Roll Number:

Thapar University Patiala
Computer Science & Engineering Department

B.E Computer Engineering (3rd Semester)   UCS310: Database Management Systems
06th March 2019
Time: 02Hours; MM: 25   Faculty: PBH, VBH, AV, RKR, APA, TB

Note: All the Questions are compulsory. Assume any missing information wherever required.

Q1)	Answer each of the following questions briefly. The questions are based on the following relational schema:
	  Student(Rno, Name)
	  Course(CNo, Cname)
	  Teacher(Tno, Tname)
	  Registration(Rno,Cno, Tno)
	
	i.) Find the name of students taking course number UCS310.
	ii.) Find the teacher name teaching course name DBMS.
	iii.) Find Number of students in each course.
	iv.) Display all student names who has character `a` in their names.
	v.) Find the course name taught by teacher Raj. Query should able to find all teachers with this name irrespective of the case.
		5

Q2)	On the same database given in Q 1, solve the following queries: i.) Add mobile number column in Student table. ii.)Write the command to create registration table by identifying primary and foreign keys. iii) Change the mobile number and name of student having roll number 5 iv.) Display Tno and Name of teachers who take more than 2 courses. v.) Display teacher name and their corresponding course name. Also display name of teachers taking no courses.	5
Q 3 a)	Consider the following database: S(Sno, Sname, City) P(Pno, Pname, Color, City) SP(SNo, Pno, Qty) The manager wishes to remove the entries of SP table automatically, when corresponding Supplier Number is removed from the S table. What strategy you will follow to ensure this? Write the commands for its implementation.	2
b)	Compare Hierarchical, Network and Relational model in tabular manner. Which model is best and why?	3
Q 4 a)	What are the two data integrities associated with the relational database? How is it implemented? Give examples.	2

b)	Consider the customer database with the following attributes: Customer_Number, Aadhar_Number, Name, Mobile_Number and Age. Customer_number, Aadhar_number and Mobile_number have unique values. Mobile_number is mandatory for storing information of each customer. Identify the following by justifying your answer. • Candidate Key • Primary Key • Alternate Key	3

5 a)	Draw an ER diagram to capture the requirements as stated below:
	
	A database is needed to capture information pertaining to the running of various clubs by the recreation cell of an institution. The details are given below.
	    i. Details such as name, date of birth, gender are needed for each member.
	    ii. Club details are needed such its Code, activity (oratorical, music, dance, instrumental music etc) and contact phone number.
	    iii. Team details required include team name and the days on which the team practices. Team can practice on more than one day.
	    iv. Tutor details such as tutor name, address and telephone number are also needed, along with details of the skills each tutor is qualified in.
	
	Rules governing the involvement of members and tutors in the teams and clubs are as follows:
	    i. Members may head only one team and every team must have a head.
	    ii. Tutors can teach many teams and every team can have multiple tutors.
	    iii. Every member can belong to any number of teams and each team has any number of members.
	    iv. Every team must belong to a one club and clubs may have any number of teams.
	    v. Every club has a member who is the president but a member may only be president of one club.
		3

b)	What do you mean by data independency and how is it achieved? Explain with proper diagram.	2