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**DEPARTMENT OF SOFTWARE ENGINEERING**

**SUPERIOR UNIVERSITY LAHORE (GOLD CAMPUS)**

**Name: MUHAMMAD AJLAL**

**Roll#: SU92-BSSEM-F22-109**

**Submitted To: Sir Rasikh Ali**

**Section: 5B**

**Subject: Computer Network**

**Task #: 1**

**Question #1: What is the difference between all the routers, and when to use them(mentioned in cisco packet tracer)**

**Answer:** In Cisco Packet Tracer, routers come in different models for specific use cases:

**Generic Routers:**

**Models: 1841, 1941, 2911, etc.**

Use: For small to medium-sized networks, basic routing functions.

**Multilayer Routers (3560, 3750):**

Use: Supports both Layer 2 switching and Layer 3 routing. Ideal for environments needing both switching and routing, like enterprise networks.

**Home Routers (819 series):**

Use: Simulate basic home or small office routers. Useful for simple home networks with fewer devices.

**ISR (Integrated Services Routers):**

Use: Provides additional services like security, VPN, and voice. Best for large networks requiring advanced services.

**Cloud Routers:**

Use: Simulates connections to cloud services. For networks with external or cloud-based resources.

**Question #2:** **What is the difference between all the switches, and when to use them (mentioned in cisco packet tracer)**

**Answer:** In Cisco Packet Tracer, switches are categorized based on their features and network size:

**Unmanaged Switches:**

**Model: 2960**

Use: Basic Layer 2 switching for small networks. No configuration needed, good for simple LANs with basic connectivity.

**Managed Switches:**

**Models: 3560, 3650, 3750**

Use: Support advanced Layer 2/Layer 3 features like VLANs, routing, and QoS. Suitable for enterprise networks with more control and complex traffic management.

**Multilayer Switches:**

**Model: 3560, 3650, 3750**

Use: Combines Layer 2 switching and Layer 3 routing in one device. Ideal for networks requiring both data switching and routing between VLANs.

**Modular Switches:**

**Model: 4500**

Use: High-density port options and advanced capabilities. Best for large-scale enterprise networks that need expansion and scalability.

**Question #3: What is the difference between all the connection wires, and when to use them (mentioned in cisco packet tracer)**

**Answer:** In Cisco Packet Tracer, the connection wires represent different types of network cables, each used for specific purposes:

**Copper Straight-through Cable:**

Use: Connects different device types (e.g., PC to switch, switch to router). Common for most LAN setups.

**Copper Crossover Cable:**

Use: Connects similar device types (e.g., PC to PC, switch to switch, router to router). Used for direct device-to-device communication.

**Fiber Optic Cable:**

Use: Long-distance, high-speed connections (e.g., switch to switch, switch to router) in larger networks or between buildings.

**Coaxial Cable:**

Use: Rare in modern networks but can connect older devices or for cable-based internet connections (WAN links).

**Serial Cable:**

Use: Connects routers for WAN links or older legacy network equipment. Often used for point-to-point connections in wide-area networks.

**Console Cable (RS-232):**

Use: Connects to the console port of a router or switch for initial configuration and management (PC to router/switch).