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

UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2018

Program: B.Tech (CSE+ Cyber Law)	**Semester – IV**
Subject (Course): Database Management System	**Max. Marks : 100**
Course Code : CSEG 214	**Duration : 3 Hrs**
No. of page/s : 02	

Section-A (30 Marks)

Note: - Attempt All Questions.
In Section A:-Question 1 & 2 carries 7 Marks and Question 3 & 4 carries 8 Marks.
In Section B:-Each Question carries 15 Marks.
In Section C:- Question carries 25 Marks.

Q.1 What is the difference between a database schema and a database state? (7)

Q.2 Consider the following relations: (7)

BRANCH(bno, street, area, city, pcode, Tel_no, Fax_no)
STAFF(Sno, Fname, Lname, address, position , salary, bno)

Express the following queries in SQL:
(i) List the staff who work in the branch at '163 main street'
(ii) Find staff whose salary is larger than the salary of every member of staff at branch B3.

Q.3 List the major architectural components of oracle database. Correlates the logical and physical storage structure. (8)

Q.4 Explain the three data models namely relational, network and hierarchical and compare their relative advantages and disadvantages. (8)

Section-B (45 Marks)

Q.5 What are the various symbols used to draw an E-R diagram. Explain each with the help of an example how weak entity sets are represented in an E-R diagram. (15)

Q.6. Consider the relation R(A, B, C, D, E) with the set of function dependencies

F={A, B→C, D→E, A→D}
(i) Is AB a candidate Key? Justify.
(ii) Giving reasons find out whether R is in 3NF or BCNF (15)

Q.7 What are the different types of database end users? Discuss the main activities of each. Also, describe the responsibilities of the DBA and the database designer (15)

Section-C (25 Marks)

Q.8 a) Explain entity integrity and referential integrity rules in relational model. Show how these are realized in SQL (15)

b) Consider the following relations:
S (S#, SNAME, STATUS, CITY)
SP (S#, P#, QTY)
P (P#, PNAME, COLOR, WEIGHT, CITY)

Give an expression in SQL for each of queries below:
(i) Get supplier names for supplier who supply at least one red part
(ii) Get supplier names for supplier who do not supply part P2. (10)

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Section-A (30 Marks)

Note: - Attempt All Questions.
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In Section C:- Question carries 25 Marks.

Q.1 Explain the integrity constraints: Not Null, Unique, Primary Key with an example each. Is the combination 'Not Null, Primary Key' a valid combination? Justify. (7)

Q.2 Consider the following relations: (7)

BRANCH(bno, street, area, city, pcode, Tel_no, Fax_no)
STAFF(Sno, Fname, Lname, address, position , salary, bno)

Express the following queries in SQL:
(i) List the staff who work in the branch at '163 main street'
(ii) Find staff whose salary is larger than the salary of every member of staff at branch B3.

Q.3 List the major architectural components of oracle database. Correlates the logical and physical storage structure. (8)

Q.4 What are the four main characteristics of the database approach? Explain each in detail. (8)

Section-B (45 Marks)

Q.5 Describe cardinality ratios and participation constraints for relationship types. (15)

Q.6. Consider the relation R(A, B, C, D, E) with the set of function dependencies

F={A, B→C, D→E, A→D}
(i) Is AB a candidate Key? Justify.
(ii) Giving reasons find out whether R is in 3NF or BCNF (15)

Q.7 What are the different types of database end users? Differentiate between DDL and DML (15)

Section-C (25 Marks)

Q.8 a) What do you mean by integrity constraints? Explain the two constraints, check and foreign key in SQL with an example for each. Give the syntax (15)

b) Consider the following relations:
S (S#, SNAME, STATUS, CITY)
SP (S#, P#, QTY)
P (P#, PNAME, COLOR, WEIGHT, CITY)

Give an expression in SQL for each of queries below:
(i) Get supplier names for supplier who supply at least one red part
(ii) Get supplier names for supplier who do not supply part P2. (10)