UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: M.Tech PLE	**Semester – III**
Subject (Course): Database Management Systems	**Max. Marks : 100**
Course Code : MPTI 703	**Duration : 3 Hrs**
No. of page/s: 02	

Section –A   **20 Marks**
(Attempt all Questions each carrying 4 marks)

Q1. What is an Information System? Explain any two Information Systems.

Q2. Write the critical success factors in database design.

Q3. Define BCNF. How it is different from 3NF?

Q4. What are the different Constraints available in SQL?

Q5. Explain KDD Process with diagram.

Section – B   **40 Marks**

(Attempt all Questions each carrying 10 marks)

Q6. Why business analysis phase is important? Explain the steps involved in it.

Q7. Write the steps to convert the ER Model to Relational Database Schema.

Or

   Explain in detail the architecture of data warehouse.

Q8. Explain Functional dependency and Transitive dependency.

Q9. Explain the following: Primary Key, Foreign Key, Candidate Key and Super Key.

Section – C   **40 Marks**

(Attempt all Questions each carrying 20 marks)

Q10. Explain the conceptual database design phase by taking an example for each step.
Or

Define E-R diagram. Draw an E-R diagram for Library Management System. Assume relevant entities and attributes for the given system.

Q11. Consider the following table and write queries for the following

Col Name	Data Type	Size	Default	Attributes
empid	Varchar2	6		PK, should start with 'R'
empname	Varchar2	20		NOT NULL
dept	Varchar2	30		
salary	Number	10,2		
location	Char	20		Should have a default Value

(a) Display the list of all employees whose name starts with 'A'.
(b) Display those employees whose salary is less than the salary of employee 'R101'.
(c) Display the sum of salaries of employees of each department.
(d) Update the dept of an employee id 'R101' to Marketing.
(e) Delete the record where location is New Delhi.

Roll No: --------------------------

UPES

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Section –A   **20 Marks**
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Q1. Explain the role of Information Systems in an organization.

Q2. Explain physical database design phase.

Q3. What is Normalization? Explain the need of normalization in database.

Q4. Explain the aggregate functions in SQL. Also give the syntax and example of each.

Q5. Explain the applications of Data Mining in different sectors.

Section – B   **40 Marks**

(Attempt all Questions each carrying 10 marks)

Q6. Explain the role of Information Systems in an organization.

Q7. What is the difference between Strong and Weak entity? Explain different types of attributes in ER diagram.

Or

Explain KDD process in detail with diagram.

Q8. Explain First and Second Normal form in detail by taking an example.

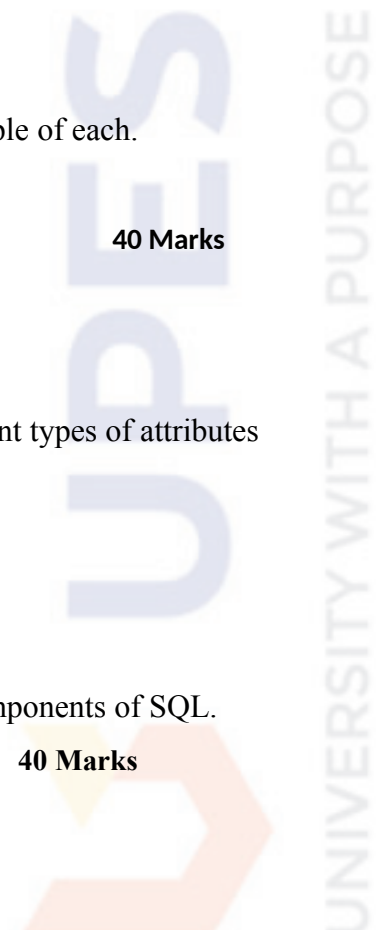Q9. What do you mean by Structured Query Language? Write the major components of SQL.

Section – C   **40 Marks**

(Attempt all Questions each carrying 20 marks)

Q10. Explain three level architecture of DBMS with diagram.
Or

Define E-R diagram. Draw an E-R diagram for a university for maintaining data. Assume following entities and attributes.

1. courses, including number, title, credits, syllabus, and prerequisites;

2. course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;

3. students, including student-id, name, and program;

4. instructors, including identification number, name, department, and title.

Q11. Consider the following table and write queries for the following

Col Name	Data Type	Size	Default	Attributes
stuid	Varchar2	6		PK, should start with S
stuname	char2	20		NOT NULL
phone	Number	12		
city	Char	16		
course	Varchar2	20		NOT NULL

(a) Write SQL command for the creation of the above table.
(b) Display those students who belongs to same city where stuid= S101 resides.
(c) Delete all content with schema.
(d) Update the phone of a student where course is M.Tech and city = 'Hyderabad'.
(e) Modify the table add one more field marks at the end.