TONTADARYA COLLEGE OF ENGINEERING

(Department of Computer Science and Engineering)

Internal Assessment – II (18CS53)

Subject : **Database Management System** **Date** : **21-12-2021**

Semester : **V SEM** **Time** : **09.30 to 11.00pm**

Answer following questions choosing one question from each part Total Marks: 50

PART-A **CO**

Q1. **a)** Briefly discuss the different types of update operations on relational database. Show an example of a violation of referential integrity in each of the update operation. 13M (CO1)

b) Consider the following relational database schema consisting of the four relation schemas: 12M (CO1)

PASSENGER (PID, pname, pgender, pcity)

AGENCY (aid, aname, acity)

FLIGHT (fid, fdate, time, src, dest)

BOOKING (PID, aid, fid, fdate)

Answer the following questions using relational algebra queries;

i) Find only the flight numbers for passenger with pid 123 for flights to Chennai before 06/11/2020.

ii) Find the passenger names for those who do not have any bookings in any flights.

iii) Find the agency names for agencies that located in the same city as passenger with passenger id 123.

iv) Find the details of all male passengers who are associated with Jet agency.

v) Get the details about all flights from Chennai to New Delhi.

vi) Get the details of flights that are scheduled on both dates 01/12/2020 and 02/12/2020 at 16:00 hours.

OR

Q2. **a)** Explain the ER to relational mapping with suitable examples. 13M (CO1)

b) Consider the following schema: 12M (CO1)

SUPPLIERS (Sid: integer, sname: string, address: string)

PARTS (PID: integer, pname: string, color: string)

CATALOG (Sid: integer, PID: integer, cost: real)

Answer the following questions using relational algebra queries;

i) Find the sids of suppliers who supply some red or green parts

ii) Find the sids of suppliers who supply some red part or are at 221 packer Ave

iii) Find the names of suppliers supplying some red part for less than 100rs.

iv) Find the names of suppliers supplying some red part for less than 100rs and some green Part for less than 100rs.

v) Find the IDs of suppliers who supply only red parts.

vi) Find the IDs of suppliers who supply every part.

PART-B

CO

Q3. **a)** Explain the following constructs used in SQL with example: i) Nested queries ii) Aggregate functions iii) Triggers iv) Views v) schema change statements — 13M (CO2)

b) Consider the following relations; primary key attributes are underlined. — 12M (CO2)

PRODUCT (productCode, productName, productCategory, productDescription)

MANUFACTURER (manuCode, manufacturerName, city, Phone)

SUPPLY (manuCode, productCode, storeID, wholesaleUnitPrice, quantity)

STORE (storeID, storeName, phoneNumber, city)

Write the SQL queries to answer the following questions.

i) Find names of all stores that are in the city of "Chandigargh".

ii) Find the name of the manufacturer that supplies the largest quantity of any product.

iii) Find the names and the cities of all manufactures that supply any product of more than 100 units whose wholesale unit price is greater than 50.

iv) Find the names of store-manufacturer pairs where the store and the manufacturer in each pair is located in the same city and there is a supply record of the manufacturer whose total cost (i.e. unit price multiplied by quantity) is greater than 10,000.

OR

Q4. **a)** Illustrate insert, delete, update, alter and drop statements in SQL — 13M (CO2)

b) Consider the schema for Company Database: — 12M (CO2)

EMPLOYEE (SSN, Name, Address, Sex, Salary, SuperSSN, DNo)

DEPARTMENT (DNo, DName, MgrSSN, MgrStartDate)

DLOCATION (DNo, DLoc)

PROJECT (PNo, PName, PLocation, DNo)

WORKS_ON (SSN, PNo, Hours)

Write SQL queries to

i) Make a list of all project numbers for projects that involve an employee whose last name is 'Scott', either as a worker or as a manager of the department that controls the project.

ii) Show the resulting salaries if every employee working on the 'IoT' project is given a 10 percent raise.

iii) Find the sum of the salaries of all employees of the 'Accounts' department, as well as the maximum salary, the minimum salary, and the average salary in this department

iv) Retrieve the name of each employee who works on all the projects controlled by department number 5

Course Outcome	Complete Title
CO1	Identify, analyze and define database objects, enforce integrity constraints on a database using RDBMS.
CO2	Use Structured Query Language (SQL) for database manipulation.