UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Data Base Management Systems   **Semester:** III
Program: M. Tech (Pipeline Engineering)   **Time** 03 hrs.
Course Code: CHPL8002   **Max. Marks:** 100

Instructions: Attempt each question with suitable diagrammatic representation of concepts.

SECTION A

S. No.		Marks	CO
Q 1	Differentiate the Database system from traditional file system? Also discuss the main characteristics of DBMS.	**4**	**CO1**
Q 2	State the primary key, candidate key, super key and foreign key with examples?	**4**	**CO1**
Q 3	Discuss the significance of NULL in database? How are these values handled in relational model?	**4**	**CO2**
Q 4	Compare and contrast the Single valued attribute/multi-valued attribute.	**4**	**CO3**
Q 5	Describe the process of data normalization? What are the three types of anomalies? How can they be reduced?	**4**	**CO3**

SECTION B

Q 6	How would you describe the role of mapping cardinalities in relationship set? Also explain its different types with examples.	**10**	**CO2**
Q 7	Explain the concept of database model? List any two types of data models with an example for each.	**10**	**CO4**
Q 8	Which process is widely used for analyzing the unknown patterns of data? Discuss it with its various techniques. Differentiate between Data Mining and Data Warehousing.	**10**	**CO4**

Q 9	Describe the client server architecture for the database with necessary diagram. **OR** List and briefly explain the three levels of abstraction at which we design a database. For each list the basic elements of that level. For the lowest level only, what is the key consideration?	**10**	**CO2**
	SECTION-C		
Q 10	a) Define Entity set as well as Relationship set. Also discuss ER Diagram with its main components? List and explain the symbols used to draw ER Diagram. Construct an ER diagram for university database consisting of four entities. b) Also convert ER model into four tables (Student, Department, Class, Faculty) in which a student has a unique id and can enroll for multiple classes and has at most one major; faculty must belong to department; faculty can take multiple classes and every student will get a grade for the class for he/she was enrolled.	**20**	**CO3**

Q 11	a) How would you store, manipulate and retrieve data that is stored in a relational database? Also state why it is known as the standard language for Relational Database System.
	
	b) Differentiate between WHERE and HAVING clauses with example.
	
	c) Write SQL queries for the following relations:
	
	       Employee (emp_name, street, city)
	       Works (emp_name, company_name, salary)
	       Company(company_name, city)
	       Manages(emp_name, Manager_name)
	
	    i) Find the name of employees who works for SBI.
	    ii) Find names and cities of residence of all emp who works for SBI.
	    iii) Find all employees who don't work for SBI
		20	**CO5**