V1

Mcq

1. C
2. A
3. D
4. C
5. D

V2

Mcq

1. B
2. A
3. B
4. A
5. C

V3

Mcq

1. B
2. D
3. C
4. D
5. A

V4

Mcq

1. B
2. B
3. C
4. B
5. D

V5

Mcq

1. B
2. B
3. A
4. C
5. D

Version 1 (V1)

1. Can a table have more than one clustered index?
   → No, only one clustered index is allowed since it determines the physical order of rows on disk.

2. What needs to be done to create a clustered index on a column other than the primary key?
   → Define the primary key as NONCLUSTERED.

3. What clause is used to specify the filegroup when creating an index?
   → ON <filegroup_name>

4. Why might you want to store a table on a separate disk using a secondary filegroup?
   → To improve I/O throughput and parallelize disk operations.

5. What is a heap in SQL Server?
   → A table without a clustered index; data is stored without any specific order.

6. What structure is used as a row location in a non-clustered index, and what does it contain?
   → Row ID (RID), which stores File ID, Page number, and Row number.

7. What happens when a query runs on a table without an index?
   → SQL Server performs a full table scan, checking all rows.

Version 2 (V2)

1. How many extents are stored in 1024 bytes?
   → 16.

2. What is the fundamental unit of data storage in SQL Server?
   → Page.

3. What is the result of defining a clustered index on a column in a different filegroup?
   → It moves the table's data to that secondary filegroup.

4. Can a table have multiple non-clustered indexes?
   → Yes, to speed up lookups on columns frequently used in WHERE clauses.

5. Why can too many non-clustered indexes slow down performance?
   → Each insert, update, or delete must also modify all related indexes.

6. Where are indexes stored in SQL Server?
   → In index pages.

7. Mention any two data types stored outside the regular data pages.
   → `varchar(max)` and `xml`.

Version 3 (V3)

1. What type of extent can be shared by up to eight objects?
   → Mixed extent.

2. What does a differential backup contain?
   → All extents that have been modified since the last full backup.

3. How do you assign a value to a T-SQL variable?
   → `SET @variable_name = value;`

4. Which T-SQL statement can assign a variable's value from a query?
   → `SELECT`.

5. What is the primary purpose of the `EXISTS` predicate in an IF statement?
   → To check efficiently whether any matching rows exist.

6. What is the purpose of table variables?
   → To temporarily store multiple rows of data in memory.

7. Which clause executes a table-valued function for every row of another table?
   → `CROSS APPLY`.

Version 4 (V4)

1. How many clustered indexes can a SQL Server table have?
   → Only one, because it defines the physical row order.

2. Why store a table on a secondary filegroup?
   → To distribute I/O and improve performance across disks.

3. Define a heap and explain its storage.
   → A table without a clustered index; rows are stored in unsorted order.

4. What identifies rows in a non-clustered index?
   → A Row ID containing File ID, Page number, and Row number.

5. What is stored in index pages?
   → The structure and data of indexes.

6. What kind of queries benefit most from non-clustered indexes?
   → Equality searches, JOINs, GROUP BY, and aggregate queries.

7. Why might too many indexes reduce DML performance?
   → Because SQL Server must update each index after every insert, update, or delete.

Version 5 (V5)

1. What distinguishes a clustered index from a heap?
   → A clustered index defines physical row order; a heap does not.

2. What command is used to assign a value to a T-SQL variable?
   → `SET`.

3. How does `EXISTS` improve IF condition checks?
   → It efficiently verifies whether any matching rows exist.

4. Name two data types stored off-row.
   → `varchar(max)` and `xml`.

5. What is the difference between a stored procedure and a user-defined function (UDF)?
   → Functions can be used in SELECT statements; stored procedures cannot.

6. What is a key benefit of using stored procedures over direct SQL queries?
   → Better performance, security, and code modularity.

7. What does a differential backup include?
   → All modified extents since the last full backup.