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Grade	18.00 out of 20.00 (90%)

Question 1

Complete

Mark 2.00 out of 2.00

The relation scheme given below is used to store information about the employees of a company, where empId is the key and deptId indicates the department to which the employee is assigned. Each employee is assigned to exactly one department.

emp(empId, name, gender, salary, deptId)

Consider the following SQL query:

```
select deptId, count(*)  
from emp  
where gender = "female" and salary > (select avg(salary) from emp)  
group by deptId;
```

The above query gives, for each department in the company, the number of female employees whose salary is greater than the average salary of

- A. female employees in the department
- B. female employees in the company
- C. employees in the department
- D. employees in the company

The correct answer is: employees in the company

Question 2

Complete

Mark 2.00 out of 2.00

Consider the set of relations shown below and the SQL query that follows.

Students: (Roll_number, Name, Date_of_birth)

Courses: (Course number, Course_name, Instructor)

Grades: (Roll_number, Course_number, Grade)

select distinct Name

```
from Students, Courses, Grades
where Students.Roll_number = Grades.Roll_number
and Courses.Instructor = Korth
and Courses.Course_number = Grades.Course_number
and Grades.grade = A
```

Which of the following sets is computed by the above query?

- A. Names of students who have got an A grade in at least one of the courses taught by Korth
- B. None of the above
- C. Names of students who have got an A grade in all courses taught by Korth
- D. Names of students who have got an A grade in all courses

The correct answer is: Names of students who have got an A grade in at least one of the courses taught by Korth

Question 3

Complete

Mark 2.00 out of 2.00

Given two relations R1(A, B) and R2(C, D), the result of following query

Select distinct A, B

from R1, R2;

is guaranteed to be same as R1 provided one of the following condition is satisfied.

- A. Both R1 and R2 have no duplicates.
- B. R1 has no duplicates and R2 is non - empty.
- C. R2 has no duplicates and R1 is non - empty.
- D. R1 has no duplicates and R2 is empty.

The correct answer is: R1 has no duplicates and R2 is non - empty.

Question 4

Complete

Mark 2.00 out of 2.00

Which of the following is the aggregate function in SQL?

- A. Select
- B. Orderd by
- C. distinct
- D. Avg

The correct answer is: Avg

Question 5

Complete

Mark 2.00 out of 2.00

Which of the following command is used to delete a table in SQL?

- A. Delete
- B. Truncate
- C. Remove
- D. Drop

The correct answer is: Drop

Question 6

Complete

Mark 2.00 out of 2.00

In SQL, relations can contain null values, and comparisons with null values are treated as unknown. Suppose all comparisons with a null value are treated as false. Which of the following pairs is not equivalent?

- A. $x=5 \text{ AND } \text{not}(\text{not}(x=5))$
- B. None of the above
- C. $x=5 \text{ AND } x > 4 \text{ and } x < 6$, where x is an integer
- D. $x \neq 5 \text{ AND } \text{not}(x=5)$

The correct answer is: $x \neq 5 \text{ AND } \text{not}(x=5)$

Question 7

Complete

Mark 0.00 out of 2.00

Consider the following relational schema:

Suppliers(sid:integer, sname:string, city:string, street:string)

Parts(pid:integer, pname:string, color:string)

Catalog(sid:integer, pid:integer, cost:real)

Consider the following relational query on the above database:

SELECT S.sname

FROM Suppliers S

WHERE S.sid NOT IN (SELECT C.sid

FROM Catalog C

WHERE C.pid NOT IN (SELECT P.pid

FROM Parts P

WHERE P.color <> 'blue'))

Assume that relations corresponding to the above schema are not empty. Which one of the following is the correct interpretation of the above query?

- A. Find the names of all suppliers who have supplied only blue parts.
- B. Find the names of all suppliers who have not supplied a non-blue part.
- C. None
- D. Find the names of all suppliers who have supplied a non-blue part.
- E. Find the names of all suppliers who have not supplied only blue parts.

The correct answer is: Find the names of all suppliers who have not supplied only blue parts.

Question 8

Complete

Mark 2.00 out of 2.00

Which of the following statements are TRUE about an SQL query?

- P : An SQL query can contain a HAVING clause even if it does not have a GROUP BY clause.
- Q : An SQL query can contain a HAVING clause only if it has a GROUP BY clause.
- R : All attributes used in the GROUP BY clause must appear in the SELECT clause.
- S : Not all attributes used in the GROUP BY clause need to appear in the SELECT clause

- A. P and S
- B. Q and R
- C. P and R
- D. Q and S



The correct answer is: P and S

Question 9

Complete

Mark 2.00 out of 2.00

Consider the relations $r1(P, Q, R)$ and $r2(R, S, T)$ with primary keys P and R respectively. The relation $r1$ contains 2000 tuples and $r2$ contains 2500 tuples. The maximum size of the join $r1 \bowtie r2$ is :

- A. 4500
- B. 2000
- C. 5000
- D. 2500

The correct answer is: 2000



Question 10

Complete

Mark 2.00 out of 2.00

Consider the following relation

Cinema (theater, address, capacity)

Which of the following options will be needed at the end of the SQL query

SELECT P1.address

FROM Cinema P1

Such that it always finds the addresses of theaters with maximum capacity?

- A. WHERE P1.Capacity > Any (select max (P2.Capacity) from Cinema P2)
- B. WHERE P1.Capacity >= Any (select P2.Capacity from Cinema P2)
- C. WHERE P1.Capacity >= All (select P2.Capacity from Cinema P2)
- D. WHERE P1.Capacity > All (select max(P2.Capacity) from Cinema P2)

The correct answer is: WHERE P1.Capacity >= All (select P2.Capacity from Cinema P2)

