**//LOKESH PANCHAL//**

**Module 11 CCNA -Automation and Programmability**

**• Beginner Question**

**1.**Explain How Automation Impacts Network Management **Ans.** Automation in network management streamlines routine tasks, reducing manual errors and enhancing efficiency. It enables rapid response to network issues, optimizes resource allocation, and ensures a more resilient and agile infrastructure.

**2.** Compare Traditional network with Controller based networking **Ans.** Traditional networks rely on distributed intelligence with individual devices making independent decisions, while controller-based networking centralizes control, offering a more dynamic and programmable infrastructure through a centralized controller managing device behavior.

**3.** Explain Virtualization **Ans.** Virtualization is the technology that allows the creation of virtual, rather than physical, instances of computing resources, enhancing efficiency and flexibility in IT environments.

**• Intermediate Question**

**1.**Describe Characteristics of REST-based API **Ans.** REST-based APIs are characterized by statelessness, using standard HTTP methods, and a uniform interface for simplicity and scalability, facilitating efficient communication and resource manipulation.

**• Advance Question**

**1.**Explain methods of Automation **Ans.** Automation methods include scripting, where predefined commands are executed automatically, and robotic process automation (RPA), involving software robots to mimic human interactions with digital systems, streamlining repetitive tasks.

**2.**Explain SDN **Ans.** Software-Defined Networking (SDN) is an architectural approach in network management that separates the control plane from the data plane, allowing centralized control through a software-based controller to dynamically manage and optimize network resources, enhancing flexibility, scalability, and efficiency.

**3.**Explain DNA Center **Ans.** Cisco DNA Center is a comprehensive network management and control platform that centralizes automation, analytics, and policy-based management for enterprise networks. It simplifies network operations, enhances security, and provides a unified view for efficient management through a single interface.

**4.**Explain SD-Access and SD-WAN **Ans.** Software-Defined Access (SD-Access) is a Cisco solution that extends the principles of Software-Defined Networking (SDN) to the access layer of the network, providing automated policy enforcement and segmentation for improved security and efficiency.

Software-Defined Wide Area Networking (SD-WAN) is a technology that simplifies the management and operation of a wide area network by decoupling the networking hardware from its control mechanism, allowing for more agile and cost-effective connectivity.