

**DHARMSINH DESAI UNIVERSITY, NADIAD**  
**FACULTY OF TECHNOLOGY**  
**FIRST SESSIONAL EXAMINATION**  
**B.E. INFORMATION TECHNOLOGY**  
**SEMESTER V**  
**SUBJECT: DATABASE MANAGEMENT SYSTEM**

Date: 7/08/2010

Max Marks: 36

Time: 10:30 to 11:30

Seat No: - \_\_\_\_\_

**Q1. Answer the following questions:- [12]**

- (1) Compare file system and database management system in terms of integrity problems. [2]
- (2) What is the purpose of different database abstraction levels? [2]
- (3) Difference between Relational Algebra and Relational Calculus. [2]
- (4) Difference between E-R diagram and schema diagram. [1]
- (5) Explain total and partial participation with example. [3]
- (6) While converting E-R diagram into relations, specify the condition when you can combine the tables using appropriate example. [2]

**Q2. Answer the following questions:- [12]**

- (1) Draw an E-R diagram for Online Examination System. (Min. 4 Entity Sets) [6]
- (2) What is the purpose of assertions and triggers? Explain with appropriate example. [6]

**OR**

- (2) Explain the constraints on generalization. [6]

**Q3. Answer the following questions:- [12]**

**Consider the following schema: (Assume that all the below relations are created)**

Student (SI<sub>d</sub>, Name, Addr, Status, DeptId)

Professor (PI<sub>d</sub>, Name, DeptId)

Course (DeptId, Cr<sub>s</sub>Code, CrsName, Descr)

Transcript (Stu<sub>d</sub>Id, Cr<sub>s</sub>Code, Semester, Grade)

Teaching (Prof<sub>I</sub>d, Cr<sub>s</sub>Code, Semester)

Department (Dept<sub>I</sub>d, Name)

**Write the following queries in SQL: [4]**

- (i) Make an attribute DeptID as Foreign Key in relation Professor. Also specify your constraint name.
- (ii) (a) Retrieve all the information from Course where description is not specified.

(b) Select all the information of Professor where the professor's name must contain the character 'a' at third position in the name.

**Write the Relational Algebra for the following queries: [4]**

- (i) Retrieve professor name that belongs to IT department.
- (ii) Delete all the information of student 'S101'.

- Write the Tuple Relational Calculus for the following queries:** [4]  
(i) Retrieve professor name that belongs to IT department.  
(ii) Retrieve all the students except Williams.

**OR**

- Q3. Answer the following questions:-** [12]  
**(Consider above relation schema)**

**Write the following queries in SQL:** [4]

- (i) Update the student name to Games whose id is 'S001'  
(ii) Make an attribute name as unique key in relation student. Also specify your constraint name.

**Write the Relational Algebra for the following queries:** [4]

- (i) Retrieve the student's grade of 'C002' for student 'S001'.  
(ii) Retrieve those courses that have never been taught by professor John.

**Write the Tuple Relational Calculus for the following queries:** [4]

- (i) Retrieve student name that belongs to IT department.  
(ii) Retrieve course name and course id that belongs to IT department.