Or

(b) Write notes on the concept of data independence in a database. Explain the three schema architecture for database systems.

Turn over

12. (a) Explain the tuple relational calculus with suitable examples.

Or

(b) Give an overview of the different data definition and manipulation operations possible wit SQL with suitable example queries.

13. (a) Write notes on serial and non serial schedules of transactions. What is meant by the ter serializability in the context of schedules ?

Or

(b) What is meant by a timestamp ? Explain the timestamp ordering algorithm used to implemen concurrency among transactions in a database.

14. (a) What is meant by a join dependency ? Write notes on 4NF and 5NF.

Or

(b) What is meant by the closure of a set of functional dependencies on a relation ? List and explain the algorithm for determining the same. Determine the closure of the following set F of functional dependencies for relation schema R = {A, B, C, D, E}. F = {A $\rightarrow$ BC, CD $\rightarrow$ E, B $\rightarrow$ D, E $\rightarrow$ A}. List the candidate keys for R.

15. (a) Write notes on the distributed two phase commit protocol.

Or

(b) Discuss the different possible locking protocol schemes in a distributed database.

(5 × 12 = 60 marks)