Quiz on Advance SQL

Note: The correct answers are highlighted in yellow colour.

1. Supppose you are given relations r(A,B) with tuples { (a, 10), (b, 20), (c, 30)} and s(A, C) with tuples {(a, x), (c, z)}.

Then the result of **select** * **from** r **natural left outer join** s is

a. (a, 10, x) (c, 30, z) (b, 20, null)
b. (a, 10, x) (c, 30, z)
c. (c, 30, z) (a, 10, x)
d. none of the above

2. The query below aims to find the number of instructors in each department. How should I fill in the 2 blanks below, to make sure that departments without instructors are shown with a count of 0?

select dept_name, count(_____)
from department _____ instructor
group by dept_name

a) ***, natural join**
b) ***, right outer join**
c) ID, **left outer join**
d) ***, left outer join**

3. Consider the following two queries

Q1: **select** * **from** department **where** dept_name **in (select** dept_name **from** instructor)
Q2: **select** department.* **from** department **as** D **join** instructor **as** I **on** (D.dept_name = I.dept_name)
The two queries return the same multiset of values on a particular database instance if:

a) Each instructor is in exactly one department
b) Each department has at most one instructor
c) Each department has at most two instructors
d) They can never return the same multiset of tuples on any database instance.

4. Match each expression in the left hand side with its result in the right hand side.

a) r.A = null (when r.A has the null value) ----- unknown

b) sum(r.A) (when r has 3 tuples, with values 4, 5 and null for r.A) ---- 9

c) r.A + 9 (when r.A has the null value) ----- null

d) (r.A < 5) OR (r.A >= 5), when r.A is null ------ unknown

e) (r.A < 5) **or** (r.A **is null**) **or** (r.A >= 5) ------- true

5. Fill in the blanks to make the second query give the same result as the first query

select * **from** r **where** r.A **in** (**select** s.C **from** s **where** s.B = 5)

select * **from** r **where** r.A **exists** (**select** s.C **from** s **where** s.B = 5 _____)

a. **or** r.A = s.A

b. **or** r.A = s.C

c. **and** r.A = s.A

d. **and** r.A = s.C

6. Consider the following query with a blank

select _____, **sum**(salary)
from instructor **natural join** department
group by dept_name, building

Which all of the following alternatives are syntactically correct for filling in the blank in the query below. Mark all correct answers.

a. dept_name, building
b. dept_name
c. building
d. ID, dept_name, building

7. Select the best matching answer from those below, to fill in the blank in the statement:

An attribute declared to be a foreign key _____

a. Must have its value present in the referenced table, unless the referenced table has a null value.
b. Must have its value present in the referenced table
c. Should not have its value present in the referenced table
d. Must have its value present in the referenced table, unless its value is null

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