7E4171
B. Tech. VII Sem. (Back) Exam., Nov.-Dec.-2016
Electrical Engineering
7EE1(O) Data Base Management System

Time: 3 Hours

Maximum Marks: 80
Min. Passing Marks Main: 26
Min. Passing Marks Back: 24

Instructions to Candidates:

*Attempt any **five questions**, selecting **one question** from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL _____

2. NIL _____

UNIT – I

Q.1 (a) What is DBMS? Describe need, purpose and goals of DBMS. [8]

 (b) Explain different kind of data models of DBMS. [8]

OR

Q.1 (a) Explain the distinctions among the terms Primary Key, Candidate Key & Super Key. [4]

 (b) Construct an ER Diagram for a hospital with a set of patients and a set of medical doctors. Associate with each patient a log of the various tests and examination conducted. Also design generalization-specialization hierarchy for the same example. [8]

 (c) Explain Relational Algebra in detail. [4]

UNIT – II

Q.2 (a) In what sense does relational calculus differ from relational algebra, and in what sense they are similar? [8]

(b) How does tuple relational calculus differ from domain relational calculus. [8]

OR

Q.2 What is normalization? Explain about 3rd BCNF, 4th normal forms in detail by taking examples. Highlight the concept of various dependencies. [16]

UNIT – III

Q.3 Write the SQL queries for the following : the tables are EMP (empno, ename, job, mgr, hiredate, sal, comm, deptno); Dept (Dept no, dname, loc); Salgrade (grade, losal, hisal) **rtuonline.com**

(a) Find the employees who earn the highest salary in each job type, sort in descending salary order. [4]

(b) Find the most recently hired employees in each department order by hire date. [4]

(c) Show (ename, sal, deptno) details of any employee who earns a salary greater than the average salary for their dept, sort in deptno. [4]

(d) Display the 5th row of the emp. Table [4]

OR

Q.3 (a) Explain stored procedures and triggers in SQL with suitable example. [8]

(b) Explain embedded SQL and dynamic SQL programming in detail. [8]

UNIT – IV

Q.4 (a) What do you understand by schedule in the context of concurrent execution of transactions in RDBMS? Describe physical data organization in sequential, indexed, random and hashed files. [16]

Q.4 (a) Explain the difference between inverted, and multilist structures in detail. [8]

(b) Describe organizations of physical data in random, sequential and indexed files with suitable examples. [8]

UNIT – V

Q.5 (a) What is a system crash? Write the various causes for it. [8]

(b) Write about log-based recovery and shadow paging. [8]

Q.5 (a) What is meant by the concurrent executions of database transactions in a multiuser system? Explain in detail. [8]

(b) Discuss why concurrency control is needed. Give suitable example. [8]