***THE SUPERIOR UNIVERSITY***

**COMPUTER NETWORKINGS**

**ASSIGNMENT NO 1**

**SUBMITTED TO**

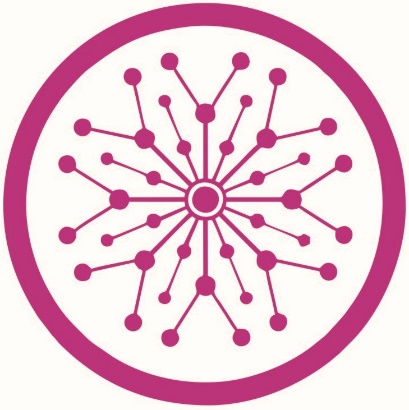
**SIR RASIKH**

**SUBMITTED BY**

**NOOR-UL-AIN(172)**

**Section-(5D)**

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***GOLD CAMPUS, 7 KM MAIN RAIWIND ROAD LAHORE***

**Lab 1 tasks:**

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

**Answer:** **Router Types**:

* **Static Router**: Configured manually to route data to specific destinations. Use when you have a simple network with fixed routes.
* **Dynamic Router**: Uses protocols (like OSPF, EIGRP) to automatically adjust routing paths. Ideal for larger or changing networks.
* **Wireless Router**: Combines routing and wireless access. Use in environments needing Wi-Fi connectivity.
* **Modem Router**: Combines a modem and router for internet connectivity. Use in home or small business setups.
* **When to Use**:
* Use static routers for small, stable networks where routes don’t change.
* Use dynamic routers in larger networks for flexibility.
* Use wireless routers in settings requiring mobile device connectivity.
* Use modem routers where internet service is provided directly.

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

**Answer:** **Switch Types:**

* **Unmanaged Switch:** Plug-and-play with no configuration needed. Good for simple, small networks.
* **Managed Switch:** Allows configuration and management. Use in larger networks for traffic management and monitoring.
* **Layer 2 Switch:** Operates at the data link layer. Use for basic local area networking.
* **Layer 3 Switch:** Can perform routing functions in addition to switching. Ideal for larger networks requiring both functionalities.

**When to Use:**

* Use unmanaged switches in small, home networks where configuration isn’t necessary.
* Use managed switches in enterprise environments where network performance and security are priorities.
* Use Layer 2 switches for basic connectivity.
* Use Layer 3 switches for advanced routing and inter-VLAN communication.

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

**Answer: Connection Wire Types:**

* **Straight-Through Cable:** Used to connect different devices (like a switch to a router). Use in standard Ethernet connections.
* **Crossover Cable:** Connects similar devices (like switch to switch). Use for direct device-to-device connections.
* **Fiber Optic Cable:** For high-speed data transfer over long distances. Use in backbone networks or where electromagnetic interference is a concern.

**When to Use:**

* Use straight-through cables for most typical networking setups.
* Use crossover cables for direct connections between similar devices.
* Use fiber optic cables when high bandwidth or long-distance communication is necessary.