Databases CS 340
Quiz 2 - V4

Name:
ID:

- Do not copy from others or share answers.
- Mobile phones and electronic devices are strictly prohibited.
- Any unfair means will result in cancellation of your paper.
- Attempt all questions and write answers in the space provided.

Section A: MCQS (5 x 2 = 10 marks)

Q1. Suppose you want rows 20–30 of products ordered by Name. Which clause is correct?

a. ORDER BY Name OFFSET 20 ROWS FETCH NEXT 10 ROWS ONLY;
b. ORDER BY Name OFFSET 21 ROWS FETCH NEXT 10 ROWS ONLY;
c. ORDER BY Name OFFSET 19 ROWS FETCH NEXT 11 ROWS ONLY;
d. ORDER BY Name OFFSET 20 ROWS FETCH NEXT 11 ROWS ONLY;

Q2. You want to list all products and any sales order numbers they appear in. Products with no sales should still be shown.

Tables: SalesLT.Product, SalesLT.SalesOrderDetail, SalesLT.SalesOrderHeader

a. INNER JOIN across all three tables
b. LEFT JOIN from Product → SalesOrderDetail → SalesOrderHeader
c. RIGHT JOIN from Product → SalesOrderDetail → SalesOrderHeader
d. FULL OUTER JOIN

Q3. What is a risk here if CustomerID is optional (nullable) in SalesOrderHeader?

```
(SELECT CompanyName
FROM Customer c
WHERE c.CustomerID = o.CustomerID) AS CompanyName
```

a. Always returns CompanyName
b. Returns multiple CompanyName values
c. Might return NULL for some rows

d. Causes syntax error

Q4. Consider the following query:

```
SELECT MIN(ListPrice) AS LowestPrice,
    MAX(ListPrice) AS HighestPrice,
    SUM(StandardCost) AS TotalCost
FROM SalesLT.Product;
```

Suppose the SalesLT.Product table has 350 rows, where:
The lowest ListPrice is 200.00
The highest ListPrice is 5000.00
20 rows have NULL in StandardCostWhat result pattern should you expect?

a. LowestPrice = 200, HighestPrice = 5000, TotalCost excludes NULL values
b. LowestPrice = 200, HighestPrice = 5000, TotalCost includes NULL values as zero
c. LowestPrice = NULL, HighestPrice = 5000, TotalCost excludes NULL values
d. LowestPrice = 200, HighestPrice = NULL, TotalCost excludes NULL values

Q5. What does the virtual keyword in a method declaration indicate?

a. The method cannot be overridden
b. The method can be overridden in derived classes
c. The method must be implemented in derived classes
d. The method hides inherited methods

Section B: Theory (2 x 8 = 16 marks)

Q1. What is the purpose of the CHOOSE function in SQL, and how does it determine which value to return?

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Q2. Describe a scenario where a self-join would be necessary.

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Q3. What happens to unmatched rows in an outer join?

Q4. What is a predicate in the context of the WHERE clause?

Q5. Write a sorting clause for a query to sort products column by category ascending and price column descending.

Q6. How does OFFSET-FETCH work in T-SQL?

Q7. What happens if you include a column in SELECT that is not in GROUP BY or an aggregate function?

Q8. You run this query:

```
SELECT UPPER(Name) AS ProductName,
    LEFT(ProductNumber, 2) AS ProductType,
    SUBSTRING(ProductNumber, CHARINDEX('-', ProductNumber) + 1, 4) AS
ModelCode
FROM SalesLT.Product;
```

If ProductNumber = 'FR-M94X-38' and Name = 'Road Frame', what result is returned?

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