| Register Number | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Batch 1 Set - A**

**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

***SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamil Nadu***

**College of Engineering and Technology**

**School of Computing**

**Academic Year: 2022-23 (Even)**

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|---|---|---|---|
| **Test** | **:** CLA-T2 | **Date** | **:** 12-04-2023 |
| **Course Code & Title** | **:** 18CSC303J – DATABASE MANAGEMENT SYSTEMS | **Duration** | **:** 8am to 9:40 am |
| **Year & Sem** **:** III Year / VI Sem<br>Instruction: MCQs to be collected within first 15 minutes | | **Max Marks** | **:** 50 |

**Course Articulation Matrix:**

| S.No. | Course Outcome | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CO2 | H | M | L | - | - | - | - | - | - | - | - | - |
| 2 | CO3 | H | M | L | - | - | - | - | - | - | - | - | - |
| 3 | CO4 | H | M | L | - | - | - | - | - | - | - | - | - |

**Part – A (10 x 1 = 10 Marks)**

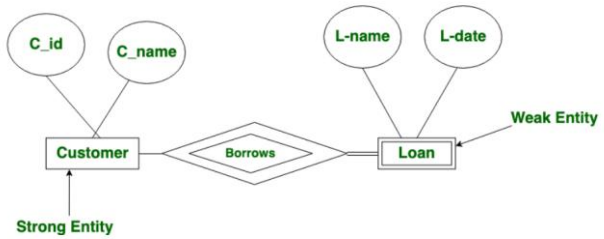
**Instructions: 1) Answer ALL questions.**

| Q. No | Question | Marks | BL | CO | PO | PI Code |
|---|---|---|---|---|---|---|
| 1 | __ key is not generated from the table data.<br>A. super key B. surrogate key<br>C. null key D. candidate key<br><br>**Answer: B** | 1 | 1 | 2 | 1 | 1.6.1 |
| 2 | _____ is the standard SQL order of execution<br>A. from, where, group by, select, order by<br>B. from, where, select, order by, group by<br>C. group by, order by. from, where, select<br>D. select, from, where, order by, group by<br>**Answer: A** | 1 | 2 | 2 | 1 | 1.6.1 |
| 3 | If E1, E2,..., En are entity sets, then a relationship set R is a _____of {(e1,e2,...,en) \| e1 ∈ E1,e2 ∈ E2,...,en ∈ En} where (e1,e2,...,en) is a relationship.<br>A. superset B. union C. subset D. intersection<br>**Answer: C** | 1 | 1 | 2 | 1 | 1.6.1 |
| 4 | _____ is a condition to manage the consistency as well integrity of the values stored in an attribute.<br>A. Assertion B. Dependency C. Constraint D. Relationship<br><br>**Answer: C** | 1 | 2 | 2 | 1 | 1.6.1 |
| 5 | A ___ in a table represents a relationship among a set of values A. row<br>B. column<br>C. key D. entity<br><br>**Answer: A** | 1 | 1 | 2 | 1 | 1.6.1 |
| 6 | _____ returns the smallest integer value that is greater than or equal to a number.<br>A.ceil() B. abs()<br>C.pos() D. floor()<br><br>**Answer: A** | 1 | 2 | 4 | 2 | 2.7.2 |
| 7 | Transaction Control Language (TCL) Commands are_____<br>A.Commit,Rollback,Savepoint B.grant,revoke C.Commit,revoke<br>D.revoke,rollback,savepoint<br><br>**Answer : A** | 1 | 1 | 4 | 1 | 1.6.1 |
| 8 | _____ Statement is used to remove a SAVEPOINT that you have created.<br>A.Remove Savepoint B.Delete Savepoint | 1 | 1 | 4 | 2 | 2.6.1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | C.Release Savepoint D.Drop Savepoint<br><br>**Answer: C** | | | | | |
| 9 | _____ are automatically created by Oracle whenever an SQL statement is executed<br>A.Stored Procedure B.VIEWS C.Implicit Cursors D.Explicit Cursors<br><br>**Answer: C** | 1 | 2 | 4 | 2 | 2.6.1 |
| 10 | _____ runs the query and display the required result.<br>A.Execution Engine B. Parser C.Optimizer D.Compiler<br><br>**Answer: A** | 1 | 1 | 4 | 2 | 2.6.1 |

| Register Number | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Batch 1 Set - A**

| Part – B (4 x 4 = 16 Marks) Instructions: Answer ANY FOUR questions | | | | | | |
|---|---|---|---|---|---|---|
| **Q. No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| 11 | Compare strong and weak entity with an example.<br>**Strong Entity:**<br>A strong entity is not dependent on any other entity in the schema. A strong entity will always have a primary key. Strong entities are represented by a single rectangle. The relationship of two strong entities is represented by a single diamond.<br>**Weak Entity:**<br>A weak entity is dependent on a strong entity to ensure its existence. Unlike a strong entity, a weak entity does not have any primary key. It instead has a partial discriminator key. A weak entity is represented by a double rectangle.<br>  | 4 | 3 | 2 | 2 | 2.7.2 |
| 12 | Define entity set and relationship set<br>• An entity refers to any object having-<br>Either a physical existence such as a particular person, office, house or car.<br>Conceptual existence such as a school, a university, a company or a job.<br>• A relationship set is a set of relationships of same type. | 4 | 3 | 2 | 1 | 1.6.1 |
| 13 | Create a view from the table Employee to display the names of employee who are all coming from the city 'Chennai'.<br><br>Create view view_name as select name from employee where city = 'Chennai'. | 4 | 3 | 2 | 2 | 2.6.1 |
| 14 | You are appointed as a Project head and in need of granting database privileges to a user. Write the SQL queries to<br>I. Grant the user system privilege to log into the "project" database to give all permissions. (2marks)<br><br>GRANT ALL<br>ON PROJECT<br>TO OTHER_USER;<br><br>II. Revoke all privilges from the user.(2 marks)<br>REVOKE ALL PRIVILEGES FROM OTHER_USER; | 4 | 3 | 4 | 2 | 2.6.1 |
| 15 | Given below are the two tables, Table1(id,name) and Table2(id,city).<br>Table 1 Table 2<br><br>Write the query and result of cross join and natural join operation.<br><br>cross join:<br><br>select *from t1 cross join t2; | 4 | 3 | 4 | 2 | 2.6.1 |

| ID | NAME |
|---|---|
| 1 | kevin |
| 3 | Ram |
| 5 | Ramla |

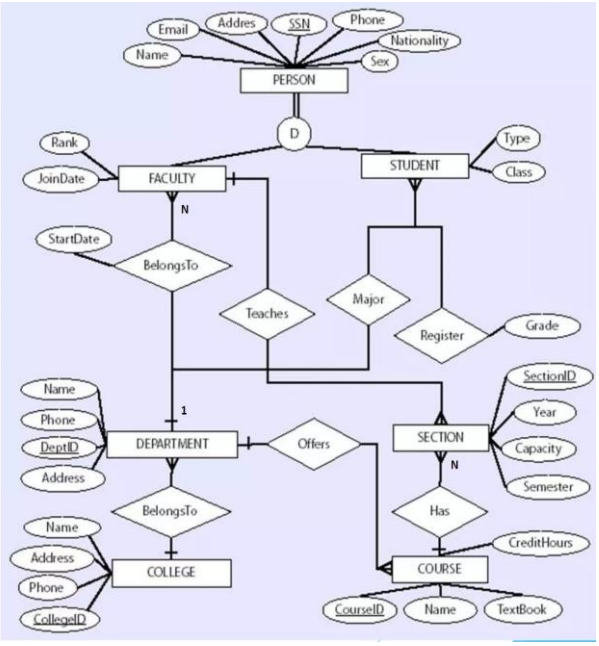
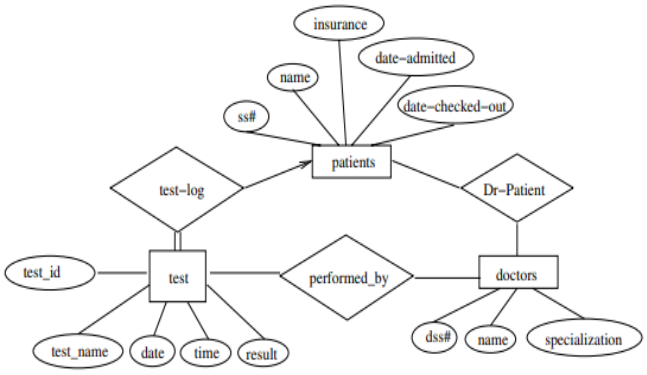
| ID | CITY |
|---|---|
| 1 | Delhi |
| 2 | Bombay |

```
ID NAME       ID CITY
-- ---------------------
 1 kevin      1 Delhi
 3 Ram        1 Delhi
 5 Ramla      1 Delhi
 1 kevin      2 Bombay
 3 Ram        2 Bombay
 5 Ramla      2 Bombay
```

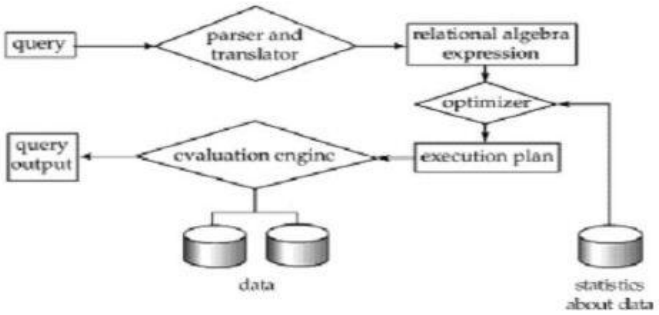
Natural join:

select *from t1 natural join t2;

```
 ID NAME        CITY
--- ----------- ----
  1 kevin      Delhi
```

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Part – C Answer all ( 2 x 12 = 24 Marks)** | | | | | |
| **16 a.** | You are working as a database designer in an University project. The objective is to design the schema to store student, instructor, department, course, building details.<br>i) Design the ER diagram with the entities and relationships (6 marks)<br>ii) Illustrate the keys, and mapping cardinalities.(6 marks)<br>  <br> | 12 | 4 | 3 | 3 | 3.6.2 |
| | **(OR)** | | | | | |
| **16 b** | Convert the ER diagram into tabular form using the standard rules and brief them.<br>• **Rules specification-4 marks**<br>• **Conversion into tables- 6 marks**<br>  <br><br>1. **Patients(ss , namr, insurance, date-admitted, date-checked-out)** [Simple attributes]<br>2. **Doctors (dss, name, specialization)** [Simple attributes]<br>3. **Test (test-id,ss, test-name, date, time, result)** [For Binary Relationship With Cardinality Constraint and Total Participation Constraint From One Side] | 12 | 4 | 3 | 3 | 3.6.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 4. **Dr-patient(ss, dss)** [For Binary Relationship With Cardinality Ratio m:n]<br>5. **Performed_by(test_id, dss)** [For Binary Relationship With Cardinality Ratio m:n] | | | | | |
| **17 a** | **Employee : (Emp_id, Empname,Dept, Salary)**<br>**Department: (D_id,Dept_name,location)**<br>**Each query 3 marks**<br>I. Write a Query to display the employee name which includes the characters 'dh'.<br>**Select name from employee where name like '%dh%'.**<br>II. Write a Query to Order the salary field in descending order for the employees who are all working at location 'Mumbai.<br>**Select * from employees where location = 'Mumbai' order by salary desc.**<br>III. Write a Query to Display the employees whose salary is more than the minimum salary of the 'IT' department.<br>**select * from employees where salary>(select min(salary) from employees group by dept having(dept='IT'));**<br>IV. Display employee details who are getting the Second highest Salary in the Employee table?<br>**SELECT name, MAX(salary) AS salary**<br>**FROM employee**<br>**WHERE salary IN**<br>**(SELECT salary FROM employee MINUS SELECT MAX(salary)**<br>**FROM employee);**<br>**Or**<br>**SELECT name, MAX(salary) AS salary**<br>**FROM employee**<br>**WHERE salary <> (SELECT MAX(salary)**<br>**FROM employee);**<br>**(OR)** | 12 | 4 | 4 | 3 | 3.6.2 |
| **17b** | I. Create a stored procedure in PL/SQL to display the old salary and new salary when the salary gets updated in the Employee Table. (6 marks)<br>**create or replace trigger salarychanges**<br>**before insert or update on employee**<br>**for each row**<br>**when (new.eno>0)**<br>**declare**<br>**sal_diff number;**<br>**begin**<br>**sal_diff:=:new.salary - :old.salary;**<br>**dbms_output.put_line('Old Salary = '\|\| :old.salary);**<br>**dbms_output.put_line('New Salary = '\|\| :new.salary);**<br>**dbms_output.put_line('Salary Difference = '\|\| sal_diff);**<br>**end;**<br>**/**<br>II. Illustrate and explain the various steps in SQL query processing by Query optimizer . (6 marks)<br>**Basic Steps in Query Processing**<br>1. Parsing and translation<br>2. Optimization<br>3. Evaluation | 12 | 4 | 4 | 3 | 3.6.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| |  | | | | | |

**Course Outcome (CO) and Bloom's level (BL) Coverage in Questions**