DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER V [INFORMATION TECHNOLOGY]
SUBJECT: (IT 502) DATABASE MANAGEMENT SYSTEM

Examination	**: First Sessional**	**Seat No.**	**:**
Date	**: 04/08/2014**	**Day**	**: Monday**
Time	**: 11.15 to 12.30**	**Max. Marks**	**: 36**

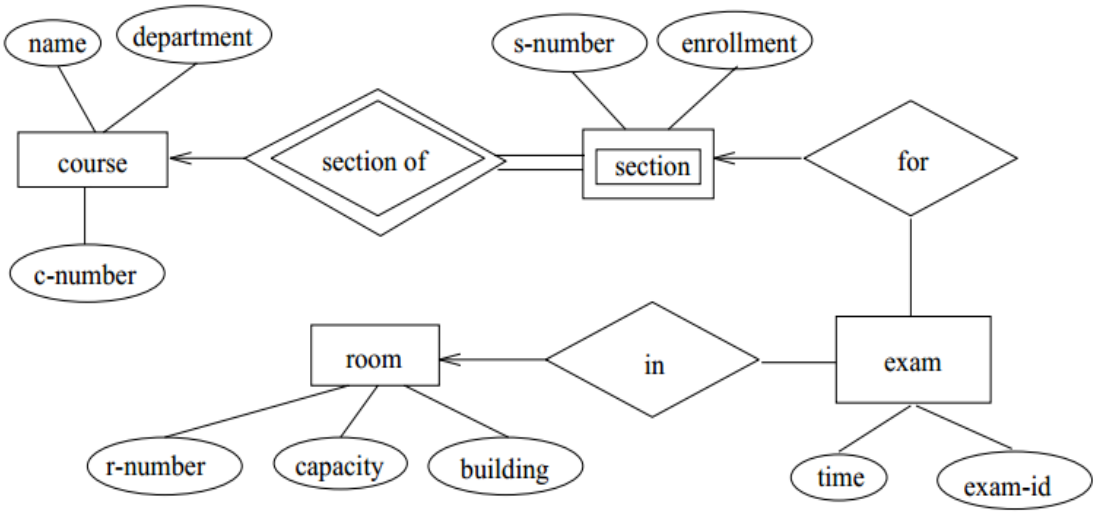
INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed.

(a) Explain disadvantages of DBMS, if any. **[2]**
(b) State different types of integrity constraint with example. **[2]**
(c) What is the difference between procedural and declarative language. **[2]**
(d) Differentiate between Strong entity set and weak entity set. **[2]**
(e) What is a view in SQL? Explain its types. **[2]**
(f) The natural join is equal to: **[1]**
(A) Cartesian Product
(B) Combination of Union and Cartesian product
(C) Combination of selection and Cartesian product
(D) Combination of projection and Cartesian product
(g) Which of the following is correct: **[1]**
(A) SQL query automatically eliminates duplicates.
(B) SQL permits attribute names to be repeated in the same relation.
(C) SQL query will not work if there are no indexes on the relations
(D) None of these

Q.2 Attempt ***Any Two*** from the following questions. **[12]**

(a) Draw an E-R diagram for Airline Ticket Reservation System. (Min. 4 Entity Sets) [6]
(b) (i)Explain participation constraints with how to represent it in the E-R Model. [2]
(ii)What is aggregation? Explain clearly with example. [2]
(iii)Explain this oracle error: integrity constraint (SCOTT.SYS_C006568) violated – Parent key not found. [2]
(c) (i)What is the purpose of Triggers explain with appropriate example. [3]
(ii)Convert following E-R Diagram into relational table structure. Clearly state the Keys and Assumptions taken. [3]



Q.3 (a) **Answer the following questions. Consider the following relational *SCHEMA 1* with key underlined.** **[6]**

Sailors(sid: integer, sname: string, rating: integer, age: real)
Boats(bid: integer, bname: string, color: string)
Reserves (sid: integer, bid: integer, day: date)

Write the following queries in SQL:

(i)Apply a constraint on relation Boat that bid should start with capital 'B'. [1]
(ii)Retrieve all the information from Sailors where age is not specified. [1]
(iii)Modify rating of a Sailor 'S110' to '7'. [1]
(iv)Find all information of sailors who have reserved boat number 'B103'. [1]
(v) Find the names of sailors who have reserved a red boat, and list in the order of age. [2]

(b) **Write the Tuple Relational Calculus for the following queries:** **[6]**

(i) Find all information of sailors who have reserved boat number 'B103'. [2]
(ii) Find the names of sailors who have reserved at least one boat. [2]
(iii) Find the ids of sailors who have reserved a red boat or a green boat. [2]

OR

Q.3 (a) **Answer the following questions.** **[6]**
(Consider above relational *SCHEMA 1*)

Write the Relation Algebra for following queries:

(i) Find the average age of sailors for each rating level. [2]
(ii) Find the name and the age of the youngest sailor. [2]
(iii)Find the name of sailors with their age above '30' and rating with '10'. [2]

(b) **Write Domain Relational Calculus for the following queries:** **[6]**

(i) Find all information of sailors who have reserved boat number 'B103'. [2]
(ii) Find the names of sailors who have reserved at least one boat. [2]
(iii) Find the ids of sailors who have reserved a red boat or a green boat. [2]