**Computer Network Lab**

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**Roll # SU92-BSSEM-F22-090**

**Section 4B**

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**Question no 1:-**

**why we use more 2911 router in network**

The Cisco 2911 router is commonly used in networks due to its balance of performance, scalability, and cost-effectiveness, making it suitable for medium-sized businesses and branch offices that require robust network services.

The Cisco 2911 router is commonly used because it offers:

1. Versatility: Supports voice, video, and data services.
2. Integrated Services: Provides routing, security, and WAN services.
3. Multiple Interfaces: Has multiple Gigabit Ethernet ports.
4. Expandability: Slots for future upgrades (e.g., interface cards).
5. Performance: Suitable for mid-sized networks like Lab-7 or Lab-8.

Other routers either lack the necessary features (lower-end) or are overpowered for small lab setups (higher-end). The 2911 is a balanced choice for such networks.

Router 4331 :-

The Cisco 4331 router provides high-performance, secure, and flexible routing for branch offices, supporting advanced services like voice, video, and data integration.

Router 4321:-

The Cisco 4321 router provides secure, reliable, and efficient network connectivity for small branch offices.

Router 1941:-

The Cisco 1941 router is used for secure and high-performance network connectivity in small to medium-sized businesses and branch offices.

Router 2901:-

The Cisco 2901 router is used to provide secure, reliable, and scalable network connectivity for small to medium-sized businesses and branch offices.

Router 2911:-

The Cisco 2911 router is used to deliver secure, scalable, and high-performance network services for medium-sized businesses and branch offices.

Router 819IOX:-

The Cisco 819 IoT router is used to provide secure and reliable connectivity for Internet of Things (IoT) applications in remote or distributed environments.

Router 819HGW:-

The Cisco 819 HGW router is used to deliver secure, high-performance connectivity for remote locations and small branch offices, often with integrated cellular capabilities.

Router 829:-

The Cisco 829 router is used to provide secure and reliable connectivity for remote and branch office locations, often in challenging or mobile environments.

Router 1240:-

The Cisco 1240 router is used to provide reliable and scalable network connectivity for medium-sized to large branch offices.

**Question no 2:-**

We use Cisco 2950T or 2960 switches because they offer:

1. Layer 2 Switching: Ideal for basic network setups, handling VLANs, MAC address learning, and frame switching.
2. Cost-Effective: Affordable for small to medium networks like Lab-7 or Lab-8.
3. Sufficient Ports: Typically have enough Fast/Gigabit Ethernet ports for connecting multiple devices.
4. Reliability: Proven performance and widely used in enterprise and educational networks.

Higher-end switches provide more advanced features (like Layer 3 routing), which are unnecessary for simple lab networks.

**Difference :**

**Switch 2960:-**

The Cisco 2960 switch is used to provide reliable and efficient Layer 2 network switching for small to medium-sized networks.

**PT-switch:-**

The **PT-switch** in Cisco Packet Tracer is used to simulate and manage network traffic and connectivity between devices within a virtual network environment.

**PT-empty:-**

The **PT-empty** device in Cisco Packet Tracer serves as a placeholder for creating and arranging custom network topologies, allowing users to build networks from scratch.

The **PT-bridge** in Cisco Packet Tracer is used to connect and extend multiple network segments, enabling communication between them as if they were a single network.

**Question no 3:-**

We use Straight Through Cables because they are designed to connect different types of devices, such as:

1. PC to Switch
2. Switch to Router

Why not others?

* Crossover Cable: Used to connect similar devices (e.g., PC to PC, switch to switch).
* Rollover Cable: Used for console connections (e.g., PC to router's console port).

In lab setups like Lab-7 or Lab-8, straight-through cables are ideal for connecting end devices to switches and switches to routers.

**Difference between :**

The purpose of **automatic connection** in Cisco Packet Tracer is to simplify network setup by selecting the correct cable type for connecting devices.

**Console:-**

In Cisco devices, the console is used for initial setup and configuration via a direct serial connection router .

**Copper straight- through :-**

A copper straight-through cable is used to connect different types of devices, such as a computer to a switch or a router to a switch.

**copper cross over:-**

A copper crossover cable is used to connect similar devices directly, such as two switches or two computers.

**Fiber :-**

**Fiber optic** cables are used for high-speed, long-distance network connections with minimal signal loss and interference.

**Phone:-**

Phone cables are used for connecting telephones to a phone line or network, typically for voice communication.

**Coaxial:-**

Coaxial cables are used for transmitting high-frequency signals, often for internet, cable TV, or broadband connections.

**USB:-**

**USB** cables are used for connecting various peripherals to a computer, such as keyboards, mice, and storage devices, or for providing power.

**Lot custom cable :-**

Custom cables are tailored to specific requirements, such as length or type, to connect unique devices or meet special networking needs.

**Octal:-**

**Octal** cables are used to connect devices that require multiple serial connections, typically for managing console ports on networking equipment.

**Serial DTE**:-

(Data Terminal Equipment) cables connect devices like computers or routers to serial interfaces, where the DTE device typically serves as the end device or terminal in the communication.