Writing SQL Queries

Given the tables,

- Clowns(cid integer, cname text, booth text)
- Balloons(bid integer, bshape text, bcolor text)
- Catalog(cid integer, bid integer, cost float)

Note: The Catalog table contains prices for Balloons sold by different Clowns standing at certain booths in a fair.

1. How may we query for the top 3 most expensive shapes sold by Whompers LeFou?

2. How many different colors are available at each booth?

3. What is the average cost of a red balloon at booths that offer more than 3 red shapes per clown? Note that each clown at the booth does not necessarily have to be selling more than 3 shapes.
4. The following relational schema represents a large database describing Olympic medalists.

medalist(name, country, birthday);
games(year, city, country);
medals(name, year, category, medaltype);

Which of the following queries returns the total number of medals broken down by type (gold, silver, and bronze) for each country in the ‘vault’ competition. (Select all that apply.)

A. SELECT medalists.country, 
   medals.medaltype, 
   COUNT(*) AS medal_count
FROM medals, medalists 
WHERE medalists.name = medals.name 
AND medals.category = 'vault'
GROUP BY medalists.country, medals.medaltype

B. SELECT games.country, 
   medals.medaltype, 
   COUNT(medals.medaltype) AS medal_count
FROM medals, games
AND games.year = medals.year
HAVING medals.category = 'vault'
GROUP BY games.country, medals.medaltype

C. SELECT medalists.country, 
   medals.medaltype, 
   COUNT(*) AS medal_count
FROM medals, medalists 
WHERE medalists.name = medals.name 
GROUP BY medalists.country, medals.medaltype, medals.category
HAVING category = 'vault'

D. FROM medals, games
SELECT games.country, 
   medals.medaltype, 
   COUNT(medals.medaltype) AS medal_count
AND games.year = medals.year
AND medals.category = 'vault'
GROUP BY games.country, medals.medaltype
SQL Joins

Note: You do not always have to use the JOIN keyword to join SQL tables. The following are equivalent:

\[
\begin{align*}
\text{SELECT column1, column2} \\
\text{FROM table1, table2} \\
\text{WHERE table1.id = table2.id;}
\end{align*}
\]

\[
\begin{align*}
\text{SELECT column1, column2} \\
\text{FROM table1 JOIN table2} \\
\text{ON table1.id = table2.id;}
\end{align*}
\]

5. Describe which records are returned from each type of join.

SQL

6. Circle TRUE or FALSE.

(a) True False SQL is a declarative language that specifies what to produce but not how to compute it.

(b) True False The primary key of a relation is the column or set of columns that determine the values of the remaining column.

(c) True False The schema of a table consists of the data stored in the table.

(d) True False The WHERE and HAVING clause can be used interchangeably as they perform the same operation.