**ASSIGNMENT**

**1.write short note on the evolution of .NET framework and C#**

**Ans- The .NET framework, introduced by Microsoft in 2022, has undergo significant evolution. It started as a windows applications but evolved to support cross-platform development with the introduction of .NET core in 2016. In 2020, Microsoft unified it’s offerings into a single platform called .NET 5, emphasizing cross-platform compatibility, performance improvements, and modernized development experience.**

**C#- (c-sharp) is a versatile, object-oriented programming language developed by Microsoft. It debuted in 2000 and is a key component of the .NET framework known for its simplicity, type safety and scalability, C# is widely used for developing desktop, web and mobile applications on windows platforms.**

**2.Explain the following terms: mono, xamarin, COM, .NET core, unity, C#, REST**

**Ans- MONO:An open-source implementation of the .NET framework, allowing developers to run .NET applications on non-Microsoft platform.**

**XAMARIN: A cross-platform app development framework using C# and .NET, enabling developers to create native Applications for iOS, android and windows using a single code base.**

**COM(component object model):A Microsoft technology enabling communication between software components on windows systems, often used for building modular and reusable software.**

**.NET core:The open-source, cross-platform framework for building modern, cloud-based, and internet-connected applications. It’s a subset of the larger .NET framework.**

**UNITY:A popular game development engine that supports the creation of 2D,3D, augmented reality (AR) and virtual reality (VR) applications. It uses C# for scripting.**

**C#:A programming language developed by Microsoft, commonly used for building windows application, web services and games. It’s a key language in the .NET ecosystem.**

**REST(representational state transfer): An architectural style for designing networked applications, often use standard HTTP methods ( GET, POST, PUT, DELETE ) to perform operations on resources.**

**3. Critically explain any three key functions of CLR**

(a)MEMORY MANAGEMENT

-Automatic garbage collection- The common language runtime (CLR) automatically manages memory by implementing a garbage collector.

-Memory allocation and deallocation- CLR handles the allocation and deallocation of memory for object.

(b)EXECUTION OF CODE

-just-in-time compilation (JIT)- CLR uses JIT compilation to convert intermediate language (IL) code into native machine code at runtime.

-Exception handling- CLR provides a robust mechanism for handling exceptions during code execution.

(c)SECURITY

-Code access security(CAS)-CLR enforces security policies through CAS, which restricts the permissions granted to code based on it’s origin and other criteria.

-Verification of code- Before execution, CLR verifies the safety and integrity of the compiled code.