Set-1	Reg.No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH. (COMPUTER SCIENCE & ENGINEERING)
END SEMESTER EXAMINATION, APR/MAY 2024

SUBJECT: PRINCIPLES OF DATABASE MANAGEMENT SYSTEMS
[CSE 4304]

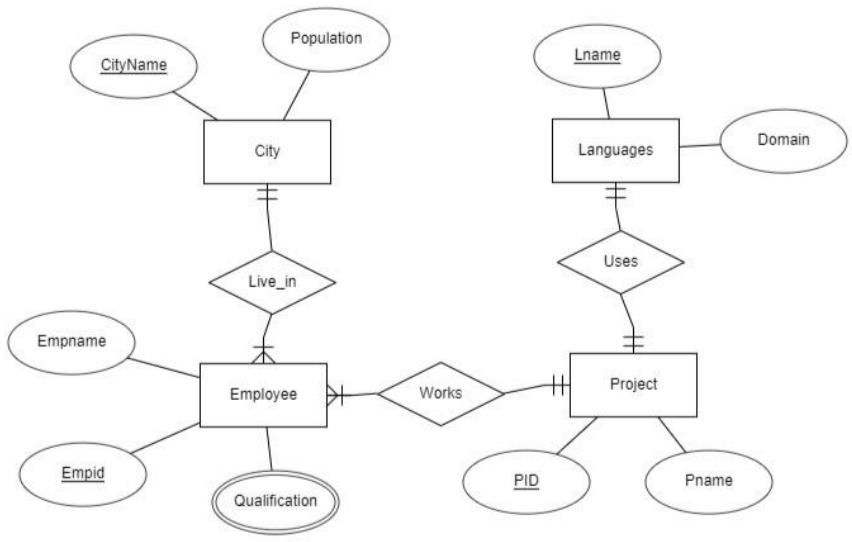
REVISED CREDIT SYSTEM
/ / 2024

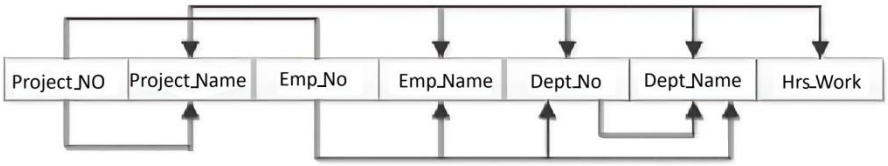
Time: 180 Minutes **MAX. MARKS: 50**

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

Q.No	Questions	Marks	AHEP LOs	CO	Blooms Taxonomy
1A.	Demonstrate your understanding of the key components within a database system environment and their respective roles in ensuring efficient data management with neat diagram.	(4M)	1	1	3
1B.	Outline the roles and responsibilities of different database users within a database system environment.	(4M)	1	1	4
1C.	Briefly explain any two key components of a data model.	(2M)	1	1	2
2A.	Consider a database for Banking system, compose the create statement to create two tables, Customer and Branch using the following relational schema and insert 3 records for each table. Assume data type, primary key and foreign key appropriately. **Customer (customer_no, CustName, BranchID)** **Branch (BranchID, BranchName, Address)**	(4M)	2	2	6
2B.	Consider the relational database given below: Customer(CustID, CustName, city, grade, salesmanID) Salesman(SalesmanID, name, city, commission) i) Create SQL statement to find the name and city of those customers and salesmen who live in the same city.	(4M)	2	2	6

	ii) Create a SQL statement to display the details of those customer whose name starts with alphabet 'S' and grade in the range 100 and 500.				
2C.	Illustrate the use of ORDER BY clause in SQL queries to organize query results.	(2M)	2	2	2
3A.	Construct a ER diagram for the following scenario :: Suppose that you are designing a schema to record information about reality shows on TV. Your database needs to record the following information: Each Reality_show is identified by its name, basic_info and participants name. Any reality show has at least two or more participants. Each producer has Name, company_name and experience. A show is produced by exactly one producer. And one producer produces exactly one show. For each television, its name, start_year, head _office need to be recorded. A television may broadcast multiple shows. Each show is broadcasted by exactly one television. For each user, his/her username, password, and age need to be saved . A user may rate multiple shows, and a show may be rated by multiple users.	(4M)	5	3	3
3B.	Analyze and convert the following ERD into Relational schema.  	(3M)	5	3	4

3C.	Summarize any 3 fundamental constraints available in Relational data model.	(3M)	5	3	5
4A.	Determine fully functional dependency, partial functional dependency and transitive dependency based on the provided Determinacy diagram.  **Fig : Determinacy diagram**	(4M)	2	4	5
4B.	Discuss with example, three different types of anomalies that can occur in a un-normalized table.	(4M)	2	4	6
4C.	Outline different advantages of normalization.	(2M)	2	4	2
5A.	Describe the main stages and changes that occur during a typical transaction lifecycle?	(4M)	1	5	2
5B.	Discuss serial schedule and non-serial schedule in transaction processing.	(4M)	1	5	6
5C.	Recall the Pros associated with using a sequential file organization?	(2M)	1	5	3