Computer Engineering Department, S V N I T, Surat.
Mid Semester Examinations, Feb-March 2017
B Tech II (CO) – 4th Semester
Course: Database Management System (CO204)

Date: 1st Mar 2017 Time: 11:00 hrs to 12:30 hrs Max Marks: 30

Instructions:

1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your B Tech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions as well as the question number.

Q.1 Answer the following [Any Three]: **[15]**

A A customer can buy the same item at one time and at a certain amount, but he can also buy the same item at a different time with a different amount. Can you see it the same item but of different objects? Justify your answer with ER diagram showing the cardinality.

B "Employee work for a department", Show this statement in the Total participation and Partial participation statements. Draw ER diagram for both showing cardinality. Convert the ER into relational model.

C For the FD: AB → C, C → D, B → EA, find the Candidate Key? Derive canonical cover for the same.

D The given table possesses following FDs:
Book ID → Genre ID,
Genre ID → Genre Type

1. Find the Candidate Key.
2. Convert into 3NF.
3. Write SQL queries to create the resultant tables.

Book ID	Genre ID	Genre Type	Price
1	1	Gardening	25.99
2	2	Sports	14.99
3	1	Gardening	10.00
4	3	Travel	12.99
5	2	Sports	17.99

Q.2 Consider the following relations with key underlined: **[06]**

lives (person_name, street, city)	works (person_name, company_name, salary)
located (company_name, city)	manages (person_name, manager_name)

Answer the following using SQL:

1. Find the names and city of persons who work for manager John.
2. Find the names of persons who live in the same city as the company they work for.
3. John's manager has changed. The new manager is Anna. **OR** 3. Susan doesn't work anymore.

Q.3 For the given relations, write relational algebra to answer the following queries : **[06]**

Person (pno, name, address)	Yatch (reg_no, make, colour)	Owner (pno, reg_no)

1. List the names of persons who own only suzuki yatch.
2. For each make of yatch, list the count of persons.
3. List the no. of persons who do not own any yatch. **OR** 3. Remove persons having red color yatch.

Q.4 Upon receiving the "Update Table" query, list the actions taken by the DBM. **[03]**

OR

Q.4 Answer the following: **[03]**

1. Write the relational algebra operation that does not require the participating tables to be union-compatible? Explain that operator with example.
2. Write equivalent SQL the statement to do the task as similar by the SQL: select * from R, S.
3. Write equivalent relational algebra expression for $\sigma_{\theta 1}(E1 \bowtie_{\theta 2} E2)$.

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