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**PRESIDENCY UNIVERSITY
BENGALURU**
SCHOOL OF ENGINEERING

TEST - 1

Even Semester: 2018-19

Course Code: CSE 207

Course Name: Database Management Systems

Programme & Sem: B. Tech (CSE) & IV Sem

Date: 06 March 2019

Time: 1 Hour

Max Marks: 40

Weightage: 20%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **three** marks.

(5Qx3M=15)

1. What is Database Management Systems? Why do we need a DBMS?
2. Define Data-independence.
3. How does the cardinality ratio specify? Mention its types.
4. Explain Ternary Relationship with relevant example.
5. List any three DML commands with its query.

Part B

Answer **all** the Questions. **Each** question carries **five** marks.

(3Qx5M=15)

6. Explain a weak entity with an example and represent it in ER diagram.
7. Represent any 10 symbolic notations used in ER Diagram.
8. Explain the architecture of DBMS.

Part C

Answer the Question. Question carries **ten** marks.

(1Qx10M=10)

9. Consider the employee database, where the primary keys are underlined.

Employee(empname, street, city)

Works(empname, companyname, salary)

Company(companyname, city)

Manages(empname, manager name)

Write SQL for the following queries:

- a. Create a table 'works' by referencing Employee table with on delete cascade.
- b. Find the names of all employees who works for First Bank Corporation.
- c. Find the names, Street addresses, and cities of residence of all employees who works for First Bank Corporation and earn more than 200000 per annum.
- d. Find the names of all the employees in this database who live in the same city as the companies for which they work.
- e. Find the names of all the employees who earn more than every employee of Small Bank Corporation.



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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

TEST - 2

Even Semester: 2018-19

Course Code: CSE 207

Course Name: Database Management Systems

Program & Sem: B.Tech & IV Sem

Date: 16 April 2019

Time: 1 Hour

Max Marks: 40

Weightage: 20%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.

Part A

Answer **all** the Questions. **Each** question carries **six** marks. (3Qx6M=18)

1. What is a trigger? What are its advantages? Give the general syntax for creating a TRIGGER.
2. Define virtual tables. How do you create and drop a view. Explain with an example.
3. Discuss the informal guidelines for the relational database design.

Part B

Answer **both** the Questions. **Each** question carries **six** marks. (2Qx6M=12)

4. Define functions in SQL. Illustrate how to create a function in sql with suitable example.
5. Define 2 NF. Consider the universal relation $R = \{A, B, C, D, E, F, G, H, I, J\}$ and the set of functional dependencies $F = \{\{A, B\} \rightarrow \{C\}, \{A\} \rightarrow \{D, E\}, \{B\} \rightarrow \{F\}, \{F\} \rightarrow \{G, H\}, \{D\} \rightarrow \{I, J\}\}$ Identify the key for relation R? Decompose R into 2NF.

Part C

Answer the Question. The Question carries **ten** marks. (1Qx10M=10)

6. Specify the following queries on the COMPANY relational database schema given below using the relational algebra operators.

EMPLOYEE (Fname, Minit, Lname, Ssn, Bdate, Address, Gender, Salary, Super_ssn, Dno)

DEPARTMENT (Dname, Dnumber, MGRSSN, MGRSTART Date)

PROJECT (Pname, Pnumber, Plocation, Dnum)

WORKS_ON (Essn, Pno, Hours)

DEPENDENT (Essn, Dependent_name, Gender, Bdate, Relationship)

- a) Find the names of employees who work on *all* the projects controlled by department number 5.
- b) Retrieve the names of employees who have no dependents.
- c) Retrieve the names of managers who have atleast one dependent.
- d) Retrieve the names and address of all employees who works for Research department.



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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

END TERM FINAL EXAMINATION

Even Semester: 2018-19

Date: 23 May 2019

Course Code: CSE 207

Time: 3 Hours

Course Name: Data Base Management Systems

Max Marks: 80

Program & Sem: B.Tech & IV Sem

Weightage: 40%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts

Part A

Answer **all** the Questions. **Each** question carries **one** mark. (20Qx1M=20M)

1.

- i. Which of the following fields in a student file can be used as a primary key?
a) Class b) Social Security Number c) GPA d) Major
- ii. After you choose a primary key from among candidate keys, the remaining candidate keys become ____ keys.
a) Compound b) Foreign c) Alternate d) Discarded
- iii. What are predicates that define correct database states and relationship with in database?
a) Data b) Relationship c) Constraints d) Schema
- iv. The database administration function includes
a) Application programming b) Computer operations management
c) Database access planning d) All of the above
- v. The command to remove rows from a table 'CUSTOMER' is:
a) REMOVE FROM CUSTOMER b) DROP FROM CUSTOMER
c) DELETE FROM CUSTOMER WHERE d) UPDATE FROM CUSTOMER
- vi. The SQL WHERE clause
a) Limits the column data that are returned. b) Limits the row data that are returned
c) Both A and B are correct. d) Neither A nor B are correct.

- vii. The HAVING clause does which of the following?
- Acts like a WHERE clause but is used for groups rather than rows.
 - Acts like a WHERE clause but is used for rows rather than columns.
 - Acts like a WHERE clause but is used for columns rather than groups.
 - Acts EXACTLY like a WHERE clause.
- viii. Color of the car and degrees of students are examples for -----
- Null attribute
 - Derived attribute
 - Single valued
 - Multi valued
- ix. An entity that does not have a key attribute is called?
- Null attribute
 - Entity Types
 - Weak entity types
 - Derived attribute
- x. Relational Algebra is a
- Procedural language
 - Non- Procedural language
 - Data definition language
- xi. A relational database consists of a collection of
- Tables
 - Fields
 - Records
 - Keys
- xii. A _____ in a table represents a relationship among a set of values.
- Column
 - Key
 - Row
 - Entry
- xiii. The term _____ is used to refer to a row.
- Attribute
 - Tuple
 - Field
 - Instance
- xiv. The term attribute refers to a _____ of a table.
- Record
 - Column
 - Tuple
 - Key
- xv. For each attribute of a relation, there is a set of permitted values, called the _____ of that attribute.
- Domain
 - Relation
 - Set
 - Schema
- xvi. A domain is atomic if elements of the domain are considered to be _____ units.
- Different
 - Indivisible
 - Constant
 - Divisible
- xvii. The tuples of the relations can be of _____ order.
- Any
 - Same
 - Sorted
 - Constant

- xviii. DBMS is software.
- True
 - False
- xix. Which of the following is not involved in DBMS?
- End User
 - Data
 - Application Request
 - HTML
- xx. A characteristic of an entity.
- Relation
 - Attribute
 - Parameter
 - Constraint

Part B

Answer **all** the Questions. **Each** question carries **ten** marks. (3Qx10M=30M)

- Discuss the main characteristics of database approach?
- Explain different types of joins with syntax and example for each.
- For the given set of functional dependencies on Relation R (ABCDEFGH) find number of candidates key $\{AB \rightarrow C\}, \{A \rightarrow DE\}, \{B \rightarrow F\}, \{F \rightarrow GH\}$

Part C

Answer **all** the Questions. **Each** question carries **ten** marks. (3Qx10M=30M)

- State the informal guidelines for relational schema design. Illustrate how violation of these guidelines may be harmful.
- With appropriate examples explain 3NF & BCNF.
- Consider the following schema and write the relational algebra expressions for the queries given below.
 - Suppliers (sid: integer , sname: string, address: string, color: string)
 - Parts (pid: integer, pname: string, color: string)
 - Catalog (sid: integer, pid: integer, cost: real)
 - "Find the names of suppliers who supply some red part."
 - "Find the IDs of suppliers who supply some red or green part."
 - "Find the IDs of suppliers who supply some red part or are at address- 221 Packer Ave"
 - Find the sids of suppliers who supply some red part and some green
 - Find the sids of suppliers who supply every part.



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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

SUMMER TERM / MAKE UP END TERM EXAMINATION

Semester: Summer 2019

Date: 27 July 2019

Course Code: CSE 207

Time: 2 Hours

Course Name: Data Base Management Systems

Max Marks: 80

Program & Sem: B.Tech & IV Sem (2016 Batch)

Weightage: 40%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts

Part A

Answer **all** the Questions. **Each** question carries **ten** marks.

(3Qx10M=30M)

1. Discuss the main characteristics of database approach?
2. Explain different types of joins with syntax and example for each
3. For the given set of functional dependencies on Relation R (ABCDEFGH) find number of candidates key & to which normal form it belongs $\{C \rightarrow F\}, \{E \rightarrow A\}, \{EC \rightarrow D\}, \{A \rightarrow B\}$

Part B

Answer **all** the Questions. **Each** question carries **ten** marks.

(3Qx10M=30M)

4. Briefly explain select and project operations with appropriate examples.
5. With appropriate examples explain 1NF & 2NF.
6. Explain the following with examples
 - i) Super key
 - ii) Candidate key
 - iii) Prime attribute

Part C

Answer **both** the Questions. **Each** question carries **ten** marks.

(2Qx10M=20M)

7. Explain properties of transaction with state transition diagram.
8. Draw an ER diagram for company database keeps track of a company's employees, departments, and projects. Suppose that after the requirements collection and analysis phase, the database designers provide the following description of the miniworld—the part of the company that will be represented in the database. The company is organized into departments. Each department has a unique name, a unique number, and a particular employee who manages the department. We keep track of the start date when that employee began managing the department. A department may have several locations. A department controls a number of projects, each of which has a unique name, a unique number, and a single location. We store each employee's name, Social Security number, address, salary, sex(gender), and birth date. An employee is assigned to one department but may work on several projects, which are not necessarily controlled by the same department. We keep track of the current number of hours per week that an employee works on each project. We also keep track of the direct supervisor of each employee (who is another employee). We want to keep track of the dependents of each employee for insurance purposes. We keep each dependent's first name, sex, birth date, and relationship to the employee. Each department offers multiple courses which has ccode, fees and duration.