	Sahyadri College of Engineering & Management, Mangaluru
	Department of Computer Science & Engineering
	Assignment for Odd Semester 2022-23

Course: Data Base Management System	Course Code: 18CS53	Sem: V
Faculty: Dr. Pushpalatha K	Date: 26/12/2022	Deadline: 18/01/2023
Question Paper No. 3	Max. Marks: 100	

Answer the following questions.

Q.No	Questions	Marks	Blooms Level	CO No.
1	Consider a CONFERENCE_REVIEW database in which researchers submit their research papers for consideration. Reviews by reviewers are recorded for use in the paper selection process. The database system caters primarily to reviewers who record answers to evaluation questions for each paper they review and make recommendations regarding whether to accept or reject the paper. The data requirements are summarized as follows: Authors of papers are uniquely identified by e-mail id. First and last names are also recorded. Each paper is assigned a unique identifier by the system and is described by a title, abstract, and the name of the electronic file containing the paper. A paper may have multiple authors, but one of the authors is designated as the contact author. Reviewers of papers are uniquely identified by e-mail address. Each reviewer's first name, last name, phone number, affiliation, and topics of interest are also recorded. Each paper is assigned between two and four reviewers. A reviewer rates each paper assigned to him or her on a scale of 1 to 10 in four categories: technical merit, readability, originality, and relevance to the conference. Finally, each reviewer provides an overall recommendation regarding each paper. Each review contains two types of written comments: one to be seen by the review committee only and the other as feedback to the author(s). Design an **ER schema** for the CONFERENCE_REVIEW database	20	CL4	CO2
2	Map the above **ER schema** into **relational schema**	5	CL3	CO2
3	*Consider the following relations containing airline flight information* **Flights**(flno: integer, from: string, to: string, distance: integer, departs: time, arrives:time, price: real) , **Aircraft**(aid: integer, aname: string, cruisingrange: integer) Certified(eid: integer, aid: integer) , =(eid: integer, ename: string, salary: integer) *Note that the Employees relation describes pilots and other kinds of employees as well; every pilot is certified for some aircraft, and only pilots are certified to fly. Write each of the following queries in SQL.* 1) Find the names of aircraft such that all pilots certified to operate them have salaries more than $80,000. 2) For each pilot who is certified for more than three aircraft, find the eid and the maximum cruising range of the aircraft for which she or he is certified. 3) Find the names of pilots whose salary is less than the price of the cheapest route from Los Angeles to Honolulu. 4) For all aircraft with cruising range over 1000 miles, find the name of the aircraft and the average salary of all pilots certified for this aircraft. 5) Find the aids of all aircraft that can be used on routes from Los Angeles to Chicago. 6) Print the enames of pilots who can operate planes with cruising range greater than 3000 miles but are not certified on any Boeing aircraft. 7) Compute the difference between the average salary of a pilot and the average salary of all employees (including pilots). 8) Print the name and salary of every nonpilot whose salary is more than the average salary for pilots. 9) Print the names of employees who are certified only on aircrafts with cruising	20	CL3	CO3

	range longer than 1000 miles, but on at least two such aircrafts. 10) Print the names of employees who are certified on all aircrafts 11) List the flights that have second highest price.			
4	***Write the following queries in relational algebra*** 1) Find the eids of pilots certified for some Boeing aircraft. 2) Find the names of pilots certified for some Boeing aircraft. 3) Find the aids of all aircraft that can be used on non-stop flights from Bonn to Madras. 4) Identify the flights that can be piloted by every pilot whose salary is more than $100,000. 5) Find the names of pilots who can operate planes with a range greater than 3,000 miles but are not certified on any Boeing aircraft. 6) Find the eids of employees who make the highest salary. 7) Find the eids of employees who are certified for the largest number of aircraft. 8) Find the eids of employees who are certified for exactly three aircraft. 9) Find the total amount paid to employees as salaries. 10) Find the names of employees who are certified on all aircrafts	20	CL3	CO3
5	Convert following schemas to 3NF, showing all intermediate stages, i.e. 1NF and 2NF. **CLIENT (<u>Client#</u>, Name, Location, Manager#, Manager_name, Manager_location, (Contract#, Estimated_cost, Completion_date, (Staff#, Staff_name, Staff_location)))**	10	CL3	CO4
6	Consider a relation scheme R=(A, B,C,D,E,H)R=(A,B,C,D,E,H) on which the following functional dependencies hold: $\{A\rightarrow B, BC\rightarrow D, E\rightarrow C, D\rightarrow A\}.\{A\rightarrow B, BC\rightarrow D, E\rightarrow C, D\rightarrow A\}$. What are the candidate keys of R? Consider the universal relation R = {A, B, C, D, E, F, G, H, I, J} and the Consider a relation R with five attributes ABCDE. You are given the following dependencies: $A \rightarrow B$, $BC \rightarrow E$, and $ED \rightarrow A$. 1. List all keys for R. 2. Is R in 3NF? 3. Is R in BCNF?	15	CL3	CO4

7	1) Consider the transactions T1, T2, and T3 and the schedules S1 and S2 given below.
	T1: r1(X); r1(Z); w1(X); w1(Z)
	T2: r2(Y); r2(Z); w2(Z)
	T3: r3(Y); r3(X); w3(Y)
	S1: r1(X); r3(Y); r3(X); r2(Y); r2(Z); w3(Y); w2(Z); r1(Z); w1(X); w1(Z)
	S2: r1(X); r3(Y); r2(Y); r3(X); r1(Z); r2(Z); w3(Y); w1(X); w2(Z); w1(Z)
	Which one of the following statements about the schedules is **TRUE?**
	    (A) Only S1 is conflict-serializable.
	    (B) Only S2 is conflict-serializable.
	    (C) Both S1 and S2 are conflict-serializable.
	    (D) Neither S1 nor S2 is conflict-serializable.
	
	2) Consider two transactions T_1 and T_2 and four schedules S_1, S_2, S_3, S_4 of T_1 and T_2 as given below:
	T_1: $R_1[x] W_1[x] W_1[y]$
	T_2: $R_2[x] R_2[y] W_2[y]$
	S_1: $R_1[x] R_2[x] R_2[y] W_1[x] W_1[y] W_2[y]$
	S_2: $R_1[x] R_2[x] R_2[y] W_1[x] W_2[y] W_1[y]$
	S_3: $R_1[x] W_1[x] R_2[x] W_1[y] R_2[y] W_2[y]$
	S_4: $R_2[x] R_2[y] R_1[x] W_1[x] W_1[y] W_2[y]$
	Which of the above schedules are conflict-serializable?
		10	CL3	CO5