1. **What is C#?**

**Ans**: C# is a modern Object Oriented and Type Safe Programming Language. It enables developers to build many types of secure and robust applications that run in. C# is often used to develop professional, dynamic websites on .NET platform or open-source software.

1. **Can we use keywords as an identifier? Why?**

**Ans**: No, Keywords cannot be used as an identifier as they are predefined reserve words used in programming that have special meanings to the complier. They are part of the syntax.

1. **Explain any 5 String Operation Methods.**

**Ans**:

1. Length(): Its used to get the length of a String.
2. Concat(): Its used to join two strings.
3. EndsWith(): Its used to check if the string ends with the given string.
4. IndexOf(): It returns the specified character in the string.
5. StartsWith(): It checks if the string begins with the given string.

**10. What do you mean by loop variable?**

**Ans:** A loop variable is a variable that is set in order to execute some iteration of a loop. A loop variable is a classical fixture in programming that helps computer to handle repeated instructions.

**11.** **What do you mean by iteration?**

**Ans:** Iteration is the process where a set of instructions or statements are executed repeatedly for a specific number of times or until a condition is met. These statements also alter the control flow of the program and thus can also be specified as control statements.

**12.** **What is Array?**

**Ans:** Array is a structure representing a fixed length ordered collection of values or objects with the same type. Array makes it easier to organize and operate on large amount of data.

**14. What is Jagged array? Explain with example.**

**Ans:** A jagged array is C# is an array whose elements are arrays. The elements of a jagged array can be of different dimensions and sizes. A jagged array in sometimes called an “array of arrays”.

**22.** **How can we manage runtime errors?**

**Ans:** Runtime errors can be managed by exception handling. C# provides an in-built feature called an exception handling mechanism. Exception handling mechanism provides a way to respond to the run time errors in the program by transferring control to special code called handler. This feature allows a clean separation between error detection code or business logic and error handling code.

**23**. **What is abstract class?**

**Ans:**  Abstract class is a restricted class that cannot be used to create objects. Abstraction means hiding of important information and showing only necessary details using access modifier.

**24.** **What is a thread?**

**Ans:** A thread is defined as the execution path of the program. Each thread defines a unique flow of control. If your application involves complicated and time-consuming operations, then it is often helpful to set different execution paths or threads, with each thread performing a particular job.

**25. What is DLL?**

**Ans:** DLL stands of Dynamic Link Library. It is a library that contains functions and codes that can be used by more than one program at a time. Once we have created a DLL file, we can use it in many applications. The only thing we need to do is to add the reference/import the DLL file.

**26. What is Namespace?**

**Ans:** A namespace is a declarative region that provides a scope to the identifiers inside it. Namespace are used to organize code into logical groups and to prevent name collisions that can occur especially when your code base includes multiple libraries.

**29.** **What is difference between else if ladder and switch case?**

**Ans:** An if-else statement is a conditional statement that executes a different set of statements based on the condition that is true or false. The “if” block will be executed only when the specified condition is true, and if the specified condition is false, then the “else’ block will be executed.

Whereas A switch case is a conditional statement to check the value of a variable and compare it with all the cases. If the value is matched with any case, then its corresponding statement will be executed. Each case has some name or number known as identifier. The value entered by the user will be compared with all the cases until the case is found. If the value entered by the user is not matched with any case, then the default statement will be executed.

**30. What will occur if we not write break statement in switch case?**

**Ans:** Switch case statements are used to execute only specific case statement based on the switch expression. If we don’t use break statement at the end of each case, program will execute all consecutive case statements until it finds next break statement or till the end of switch case block.

**31.** **What is difference between entry loop and exit loop? Explain with example.**

**Ans:** Entry controlled loop is a loop in which the test condition is checked first, and then loop body will be executed. Exit controlled loop is a loop in which the loop body is executed first and then the given condition is checked afterwards. If the test condition is false, loop body will not be executed.

**Example:**

1. Do while loop is an example of Exit control loop
2. While loop and For loop are examples of Entry control loop.

**32. What do you mean by multi-dimension array?**

**Ans:** A multi-dimensional array in C# is an array that contains more than one rows to store the data. Multi-dimensional arrays are also known as rectangular array. Each row in the array has same number of elements. A multi-dimensional array can be a 2-d or a 3-d array or even more, an n-dimensional array.

**33.** **Explain 5 methods of array class with example.**

**Ans:** Below are the methods of array class:

1. **AsReadOnly():** Returns a read-only wrapper for the specific array.
2. **BinarySearch():** Searches a one-dimensional sorted Array for a value, using a binary search algorithm.
3. **Clear():** Sets a range of elements in an array to the default value of each element type.
4. **Equals():** Determines whether the specified object is equal to the current object.
5. **Find():** Searches for an element that matches the conditions defined by the specified predicate, and returns the first occurrence within the entire Array.

**36. What is difference between for loop and foreach loop?**

**Ans:** for loop executes a statement or a block of statement until the given condition is false. Whereas foreach loop executes a statement or a block of statements for each element present in the array and there is no need to define the minimum or maximum limit.

**44.** **What is dictionary? Advantages of Dictionary?**

**Ans:** Dictionary is a generic collection which is generally used to store key/value pairs. The working of Dictionary is quite similar to the non-generic hash table. The advantage of Dictionary is, it is generic type. Dictionary is defined under System. Collection

**45. What is Multithread?**

**Ans:** Multithreading is a process in which multiple threads work simultaneously. It is a process to achieve multitasking. It saves time because multiple tasks are being executed at a time.

**46.** **How to prevent class to be instantiate?**

**Ans:** A class can be declared static, indicating that it contains only static members. It is not possible to create an instance of a static class using the new keyword. Static classes are loaded automatically by the .NET Framework common language runtime (CLR) when the program or namespace containing the class is loaded. If we declare a private or protected constructor then it also prevents us from creating an instance of the class.

**48. What is mutable and immutable string?**

**Ans:** The mutable types are those whose data members can be changed after the instance is created but Immutable types are those whose data members cannot be changed after the instance is created. When we change the value of mutable objects, value is changed in same memory. But in immutable type, the new memory is created and the modified value is stored in new memory.

**51.** **What is difference between Array and List?**

**Ans:** An array stores a fixed sized sequential collection of elements of the same type, whereas list is a generic collection. List is used to collect items that usually consist of elements of multiple data types. An array is also a vital component that collects several items of the same data type. List cannot manage arithmetic operations. Array can manage arithmetic operations.

**62**. **What is generics? Explain with example.**

**Ans:** Generics allow you to define the specification of the data type of programming elements in a class or a method, until it is actually used in the program. In other words, generics allow you to write a class or method that can work with any data type.

For example, you can create a generic method to add two numbers. This method can be used to add two integers as well as two float numbers without any modification to the code. The Generics are type-safe. Generic data types provide better type safety, especially in the case of collections.

**63. What is use of method overriding?**

**Ans:** Method Overriding is a technique that allows the invoking of functions from another class (base class) in the derived class. Creating a method in the derived class with the same signature as a method in the base class is called as method overriding. Overriding is determined at runtime and is dynamic.