**1. What does ADO.NET stand for?**

a) Active Database Objects for .NET  
b) ActiveX Data Objects for .NET  
c) Advanced Data Objects for .NET  
d) Application Data Objects for .NET

**Answer:** b) ActiveX Data Objects for .NET

**2. Which of the following is NOT a data provider in ADO.NET?**

a) System.Data.SqlClient  
b) System.Data.OleDb  
c) System.Data.JsonClient  
d) System.Data.Odbc

**Answer:** c) System.Data.JsonClient

**3. What is the purpose of SqlConnection in ADO.NET?**

a) Execute SQL queries  
b) Read data from a database  
c) Establish and manage a connection to SQL Server  
d) Retrieve data from a DataTable

**Answer:** c) Establish and manage a connection to SQL Server

**4. Which ADO.NET class is used for executing SQL queries or stored procedures?**

a) SqlCommand  
b) SqlDataAdapter  
c) SqlTransaction  
d) SqlConnection

**Answer:** a) SqlCommand

**5. Which of the following classes provides forward-only, read-only access to data?**

a) SqlDataReader  
b) SqlDataAdapter  
c) DataSet  
d) DataTable

**Answer:** a) SqlDataReader

**6. What is the primary function of a DataSet in ADO.NET?**

a) Maintain an open connection to a database  
b) Execute SQL commands  
c) Store data in memory in a disconnected manner  
d) Read data in a forward-only manner

**Answer:** c) Store data in memory in a disconnected manner

**7. Which class in ADO.NET acts as a bridge between a database and a DataSet?**

a) SqlCommand  
b) SqlDataReader  
c) SqlDataAdapter  
d) SqlTransaction

**Answer:** c) SqlDataAdapter

**8. What method of SqlCommand is used to retrieve a single value from the database?**

a) ExecuteReader()  
b) ExecuteNonQuery()  
c) ExecuteScalar()  
d) ExecuteTransaction()

**Answer:** c) ExecuteScalar()

**9. Which of the following represents an in-memory representation of a database table?**

a) DataRow  
b) DataColumn  
c) DataTable  
d) DataAdapter

**Answer:** c) DataTable

**10. Which ADO.NET component supports transaction management?**

a) SqlTransaction  
b) SqlDataAdapter  
c) DataSet  
d) SqlDataReader

**Answer:** a) SqlTransaction

**11. What is the role of SqlDataAdapter.Fill()?**

a) It executes a SQL command  
b) It fetches data and fills a DataSet  
c) It opens a database connection  
d) It writes data to the database

**Answer:** b) It fetches data and fills a DataSet

**12. What is the purpose of the ConnectionString property in ADO.NET?**

a) To specify the SQL query to be executed  
b) To store credentials and database details  
c) To execute transactions  
d) To manipulate data in a DataTable

**Answer:** b) To store credentials and database details

**13. In which namespace is SqlConnection found?**

a) System.Data.SqlClient  
b) System.Data.Odbc  
c) System.Data.OleDb  
d) Microsoft.Data.SqlClient

**Answer:** a) System.Data.SqlClient

**14. What does the ExecuteNonQuery() method return?**

a) A dataset containing the query results  
b) The number of rows affected  
c) A single value from the query  
d) A SqlDataReader object

**Answer:** b) The number of rows affected

**15. What is the purpose of DataView in ADO.NET?**

a) Provides a forward-only view of data  
b) Allows sorting and filtering of a DataTable  
c) Executes SQL commands  
d) Establishes database connections

**Answer:** b) Allows sorting and filtering of a DataTable

**16. What is the default state of a newly created SqlConnection object?**

a) Open  
b) Closed  
c) Pending  
d) Connecting

**Answer:** b) Closed

**17. Which method of SqlDataReader is used to advance to the next record?**

a) Next()  
b) MoveNext()  
c) Read()  
d) Fetch()

**Answer:** c) Read()

**18. What is the purpose of the BeginTransaction() method in ADO.NET?**

a) To commit a transaction  
b) To initiate a new database connection  
c) To start a new database transaction  
d) To rollback changes

**Answer:** c) To start a new database transaction

**19. What is the main advantage of a DataSet over a DataReader?**

a) DataSet allows disconnected access to data  
b) DataSet is faster than DataReader  
c) DataReader supports multiple tables  
d) DataSet can only be used with SQL Server

**Answer:** a) DataSet allows disconnected access to data

**20. What method is used to rollback a transaction in ADO.NET?**

a) Rollback()  
b) UndoTransaction()  
c) CancelTransaction()  
d) Reset()

**Answer:** a) Rollback()

**21. Which of the following is NOT a valid data provider in ADO.NET?**

a) System.Data.SqlClient  
b) System.Data.OleDb  
c) System.Data.TextReader  
d) System.Data.Odbc

**Answer:** c) System.Data.TextReader

**22. What is the role of the Update() method in SqlDataAdapter?**

a) Fetches data from the database  
b) Updates changes from DataSet to the database  
c) Opens a database connection  
d) Executes a SELECT command

**Answer:** b) Updates changes from DataSet to the database

**23. Which ADO.NET class represents a single row in a DataTable?**

a) DataSet  
b) DataRow  
c) DataView  
d) DataColumn

**Answer:** b) DataRow

**24. Which property of SqlCommand is used to execute a stored procedure?**

a) QueryType  
b) ExecuteType  
c) CommandType  
d) ConnectionString

**Answer:** c) CommandType

**25. What does the GetString() method of SqlDataReader do?**

a) Reads a string from the specified column index  
b) Converts the entire DataReader object into a string  
c) Returns an SQL command as a string  
d) Fetches all records as a single string

**Answer:** a) Reads a string from the specified column index

**26. What is the main purpose of the SqlBulkCopy class?**

a) Perform bulk insert operations  
b) Read large amounts of data from a table  
c) Delete bulk data from the database  
d) Execute transactions in bulk

**Answer:** a) Perform bulk insert operations

**27. Which property of DataView is used to filter data?**

a) FilterCondition  
b) RowFilter  
c) SearchFilter  
d) DataFilter

**Answer:** b) RowFilter

**28. What is the difference between ExecuteReader() and ExecuteScalar()?**

a) ExecuteReader() returns multiple rows, while ExecuteScalar() returns a single value  
b) ExecuteReader() is for SELECT statements, while ExecuteScalar() is for INSERT statements  
c) ExecuteReader() modifies the database, while ExecuteScalar() only reads data  
d) ExecuteReader() works with stored procedures, while ExecuteScalar() does not

**Answer:** a) ExecuteReader() returns multiple rows, while ExecuteScalar() returns a single value

**29. What is the purpose of the HasRows property in SqlDataReader?**

a) Checks if a DataTable has rows  
b) Returns true if the DataReader contains any rows  
c) Counts the number of rows in a DataReader  
d) Determines if a transaction is active

**Answer:** b) Returns true if the DataReader contains any rows

**30. What does the Fill() method of SqlDataAdapter do?**

a) Updates data in the database  
b) Loads data into a DataSet or DataTable  
c) Opens a new database connection  
d) Writes data to a text file

**Answer:** b) Loads data into a DataSet or DataTable

**31. What is the purpose of OdbcConnection in ADO.NET?**

a) Connect to an SQL Server database  
b) Connect to an ODBC data source  
c) Connect to a NoSQL database  
d) Connect to a web API

**Answer:** b) Connect to an ODBC data source

**32. Which class in ADO.NET represents a database command for an ODBC data source?**

a) SqlCommand  
b) OleDbCommand  
c) OdbcCommand  
d) OdbcReader

**Answer:** c) OdbcCommand

**33. Which of the following is an advantage of using parameterized queries?**

a) Prevents SQL injection attacks  
b) Reduces database size  
c) Increases the number of database connections  
d) Avoids using the DataSet

**Answer:** a) Prevents SQL injection attacks

**34. What does the OdbcDataAdapter class do?**

a) Executes SQL queries  
b) Provides data to a DataSet from an ODBC source  
c) Manages ODBC transactions  
d) Reads data row by row

**Answer:** b) Provides data to a DataSet from an ODBC source

**35. Which class represents a transaction in ODBC?**

a) OdbcTransaction  
b) OdbcCommand  
c) OdbcConnection  
d) OdbcAdapter

**Answer:** a) OdbcTransaction

**36. What does the DefaultView property of DataTable return?**

a) A new DataTable instance  
b) A DataView object  
c) A SqlDataReader object  
d) A DataSet instance

**Answer:** b) A DataView object

**37. Which namespace is recommended for modern SQL Server interactions in .NET 6+?**

a) System.Data.SqlClient  
b) Microsoft.Data.SqlClient  
c) System.Data.OleDb  
d) System.Data.Odbc

**Answer:** b) Microsoft.Data.SqlClient

**38. What is a major security feature of Microsoft.Data.SqlClient?**

a) Always Encrypted  
b) Read-only access  
c) Limited connection pooling  
d) Supports only SELECT statements

**Answer:** a) Always Encrypted

**39. Which method is used for asynchronous query execution?**

a) ExecuteQueryAsync()  
b) ExecuteReaderAsync()  
c) QueryAsync()  
d) ExecuteAsync()

**Answer:** b) ExecuteReaderAsync()

**40. What does the Table property of DataSet return?**

a) A list of SQL queries  
b) A collection of DataTable objects  
c) A SqlDataReader instance  
d) A SqlCommand object

**Answer:** b) A collection of DataTable objects

**41. What is the purpose of SqlDataAdapter.Update()?**

a) Synchronizes DataSet changes with the database  
b) Executes an SQL query  
c) Reads data in a forward-only manner  
d) Closes an active connection

**Answer:** a) Synchronizes DataSet changes with the database

**42. What is a primary advantage of ODBC over other data providers?**

a) It is specific to SQL Server  
b) It works with multiple database systems  
c) It is faster than SqlClient  
d) It is used only for NoSQL databases

**Answer:** b) It works with multiple database systems