1. List the five basic search conditions to restrict retrieved rows with the WHERE clause, and explain how they are used.

1. Comparison -   Compares the value of expression A to the value of expression B.

2. Range -   Tests if the value of the expression is within a specific range or values.

3. Set membership -   Test if the value of the express equals to one of the set of values.

4. Pattern match -   Test if the String matches a specific pattern.

5. Null -   Test if a column contains a NULL value.

2. Explain the DATEADD and DATEDIFF commands.

DATEADD command -   This command returns a new datetime value, which is based on adding an interval to the specified date. The result is a datetime value equal to the date plus the number of date parts.

DATEDIFF command -   This command returns the number of date and time boundaries crossed between two specified dates.

3. Explain the aggregate operators COUNT, SUM, and AVG.

COUNT -   returns the number of rows which contain non-null values,
SUM -   returns the sum of the values in a specified column, and
AVG -   returns the average of the values in a specified column.

EMP_1 Table

4. Write the SQL code that will list all the attributes for a job code of 502.
SELECT *
FROM EMP_1
WHERE JOB_CODE = '502'

5. Write the SQL code required to list all employees whose last names start with Smith.
SELECT *
FROM EMP_1
WHERE EMP_LNAME LIKE 'Smith%'

6. Write the SQL code that will produce a listing for the data in descending order by the last name.
SELECT *
FROM EMP_1
ORDER BY EMP_LNAME DESC

7. Write the SQL code that will list only the different job codes found in the table.

SELECT DISTINCT JOB_CODE
FROM EMP_1

8. Create the SQL query that will produce a list of customers who have an unpaid balance, listing the balances in descending order by customer balances. The query should produce the result set listing below.

SELECT CUS_LNAME, CUS_FNAME, CUS_INITIAL, CUS_BALANCE
FROM CUSTOMER
WHERE CUS_BALANCE > 0
ORDER BY CUS_BALANCE DESC

9. Create the SQL query that will find the average unpaid customer balance, the minimum balance, the maximum balance, and the total of the unpaid balances. The query should produce the result set listing below.

SELECT AVG(CUS_BALANCE) AS AverageBalance,
MIN(CUS_BALANCE) AS MinimumBalance,
MAX(CUS_BALANCE) AS MaximumBalance,
SUM(CUS_BALANCE) AS TotalUnpaidBills
FROM CUSTOMER

10. Write the query to count the number of customers with a customer balance over $500.
SELECT COUNT(*)
FROM CUSTOMER
WHERE CUS_BALANCE > 500

11. Using the CHARTER table shown above, write the SQL query that will list the date, aircraft number, destination, distance, and hours flown for aircraft number 2778V. The query should produce the result set listing below.
SELECT DISTINCT CHAR_DATE,
AC_NUMBER,
CHAR_DESTINATION,
CHAR_DISTANCE,
CHAR_HOURS_FLOWN
FROM CHARTER
WHERE AC_NUMBER = '2778V'

12. List the two mandatory clauses in a SELECT command.
1. SELECT
2. FROM

13. Explain the logical operator AND, OR, and NOT.

AND - combines two search conditions that must both be true.
OR - combines two search conditions when one or the other must be true
NOT - selects rows where a search condition is false.

14. List the four data manipulation commands, and explain their purpose.

1. SELECT command is used to retrieve and display data from one or more database tables.
2. INSERT command is used to add new rows of data in a table.

3. UPDATE command is used to modify existing data in a table
4. DELETE command is used to remove rows of data from a table.

15. In SQL Server, what are literals?
Literal are constants used in SQL statements. Non-numeric data vales are enclosed in single quotes, and numeric values are not enclosed in single quotes.