2018 U.S. Information Technology Collegiate Conference
Database Design Competition
Part 4: Database Knowledge Quiz (10 questions)

For all of the queries shown, you may assume that the table and column names exist in the database. Select *one answer, unless indicated otherwise by the problem*.

1. Which of the following does NOT return a customer with the last name THOMPSON in the query results?
   a. SELECT * FROM customers;

   b. SELECT * FROM customers
      WHERE lastname LIKE '%T%';

   c. SELECT * FROM customers
      WHERE lastname = 'THOMPSON';

   d. SELECT * FROM customers
      WHERE lastname = '_SON';

2. How would you write an expression that would display only the last digit of a person's phone number?

   a. It cannot be determined because it is dependent upon how the phone number is stored in the phone number field.

   b. SUBSTR(phone_number, -1, 4)

   c. SUBSTR(phone_number, -4, 1)

   d. SUBSTR(phone_number, 10, 1)

3. Which of the following statements are valid SQL statements? (Select all that apply)
   (NOTE: TRUNC is equivalent to TRUNCATE in MYSQL)

   a. SELECT SUBSTR(ROUND(14.87, 2, 1), -4, 1) FROM DUAL;
   b. SELECT LTRIM(LPAD(state, 5, ' '), 4, -3, "*") FROM DUAL;
   c. SELECT TRUNC(ROUND(125.65, 1), 0) FROM DUAL;
   d. SELECT ROUND(TRUNC(125.65, 0) FROM DUAL;

4. The LINE_ITEM table contains 4 columns, all Integer: LINE_ITEM_ID, ORDER_ID, PRODUCT_ID, and QUANTITY. You must display the order number, line item number, product identification number and quantity of each item, where the quantity ranges from 10 to 100 (inclusive). The order numbers must be in the range of 1500 through 1575 (not inclusive). The results must be sorted by order number from lowest to highest, then further sorted by quantity from highest to lowest. Which statement would achieve the desired results?

   a. SELECT order_id, line_item_id, product_id, quantity
      FROM line_item
      WHERE (quantity > 10 AND quantity < 100)
      AND order_id BETWEEN 1500 and 1575
      ORDER BY order_id ASC, quantity;

   b. SELECT order_id, line_item_id, product_id, quantity
      FROM line_item
      WHERE (quantity >= 10 OR quantity <= 100)
      AND (order_id > 1500 AND order_id < 1575)
      ORDER BY order_id ASC, quantity

   c. SELECT order_id, line_item_id, product_id, quantity
      FROM line_item
      WHERE quantity BETWEEN 9 and 101
      AND order_id BETWEEN 1500 and 1575
      ORDER BY order_id DESC, quantity DESC;

   d. SELECT order_id, line_item_id, product_id, quantity
      FROM line_item
      WHERE (quantity >= 10 AND quantity <= 100)
      AND (order_id > 1500 AND order_id < 1575)
      ORDER BY order_id ASC, quantity DESC;

5. Consider the following SELECT statement:

```
SELECT bonus   FROM salary
WHERE bonus BETWEEN 1 and 250
OR (bonus IN (190, 500, 600)
AND bonus BETWEEN 250 and 500);
```

Which bonus value(s) could the statement return? (Select all that apply)

   a. 260
   b. 100
   c. 600
   d. 400

6. Consider the TEACHER table:

ID	LAST_NAME	FIRST_NAME	SUBJECT_ID
88	Tsu	Ming	HST AMER
70	Smith	Ellen	
56	Jones	Karen	HST_REVOL
58	Hann	Jeff	
63	Hopewell	Mary	HST_RELIG

```
SELECT last_name
FROM teacher
WHERE subject_id != NULL
ORDER BY last_name;
```

Which value is displayed LAST when executing this query?

a. Hann
b. Smith
c. No rows are displayed
d. Syntax error occurs

7. Which of the following SQL statements can be executed on any simple or complex View? (Choose all that apply)

   a. DELETE
   b. UPDATE
   c. INSERT
   d. SELECT

8. Which of the following statements is true?

   a. The IN operator cannot be used with a subquery that returns only one value
   b. A subquery can be nested only in the outer query's WHERE clause
   c. The = operator cannot be used with a subquery that returns multiple values
   d. In an uncorrelated subquery, statements in the outer query are executed first, then statements in the inner query are executed

9. What is true concerning the following SQL statement? (Choose all that apply)

```
SELECT region_name, country_name
FROM regions NATURAL JOIN countries;
```

a. This is an example of an inner join.
b. There must be a primary key/foreign key relationship between the two tables.
c. This is an example of an outer join.
d. There must be a column with the same name in both of the tables.

10. What are the results of the following SELECT statement, with the table named SCORES:

```
SCORE_ID   TEST_SCORE
------------  --------------
1              95
2
3              85

ORACLE:  SELECT AVG(NVL(test_score, 0))  FROM SCORES;
MySQL:  SELECT AVG(IFNULL(test_score, 0))  FROM SCORES;
SQL Server:  SELECT AVG(ISNULL(test_score, 0))  FROM SCORES;
```

a. It will result in an error due to a syntax error in the NVL (or ISNULL) function.
b. 60
c. 90
d. 0, since the NVL/ISNULL function substitutes 0 for all of the non-null values