

**Databases CS 340**  
**Quiz 2 - V3**

<b>Name:</b>
<b>ID:</b>

- 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. You run the query:

```
SELECT Name, ListPrice
FROM SalesLT.Product
ORDER BY ListPrice DESC, Name ASC;
```

Which of the following best describes how the rows are ordered?

- a. Products are listed alphabetically. If two names are identical, the one with the higher ListPrice comes first.
- b. Products are listed by ListPrice from highest to lowest. If two products have the same price, they are ordered alphabetically by Name.
- c. Products are grouped alphabetically by Name. Within each group, ListPrice values are sorted from highest to lowest.
- d. Products are ordered first by ListPrice descending, then Name descending, because ASC is the default and has no effect.

Q2. A query retrieves all product names, categories, and purchase order numbers. It uses a LEFT OUTER JOIN for product orders and an INNER JOIN for categories. Why is INNER JOIN necessary here?

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

- a. Because category info must always exist for a product
- b. To exclude products without sales orders
- c. To allow unmatched rows in all tables
- d. To simulate a cross join

Q3. What does this condition check?

```
WHERE EXISTS (SELECT 1 FROM SalesOrderDetail od
WHERE od.ProductID = p.ProductID AND od.OrderQty > 10)
```

- a. That product p has at least one order with OrderQty > 10
- b. That all orders of product p have OrderQty > 10
- c. That no order of p has OrderQty <= 10
- d. That product p is never ordered

Q4. You are asked to retrieve order shipping details from SalesLT.SalesOrderHeader.

Consider the following query:

```
SELECT SalesOrderID,
ROUND(Freight, 2) AS FreightCost,
LOWER(ShipMethod) AS ShippingMethod,
YEAR(ShipDate) AS ShipYear,
DATENAME(mm, ShipDate) AS ShipMonth,
DAY(ShipDate) AS ShipDay
FROM SalesLT.SalesOrderHeader;
```

What will this query return?

- a. Order IDs, freight values (rounded to 2 decimals), ship method in lowercase, and shipping year, month number, and day
- b. Order IDs, freight values (rounded to whole numbers), ship method unchanged, and shipping year, month name, and day
- c. Order IDs, freight values (rounded to 2 decimals), ship method in lowercase, and shipping year, month name, and day
- d. Only Order IDs and freight costs

Q5. In ADO.NET, which object is used to establish a connection to SQL Server?

- a. SqlCommand
- b. SqlConnection
- c. SqlDataReader
- d. SqlDataAdapter

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

Q1. What is a correlated subquery, and how does it work?

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Q2. Is it possible to sort by columns not included in the SELECT list? How?

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Q3. Write the required clause for the query to return products with a category of 2 or 4 and price less than 10.

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Q4. What is the difference between a scalar function and an aggregate function?

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Q5. Why does SQL raise an error if you select a column that isn't part of the GROUP BY or an aggregate function?

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Q6. How does a LEFT OUTER JOIN differ from a RIGHT OUTER JOIN?

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Q7. What is the difference between GROUP BY and DISTINCT?

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Q8. What clause is used in T-SQL to sort query results?

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