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SARDAR PATEL UNIVERSITY
MASTER OF COMPUTER APPLICATIONS
SEMESTER – I
COURSE PS01CMCA03 (Database Management Systems - I)
TuesdayJanuary7ᵗʰ, 2013

Time : 10:30am to 1:30pm　　　　　　　　**Max. Marks : 70**

Notes :1. Write answers of both sections in separate answer-books.
　　　　2. Assume the Oracle 10g database.

SECTION-I

Q-1 a. Define database management system. Compare database management systems　[4]
with traditional file-based data processing systems, listing the advantages of DBMS
in detail.

b. List users associated with database management systems.　[3]

c. What is system catalog (data dictionary)? What advantages does it offer? Explain　[4]
Oracle data dictionary in brief.

Q-2 a. Describe the relational data model. Explain its terminology.　[4]

b. List the Codd rules. Explain each in one or two sentences.　[4]

c. List the advantages and disadvantages of the hierarchical, network and relational　[4]
models.

Q-3 a. Draw notations used in the ER diagram and explain each notation in one sentence.　[4]

b. Draw a 1-page ER diagram for modeling a college library. Keep in mind the following　[4]
assumptions.

- The library has one librarian who issues and receives books
- There are three kinds of users – librarian, staff and students
- Books are issued for a fixed period. Fine is collected for late returns
- Members' phone numbers (1 or more) and full address are recorded
- Relevant information about books such as title, authors(s), edition,
  publisher, price, etc. are stored
- Multiple copies of the same book are treated as separate books

c. Write the algorithm for transforming am ER model into initial table design.　[4]

SECTION-II

A company provides its customers in India information about nearby service
providers like banks, ATMs, restaurants, movie halls, etc. on their web site as well as
in their mobile app. The case study involves movie listings.

**Assume the following tables (primary keys are underlined, assume appropriate
data types and constraints):**

areas(areaID, name, state)

moviehalls(hallD, name, area, type, address, phone, rating) – type: single/multiplex

movies(movieID, type, title, actors, director, description, length) – type: 2D or 3D

shows(movieID, hallD, starttime)

Q-4 a. Write CREATE TABLE statements for creating the *moviehalls* and *shows* tables with appropriate constraints. [4]

b. Write an SQL UPDATE statement to change the type of movie hall with *hallID* 5 from single to multiplex. [2]

c. Write an SQL statement tochange the size of the *name* column in the *areas* table from 15 to 20. [2]

d. Write an **SQL SELECT** statement to fetch the foreign key column corresponding to the *movieID* foreign key in the *shows* table. [3]

Q-5 a. Write an SQL SELECT statement to fetch the timings of the movie "Fire Balls" in 3D in the area named "AVK". [3]

b. Write an SQL SELECT statement to fetch the number of shows of the movie "Doom" in the area named "AVK". [3]

c. Write an SQL SELECT statement to fetch all the states where there is at least one movie hall with the name "AVR". [3]

d. Write an SQL SELECT statement to fetch the name of the area having the highest number of movie halls. [3]

Q-6 a. Write a short note on SQL join. [3]

b. Explain the WHERE and ORDER BY SQL clauses. [3]

c. Explain set operations in SQL SELECT. [3]

d. Explain COMMIT and ROLLBACK. What is a savepoint? [3]

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