

COMPONENT BASED TECHNOLOGY

UNIT I

INTRODUCTION TO .NET FRAMEWORK

1. What is the use of .NET framework?

.NET Framework is a complete environment that allows developers to develop, run, and deploy the following applications:

- Console applications
- Windows Forms applications
- Windows Presentation Foundation (WPF) applications
- Web applications (ASP.NET applications)
- Web services
- Windows services

2. What are the two parts of class library?

1. Base class library
2. Framework class library

3. Define MSIL (OR) What is CIL? (OR) What is an Intermediate Language?

The .NET Framework is shipped with compilers of all .NET programming languages to develop programs. There are separate compilers for the Visual Basic, C#, and Visual C++ programming languages in .NET Framework. Each .NET compiler produces an intermediate code after compiling the source code. The **intermediate code** is common for all languages and is understandable only to .NET environment. This intermediate code is known as MSIL.

4. Define CLR.

CLR provides an environment to **execute** .NET applications on target machines. CLR is also a common runtime environment for all .NET code irrespective of their programming language, as the compilers of respective language in .NET Framework convert every source code into a common language known as MSIL or IL (Intermediate Language). CLR also provides various services to execute processes, such as memory management service and security services. CLR performs various tasks to manage the execution process of .NET applications. The responsibilities of CLR are listed as follows: Automatic memory management • Garbage Collection • Code Access Security • Code verification • JIT compilation of .NET code •

5. List any four languages available in CLS of .NET. (OR)

List the Microsoft languages assembled in .NET Framework.

1. VB.NET
2. C#
3. Jscript
4. VC++.NET

6. Define Namespace.

Namespace is the Logical group of types or we can say namespace is a container (e.g Class, Structures, Interfaces, Enumerations, Delegates etc.), example System.IO logically groups input output related features

7. What are the three major parts of .NET framework?

1. .NET Languages
2. .NET Framework Class Library
3. CLR (Common Language Runtime)

8. What is the function of JIT compiler?

The JIT compiler is an important element of CLR, which loads MSIL on target machines for execution. The MSIL is stored in .NET assemblies after the developer has compiled the code written in any .NET-compliant programming language, such as Visual Basic and C#. JIT compiler translates the MSIL code of an assembly and uses the CPU architecture of the target machine to execute a .NET application. It also stores the resulting native code so that it is accessible for subsequent calls. If a code executing on a target machine calls a non-native method, the JIT compiler converts the MSIL of that method into native code. JIT compiler also enforces type-safety in runtime environment of .NET Framework. It checks for the values that are passed to parameters of any method. For example, the JIT compiler detects any event, if a user tries to assign a 32-bit value to a parameter that can only accept 8-bit value.

Note :

MSIL	-	Microsoft Intermediate Language
CIL	-	Common Intermediate Language
CLR	-	Common Language Runtime
JIT	-	Just-In-Time compiler
CLS	-	Common Language Specification

9. What is manifest?

An assembly manifest contains all the metadata needed to specify the assembly's version requirements and security identity, and all metadata needed to define the scope of the assembly and resolve references to resources and classes. The assembly manifest can be stored in either a PE (Portable Executable) file (an .exe or .dll) with Microsoft intermediate language (MSIL) code.

10. List the versions of .NET Framework.

.NET Framework 1.0, .NET Framework 1.1, .NET Framework 2.0
.NET Framework 3.0, .NET Framework 3.5, .NET Framework 4.0

11. Which is the root namespace of .NET Framework?

System

12. Expand ASP.NET.

Active Server Pages in .NET Environment

13. Which namespace is used for .NET Web Services?

System.Web.Services

14. List any two language compilers in the .NET framework.

C#.NET compiler, VB.NET compiler

15. What is the use of Code Editor Window in Visual Studio?

Code window is used to write, display, and **edit Visual Basic code**. Open as many **Code windows** as you have modules, so you can easily view the **code** in different forms or modules, and copy and paste between them.

16. What is Visual Inheritance?

Visual inheritance allows us to reuse the windows form and also to extend the functionality in multiple forms.

17. List any two controls available in the toolbox of Visual Studio.

Windows form controls, Web form controls

18. Define .NET framework Class Library.

The Framework Class Library or FCL provides the system functionality in the **.NET Framework** as it has various classes, data types, interfaces, etc. to perform multiple functions and build different types of applications such as desktop applications, web applications, mobile applications, etc. The Framework Class Library is integrated with the Common Language Runtime (CLR) of the .NET framework and is used by all the .NET languages such as **C#, F#, Visual Basic .NET**, etc.

19. What is the use of ASP.NET?

ASP.NET is an open-source, server-side web-**application** framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, applications and services.

20. Write any two classes in the System namespace. (or)

Name any two top level namespaces present in data class of BCL.

Standardized namespace - System.Collection

Non-Standardization namespace – System.Data

21. Define Windows Forms.

Windows Form is used to create window applications that utilize CLR features. Form is a layout consisting of many components. Each of these components is considered an object of the class 'Form'.

22. What are the two ways to design windows forms?

1. The windows form is created by dragging the required components from a toolbox.
2. Windows forms can be created by writing code in languages such as c#.NET, VB.NET.

23. What is the use of <asp:> tag?

Dynamic codes usually run on a server, so you must write them within the <asp:> tag.

24. What is the use of Imap Object?

Imap Object is used to download messages in whole or in part.

25. Define WSDL.

Web Service Description Language is an XML based language used to create a webservice and to explain how to use it.

26. What is Managed Code?

If a code is executed inside the CLR and its execution is monitored throughout by the CLR, that code is called managed code.

27. What is Garbage Collection?

Once an object is created using the new operator, memory is allocated to it. But if the application is not used for a long time, the object is erased from the memory by Garbage Collector.

28. What is Meta Data?

Meta Data is data about data. When a .NET program is compiled, a table is created in the CIL assembly. This table contains information about classes, variables, methods, return types, and parameters.

29. Define Web Service. Give an Example.

Web Service is a class with many functions. If the client wants to use the methods in the Web Service, he must create an instance for that class and then call. Web Service Consumer is the name given to the user who calls the methods in the Web Service from the client computer. Example: Credit Card Use Program.

30. Define Value Type and Reference Type.

Value Type: These hold the data in their own stack. Ex: System.Drawing.Point

Reference Type: These refer to a reference without keeping the data directly.

Ex: System.Windows.Forms.Controls

31. Write about CTS?

Common Type System Commonly used in various .NET languages. CTS creates a set of object types.

32. What is the use of Server Explorer in Visual Studio?

The Server Explorer to access features such as database connection and data link over the network. Server Explorer is also used to create connections with databases such as MS-SQL SERVE

33. List the protocols used in web Service.

HTTP (Hyper Text Transfer Protocol)

XML (eXtensible Markup Language)

SOAP (Simple Obeject Access Protocol)

WSDL (Web Service Description Language)

UDDI (Universal Description Discovery and Integration)

34. What is the use of CLS?

Common Language Specification If you want to add a new language to the .Net framework, that language must meet the expectations of the CLS.

35. What is the type of memory management followed in .NET framework.

Automatic Memory Management