

**GUJARAT TECHNOLOGICAL UNIVERSITY****B. E. - SEMESTER – III • EXAMINATION – WINTER 2012****Subject code: 130703****Date: 05-01-2013****Subject Name: Database Management Systems****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define database. Explain the three level architecture of DBMS. **07**  
(b) Define DBMS. Explain the various roles of a DBA. **07**

- Q.2** (a) What is Entity-Relationship model? Explain the steps to reduce the ER diagram to ER database schema. **07**  
(b) Define: (1) Primary key (2) Foreign key (3) Unique Key (4) Not null (5) Commit (6) Candidate key (7) Rollback. **07**

**OR**

- (b) Define: (1) Weak entity (2) Data Dictionary (3) Substring() (4) Dual (5) Alter (6) Truncate (7) Drop. **07**

- Q.3** (a) Why should normalization be performed on a table and what are its benefits. Explain 3NF and BCNF. **07**  
(b) Write queries for the following tables. **07**  
T1 ( Empno, Ename , Salary, Designation), T2 (Empno, Deptno.)  
(1) Display all rows for salary greater than 5000.  
(2) Display the deptno for the ename='syham'.  
(3) Add a new column deptname in table T2.  
(4) Change the designation of ename='ram' from 'clerk' to 'senior clerk'.  
(5) find the total salary of all the rows.  
(6) Display Empno, Ename, Deptno and Deptname.  
(7) Drop the table T1.

**OR**

- Q.3** (a) Explain the measures of query cost, selection operation and join. **07**  
(b) What is System recovery? Explain two phase commit protocol. **07**

- Q.4** (a) Define Locking. Explain two phase locking protocol. **07**  
(b) What is a transaction? Explain the ACID properties. **07**

**OR**

- Q.4** (a) Explain the issues of a database design. **07**  
(b) What is database schema? Explain the select, project, natural join, union and Cartesian product operations. **07**

- Q.5** (a) What is authorization and authentication? Explain the access controls in a database. **07**  
(b) Explain Locked based protocol. **07**

**OR**

- Q.5** (a) What is a cursor? Explain the built-in cursor types. **07**  
(b) Explain stored procedures and stored functions. **07**

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