Reg. No.



# VII SEMESTER B.TECH (ELECTRICAL & ELECTRONICS ENGINEERING) END SEMESTER EXAMINATIONS, NOVEMBER 2022

### **DATABASE MANAGEMENT SYSTEMS [ELE 4079]**

**REVISED CREDIT SYSTEM** 

Time:	3 Hours	Date: 21 NOV 2022	Max. Marks: 50
Instru	ctions to Candidates:		
	Answer <b>ALL</b> the questions.		
	<ul> <li>Missing data may be suitably a</li> </ul>	assumed.	
1A.	Explain the purpose of data	abase systems.	(03)
1B.	Illustrate query processing sketch. Label all important	in database systems with the help o parts.	f a neat <b>(03)</b>
1C.	What are the conceptual, database design?	logical, and physical features identified	d during <b>(04)</b>
2A.	Statement:		
	"An electricity supply customer premises to customer is billed every	company installs energy meters record their energy consumption month for their energy consumed."	in the n. The
	For the statement given al model with proper notation	bove design (draw) an Entity-Relations s.	hip (ER) <b>(03)</b>
2B.	With reference to the ER m relationship set between el illustrate the application of	odel developed in <b>Q2A</b> , for the binary ectricity supply company and the custor different integrity constraints.	mer, <b>(03)</b>
2C.	With reference to the ER m exists a ternary relationshi and energy meter. Without suitable ER model, how this binary relationship sets.	odel developed in <b>Q2A</b> , assume that th p between the electricity company, cust adding any additional entities, show us s ternary relationship can be converted	ere omer, sing a into <b>(04)</b>
3A.	With the help of suitable ex relational model.	camples, explain different anomalies in	a (03)
3B.	By applying principles of re normal forms, <b>normalize</b> t tables created by normalizi	lational database design and concepts on the relational model given below. Show ng "Projects" table.	of the
	,		(03)

# Projects

ProjectNo	Project Name	Manager	Budget	EmployeeCode	Employee Name	DepartmentNo	Department Name	Hourly Rate
PC010	Reservation System	Mr. Ajay	120500	\$100	Mohan	D03	Database	21.00
PC010	Reservation System	Mr. Ajay	120500	S101	Vipul	D02	Testing	16.50
PC010	Reservation System	Mr. Ajay	120500	S102	Riyaz	D01	IT	22.00
PC011	HR System	Ms. Charu	500500	S103	Pavan	D03	Database	18.50
PC011	HR System	Ms. Charu	500500	\$104	Jitendra	D02	Testing	17.00
PC011	HR System	Ms. Charu	500500	S315	Pooja	D01	ΙТ	23.50
PC012	Attendance	Mr. Rajesh	710700	\$137	Rahul	D03	Database	21.50
PC012	Attendance	Mr. Rajesh	710700	S218	Avneesh	D02	Testing	15.50
PC012	Attendance	Mr. Rajesh	710700	S109	Vikas	D01	IT	20.50

#### 3C.

## Projects

ProjectNo	Project Name	Manager	Budget	EmployeeCode	Employee Name	DepartmentNo	Department Name	Hourly Rate
PC010	Reservation System	Mr. Ajay	120500	\$100	Mohan	D03	Database	21.00
PC010	Reservation System	Mr. Ajay	120500	S101	Vipul	D02	Testing	16.50
PC010	Reservation System	Mr. Ajay	120500	S102	Riyaz	D01	ΙТ	22.00
PC011	HR System	Ms. Charu	500500	S103	Pavan	D03	Database	18.50
PC011	HR System	Ms. Charu	500500	\$104	Jitendra	D02	Testing	17.00
PC011	HR System	Ms. Charu	500500	S315	Pooja	D01	ΙТ	23.50
PC012	Attendance	Mr. Rajesh	710700	\$137	Rahul	D03	Database	21.50
PC012	Attendance	Mr. Rajesh	710700	S218	Avneesh	D02	Testing	15.50
PC012	Attendance	Mr. Raiesh	710700	S109	Vikas	D01	IT	20.50

With reference to the relational model "Projects" given above, write relational algebraic expressions for the following:

1. Find the names of the employees working in the "Database" department.

2. Find the names of the employees working under manager named "Mr. Ajay".

3. Count the total number of projects.

4. Find the names of the employees working under the same manager. (04)

# Projects

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PC010	Reservation System	Mr. Ajay	120500	S101	Vipul	D02	Testing	16.50
PC010	Reservation System	Mr. Ajay	120500	S102	Riyaz	D01	IT	22.00
PC011	HR System	Ms. Charu	500500	S103	Pavan	D03	Database	18.50
PC011	HR System	Ms. Charu	500500	\$104	Jitendra	D02	Testing	17.00
PC011	HR System	Ms. Charu	500500	S315	Pooja	D01	IT	23.50
PC012	Attendance	Mr. Rajesh	710700	\$137	Rahul	D03	Database	21.50
PC012	Attendance	Mr. Rajesh	710700	S218	Avneesh	D02	Testing	15.50
PC012	Attendance	Mr. Rajesh	710700	S109	Vikas	D01	IT	20.50

With reference to the relational model "Projects" given above, write SQL statements for the following:

- 1. Create "Projects" table in the database with necessary integrity constraints.
- 2. Insert the first row of the "Projects" table above into the newly created table in the database.
- 3. Update the name of the manager "Mr. Ajay" as "Dr. Ajay Sharma". (03)

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PC012	Attendance	Mr. Rajesh	710700	S109	Vikas	D01	IT	20.50

With reference to the relational model "Projects" given above, write SQL statements for the following:

1. Find the names of the employees working in the "Database" department.

2. Find the names of the employees working under manager named  $\ensuremath{``}\ensuremath{\mathsf{Mr}}\xspace.$  Ajay"

3. Count the total number of projects.

- 4C. Draw a neat sketch of a state transaction diagram. Explain different transaction states. (04)
- **5A.** List out at least three advantages and disadvantages of importing data in a CSV (Comma Separated Values) format into a MySQL database. (03)
- **5B.** What is XAMPP? Explain the features offered by XAMPP?
- **5C.** Electricity company desires to install smart energy meters at their consumer premises. The company wishes to have a complete design including hardware and software implementation of the smart energy meter.

Suggest the following for the electricity company:

- 1. A block diagram approach to implement the hardware for measuring energy.
- 2. List the required software for data acquisition, storage, and display.
- 3. A sample relational schema showing the data acquired by the sensors.
- 4. Show the key constraint(s) for the sample relational schema in (3). **(04)**

#### Projects

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(03)

(03)