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**MATRIC-NUMBER:** -

**COURSE CODE**: COM 316

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1. **Write a short note on the evolution of .Net Framework and C# (100 words)**

Since their early 2000s debut, Microsoft's .NET Framework and C# have evolved substantially, progressing through versions with enhanced features, performance, and expanded libraries. C#, a vital language, consistently updates with modern elements for cross-platform development. The advent of .NET Core emphasized open-source collaboration, cross-platform adaptability, and improved performance. The subsequent merger of .NET Core and Framework into .NET 5 streamlined development, fostering a more cohesive environment. This ongoing evolution underscores a commitment to enhancing the .NET ecosystem's capabilities for building robust, scalable applications.

1. **Explain the following terms: Mono, Xamarin, COM, .Net Core, Unity C#, REST**
2. **Mono:** is an open-source implementation of Microsoft's .NET Framework. It allows developers to build and run cross-platform applications, supporting various operating systems such as Linux, macOS, and Windows. Mono provides a runtime environment, libraries, and tools for running .NET applications outside the Windows ecosystem.
3. **Xamarin:** is a cross-platform app development framework that allows developers to create native applications for Android and iOS using C# and the .NET framework. Xamarin leverages the Mono runtime, enabling code sharing between platforms while still delivering a native user experience.
4. **COM (Component Object Model):** COM is a binary-interface standard introduced by Microsoft for software components. It enables inter-process communication between software components on Windows. COM components can be written in various languages, facilitating integration and reusability of software modules.
5. **.NET Core:** NET Core is an open-source, cross-platform implementation of the .NET framework. It is designed for building modern, scalable, and high-performance applications that can run on Windows, Linux, and macOS. .NET Core includes a runtime, libraries, and compiler, providing flexibility and support for a wide range of application types.
6. **Unity:** Unity is a game development platform that uses C# as its primary scripting language. It allows developers to create 2D, 3D, augmented reality (AR), and virtual reality (VR) applications across multiple platforms. Unity provides a powerful and flexible environment for building interactive and immersive experiences.
7. **C#:** C# (pronounced "C sharp") is a modern, object-oriented programming language developed by Microsoft. It is a key language in the .NET ecosystem and is widely used for developing a variety of applications, including web, desktop, mobile, and game development.
8. **REST (Representational State Transfer):** REST is an architectural style for designing networked applications. It relies on a stateless communication model where each request from a client to a server contains all the information needed to understand and fulfill that request. RESTful services use standard HTTP methods (GET, POST, PUT, and DELETE) and are commonly employed in web services and APIs for building scalable and interoperable systems.
9. **Critically, explain ANY three key functions of CLR(50 words)**
10. **Memory Management:**
    * **Function:** CLR efficiently manages memory by automatically allocating and deallocating resources. It employs a garbage collector that identifies and releases unused objects, preventing memory leaks and enhancing application stability.
11. **Exception Handling:**
    * **Function:** CLR provides a robust mechanism for handling exceptions during program execution. It ensures graceful error recovery by catching and managing exceptions, preventing abrupt program termination.
12. **Code Access Security:**
    * **Function:** CLR enforces code access security, regulating the permissions and actions of code based on its origin and trust level. This protects the system from potentially harmful operations, maintaining a secure runtime environment.