1 mark each->

Here are 10 multiple-choice questions (MCQs) related to SQL queries in the context of a bank management database. Each question is followed by the correct answer (indicated in parentheses).

1. What does the SQL statement SELECT do in the context of a bank management database?

   a. Insert new records into a table.

   b. Retrieve data from one or more tables. (Correct)

   c. Update existing records in a table.

   d. Delete records from a table.

2. Which SQL clause is used to filter the results of a SELECT query?

   a. SET

   b. WHERE (Correct)

   c. JOIN

   d. GROUP BY

3. To calculate the total balance of all savings accounts, which SQL function would you use?

   a. SUM (Correct)

   b. AVG

   c. COUNT

   d. MAX

4. In a bank management system, if you want to list the customers with account balances greater than $10,000, which SQL query should you use?

   a. SELECT FROM customers WHERE balance = 10000

   b. SELECT FROM customers WHERE balance > 10000 (Correct)

   c. SELECT FROM customers WHERE balance < 10000

   d. SELECT FROM customers WHERE balance = 10000 OR balance > 10000

5. Which SQL statement is used to add a new record to a table in a bank management database?

   a. ADD

b. CREATE

c. INSERT INTO (Correct)

d. UPDATE

6. To retrieve a list of transactions made by a specific customer named "John Doe," you would use the SQL statement:

a. SELECT FROM transactions WHERE customer = 'John Doe'

b. SELECT FROM transactions WHERE customer_id = 'John Doe'

c. SELECT FROM transactions WHERE customer_name = 'John Doe'

d. SELECT FROM transactions WHERE customer_id = (SELECT customer_id FROM customers WHERE name = 'John Doe') (Correct)

7. Which SQL clause is used to combine rows from two or more tables in a SELECT query in a bank management database?

a. WHERE

b. HAVING

c. JOIN (Correct)

d. FROM

8. If you want to retrieve a unique list of branch names from a bank's branches table, which SQL keyword should you use?

a. DISTINCT (Correct)

b. UNIQUE

c. UNIQUEKEY

d. UNIQUENAME

9. To update the account balance of a specific customer in a bank management database, which SQL statement should you use?

a. UPDATE customer SET balance = 10000 WHERE name = 'John Doe'

b. MODIFY customer SET balance = 10000 WHERE name = 'John Doe'

c. ALTER customer UPDATE balance = 10000 WHERE name = 'John Doe'

d. UPDATE customers SET balance = 10000 WHERE name = 'John Doe' (Correct)

10. Which SQL clause is used to group rows that have the same values in specified columns, such as calculating the total balance per branch in a bank management system?

a. SORT BY

b. GROUP BY (Correct)

c. MERGE

d. COMBINE

2 marks each->

Here are 5 multiple-choice questions (MCQs) related to SQL queries based on a bank management system, along with the correct answers:

Customers Table:

CustomerID	Name	AccountType
1	John Doe	Savings
2	Jane Smith	Checking
3	Mike Johnson	Savings
4	Sarah Lee	Checking
5	David White	Savings

Transactions Table:

TransactionID	CustomerID	Amount	TransactionDate
1	1	500	2023-01-15
2	2	1000	2023-01-20
3	3	800	2023-01-25
4	4	1200	2023-02-05
5	1	600	2023-02-10

Question 1: What will the following SQL query retrieve?

```sql
SELECT C.Name, SUM(T.Amount) AS TotalBalance
FROM Customers C
JOIN Transactions T ON C.CustomerID = T.CustomerID
GROUP BY C.Name
HAVING TotalBalance > 1000;
```

a. The total balance of each customer.

b. The names of customers with a total balance greater than $1000. (Correct)

c. All transactions with an amount greater than $1000.

d. The total balance of all customers.

Question 2: Which SQL statement is used to find the customer who made the largest single transaction (by amount) in January 2023?

a. `SELECT CustomerID, MAX(Amount) FROM Transactions WHERE YEAR(TransactionDate) = 2023 AND MONTH(TransactionDate) = 1;`

b. `SELECT Name, MAX(Amount) FROM Customers JOIN Transactions ON Customers.CustomerID = Transactions.CustomerID WHERE YEAR(TransactionDate) = 2023 AND MONTH(TransactionDate) = 1;` (Correct)

c. `SELECT Name, MAX(Amount) FROM Transactions WHERE YEAR(TransactionDate) = 2023 AND MONTH(TransactionDate) = 1;`

d. `SELECT CustomerID, Name, MAX(Amount) FROM Customers JOIN Transactions ON Customers.CustomerID = Transactions.CustomerID WHERE YEAR(TransactionDate) = 2023 AND MONTH(TransactionDate) = 1;`

Question 3: What is the result of this SQL query?

```sql
SELECT AccountType, COUNT() AS NumberOfCustomers
```

```
FROM Customers

GROUP BY AccountType

HAVING COUNT() > 1;
```

a. The total number of customers for each account type.

b. The number of customers who have more than one account. (Correct)

c. The number of accounts for each customer type.

d. The number of customers for each account type.

Question 4: How can you retrieve the names of customers who have both savings and checking accounts?

a. `SELECT Name FROM Customers WHERE AccountType = 'Savings' AND AccountType = 'Checking';`

b. `SELECT Name FROM Customers WHERE AccountType = 'Savings' OR AccountType = 'Checking';`

c. `SELECT Name FROM Customers WHERE CustomerID IN (SELECT CustomerID FROM Customers WHERE AccountType = 'Savings') AND CustomerID IN (SELECT CustomerID FROM Customers WHERE AccountType = 'Checking');` (Correct)

d. `SELECT Name FROM Customers WHERE EXISTS (SELECT 1 FROM Customers AS C1 WHERE C1.CustomerID = Customers.CustomerID AND C1.AccountType = 'Savings') AND EXISTS (SELECT 1 FROM Customers AS C2 WHERE C2.CustomerID = Customers.CustomerID AND C2.AccountType = 'Checking');`

Question 5: What does the following SQL query do?

```sql
SELECT Name, SUM(Amount) AS TotalBalance

FROM Customers

LEFT JOIN Transactions ON Customers.CustomerID = Transactions.CustomerID

GROUP BY Name;
```

a. It lists the total balance for each customer, including those with no transactions. (Correct)

b. It lists the total balance for each customer but excludes customers with no transactions.

c. It lists the total balance for customers with only checking accounts.

d. It lists the total balance for customers with only savings accounts.

Certainly! Here are 5 more multiple-choice questions (MCQs) related to SQL queries based on a bank management system, along with the correct answers:

Customers Table:

CustomerID	Name	AccountType
1	John Doe	Savings
2	Jane Smith	Checking
3	Mike Johnson	Savings
4	Sarah Lee	Checking
5	David White	Savings

Transactions Table:

TransactionID	CustomerID	Amount	TransactionDate
1	1	500	2023-01-15
2	2	1000	2023-01-20
3	3	800	2023-01-25
4	4	1200	2023-02-05
5	1	600	2023-02-10

Question 6: What does the following SQL query retrieve?

```sql
SELECT CustomerID, AVG(Amount) AS AvgTransaction
FROM Transactions
GROUP BY CustomerID
HAVING AvgTransaction > 800;
```

a. The average transaction amount for each customer.

b. The total balance for each customer.

c. The names of customers with an average transaction amount greater than $800. (Correct)

d. The names of customers with more than $800 in their accounts.

Question 7: Which SQL statement can be used to find the customer who has made the largest number of transactions?

a. `SELECT CustomerID, MAX(NumberOfTransactions) FROM (SELECT CustomerID, COUNT(TransactionID) AS NumberOfTransactions FROM Transactions GROUP BY CustomerID);`

b. `SELECT CustomerID, MAX(TransactionCount) FROM Customers LEFT JOIN (SELECT CustomerID, COUNT(TransactionID) AS TransactionCount FROM Transactions GROUP BY CustomerID) AS Subquery;` (Correct)

c. `SELECT CustomerID, MAX(TransactionCount) FROM Customers JOIN (SELECT CustomerID, COUNT(TransactionID) AS TransactionCount FROM Transactions GROUP BY CustomerID) AS Subquery ON Customers.CustomerID = Subquery.CustomerID;`

d. `SELECT CustomerID, MAX(TransactionCount) FROM Customers JOIN (SELECT CustomerID, COUNT(TransactionID) AS TransactionCount FROM Transactions GROUP BY CustomerID) AS Subquery ON Customers.CustomerID = Subquery.CustomerID;`

Question 8: What does the following SQL query do?

```sql
SELECT AccountType, COUNT() AS NumberOfCustomers
FROM Customers
GROUP BY AccountType
```

```
HAVING COUNT() > 1;
```

a. The total number of customers for each account type.

b. The number of customers who have more than one account. (Correct)

c. The number of accounts for each customer type.

d. The number of customers for each account type.

Question 9: How can you retrieve the names of customers who have the highest total balance?

a. `SELECT Name FROM Customers WHERE TotalBalance = MAX(TotalBalance);`

b. `SELECT Name FROM Customers WHERE TotalBalance = (SELECT MAX(TotalBalance) FROM Customers);` (Correct)

c. `SELECT Name FROM Customers GROUP BY Name HAVING TotalBalance = MAX(TotalBalance);`

d. `SELECT Name FROM Customers WHERE TotalBalance = (SELECT MAX(TotalBalance) FROM Customers) GROUP BY Name;`

Question 10: What is the result of the following SQL query?

```sql
SELECT T.CustomerID, C.Name, COUNT(T.TransactionID) AS NumberOfTransactions
FROM Customers C
LEFT JOIN Transactions T ON C.CustomerID = T.CustomerID
GROUP BY T.CustomerID, C.Name
HAVING NumberOfTransactions = 0;
```

a. The names of customers with no transactions.

b. The total number of transactions for each customer.

c. The names of customers with more than one transaction.

d. The names of customers with no transactions. (Correct)

These questions and answers continue to provide a challenge with more advanced SQL queries in the context of a bank management database.

11. To retrieve a list of customers who have made the highest transaction amount within each branch, you should use which SQL statement?

a. SELECT FROM transactions WHERE amount = MAX(amount) GROUP BY branch_id

b. SELECT MAX(amount), customer_id FROM transactions GROUP BY branch_id

c. SELECT customer_id, MAX(amount) FROM transactions GROUP BY branch_id HAVING MAX(amount)

d. SELECT branch_id, MAX(amount) FROM transactions GROUP BY branch_id (Correct)

12. In the context of a bank management database, which SQL command is used to delete all transactions older than one year?

a. REMOVE

b. DELETE FROM transactions WHERE transaction_date < DATEADD(YEAR, -1, GETDATE())

c. DELETE FROM transactions WHERE DATEDIFF(YEAR, transaction_date, GETDATE()) > 1 (Correct)

d. DROP

13. You want to find the top 5 customers with the highest account balances. Which SQL statement should you use?

a. SELECT FROM customers ORDER BY balance DESC LIMIT 5

b. SELECT FROM customers ORDER BY balance DESC FETCH FIRST 5 ROWS ONLY

c. SELECT FROM customers ORDER BY balance DESC OFFSET 0 ROWS FETCH NEXT 5 ROWS ONLY

d. SELECT FROM customers ORDER BY balance DESC LIMIT 5 (Correct)

14. In a bank management system, how would you list all customers who have both savings and checking accounts?

a. SELECT FROM customers WHERE account_type = 'savings' AND account_type = 'checking'

b. SELECT FROM customers WHERE account_type = 'savings' OR account_type = 'checking'

c. SELECT FROM customers WHERE customer_id IN (SELECT customer_id FROM accounts WHERE account_type = 'savings') AND customer_id IN (SELECT customer_id FROM accounts WHERE account_type = 'checking') (Correct)

d. SELECT FROM customers JOIN accounts ON customers.customer_id = accounts.customer_id WHERE account_type = 'savings' AND account_type = 'checking'

15. To find the total number of transactions made by each branch, which SQL statement should you use?

a. SELECT branch_id, COUNT(transaction_id) FROM transactions GROUP BY branch_id

b. SELECT COUNT(transaction_id) FROM transactions WHERE branch_id = DISTINCT branch_id

c. SELECT COUNT(transaction_id) AS total_transactions, branch_id FROM transactions GROUP BY branch_id

d. SELECT branch_id, SUM(transaction_id) FROM transactions GROUP BY branch_id (Correct)

16. You want to retrieve the last transaction for each customer. What SQL statement would you use?

a. SELECT FROM transactions WHERE transaction_id = MAX(transaction_id) GROUP BY customer_id

b. SELECT FROM transactions WHERE transaction_id = (SELECT MAX(transaction_id) FROM transactions GROUP BY customer_id)

c. SELECT FROM transactions WHERE transaction_id = (SELECT MAX(transaction_id) FROM transactions) GROUP BY customer_id

d. SELECT FROM transactions WHERE transaction_id = (SELECT MAX(transaction_id) FROM transactions WHERE customer_id = transactions.customer_id) (Correct)

17. To calculate the average balance of customers who have made at least three transactions, which SQL query should you use?

a. SELECT AVG(balance) FROM customers HAVING COUNT(SELECT transaction_id FROM transactions WHERE transactions.customer_id = customers.customer_id) >= 3

b. SELECT AVG(balance) FROM customers WHERE (SELECT COUNT(transaction_id) FROM transactions WHERE transactions.customer_id = customers.customer_id) >= 3

c. SELECT AVG(balance) FROM customers WHERE customer_id IN (SELECT customer_id FROM transactions GROUP BY customer_id HAVING COUNT(transaction_id) >= 3) (Correct)

d. SELECT AVG(balance) FROM customers WHERE (SELECT COUNT() FROM transactions WHERE transactions.customer_id = customers.customer_id) >= 3

18. In a bank management system, you want to retrieve a list of customers who have both a checking account and a savings account at the same branch. What SQL query would you use?

a. SELECT FROM customers WHERE account_type = 'checking' AND account_type = 'savings' GROUP BY branch_id

b. SELECT FROM customers WHERE customer_id IN (SELECT customer_id FROM accounts WHERE account_type = 'checking' AND branch_id IN (SELECT branch_id FROM accounts WHERE account_type = 'savings'))

c. SELECT FROM customers WHERE EXISTS (SELECT 1 FROM accounts AS a1 WHERE a1.customer_id = customers.customer_id AND a1.account_type = 'checking') AND EXISTS (SELECT 1 FROM accounts AS a2 WHERE a2.customer_id = customers.customer_id AND a2.account_type = 'savings') (Correct)

d. SELECT FROM customers JOIN accounts ON customers.customer_id = accounts.customer_id WHERE account_type = 'checking' AND account_type = 'savings'

19. To find the total interest earned by the bank in a given year on all fixed deposits, what SQL statement should you use?

a. SELECT SUM(interest_earned) FROM transactions WHERE transaction_type = 'fixed deposit' AND YEAR(transaction_date) = [year]

b. SELECT SUM(interest_earned) FROM transactions WHERE transaction_type = 'fixed deposit' AND EXTRACT(YEAR FROM transaction_date) = [year] (Correct)

c. SELECT SUM(interest_earned) FROM transactions WHERE transaction_type = 'fixed deposit' AND DATEPART(YEAR, transaction_date) = [year]

d. SELECT SUM(interest_earned) FROM transactions WHERE transaction_type = 'fixed deposit' AND YEAR = [year]

20. To list all customers who have made transactions on weekdays (Monday to Friday), what SQL statement should you use?

a. SELECT FROM customers WHERE WEEKDAY(transaction_date) BETWEEN 0 AND 4

b. SELECT FROM customers WHERE DATEPART(WEEKDAY, transaction_date) BETWEEN 1 AND 5 (Correct)

c. SELECT FROM customers WHERE DAYOFWEEK(transaction_date) BETWEEN 1 AND 5

d. SELECT FROM customers WHERE EXTRACT(DAY FROM transaction_date) BETWEEN 1 AND 5