Task-8

b). Configure network topology and implement static routing using Packet Tracer Software. STATIC ROUTING:

To configure network topology and implement static routing in Cisco Packet Tracer, follow these steps:

Step 1: Design the Network Topology

1. **Open Packet Tracer** and create a new project.
2. **Add Network Devices**:
   - Drag and drop routers, switches, and PCs onto the workspace.
   - For example, use **2 routers**, **2 switches**, and **4 PCs**.
3. **Interconnect the Devices**:
   - Use appropriate cables (copper straight-through for different devices, copper crossover for similar devices) to connect routers, switches, and PCs.
   - Make sure to connect the routers via serial connections interfaces.

Step 2: Configure Routers

For each router, interface IP addresses, and enable the interfaces.

Configure Router0 and Router1

- Enter the CLI of **Router0** and **Router1**
- Configure interface IP addresses:

Router configuration:

Router0
Interfaces:
Fa0/0   10.0.0.3   255.0.0.0
Serial2/0   20.0.0.1   255.0.0.0

Router1

Interfaces:
Fa0/0   30.0.0.2   255.0.0.0
Serial3/0   20.0.0.2   255.0.0.0
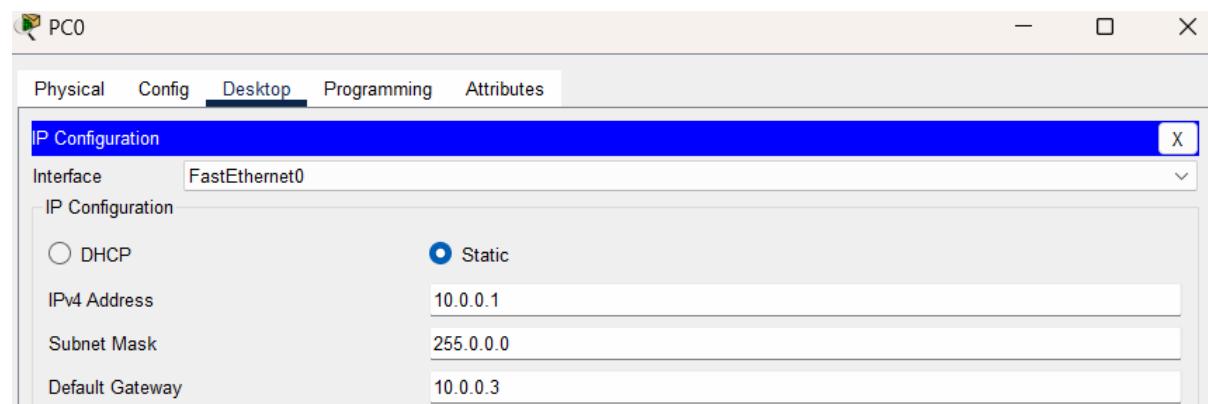
| Router 0	Router 1
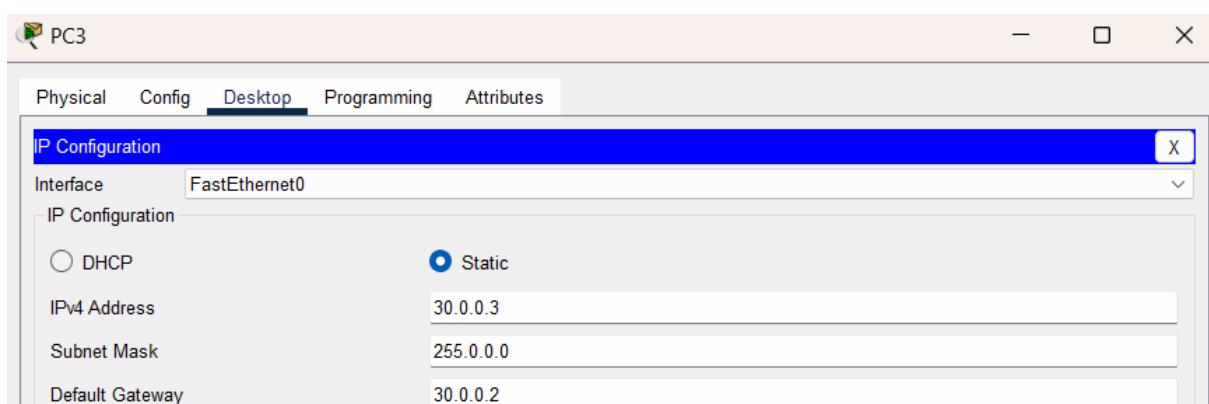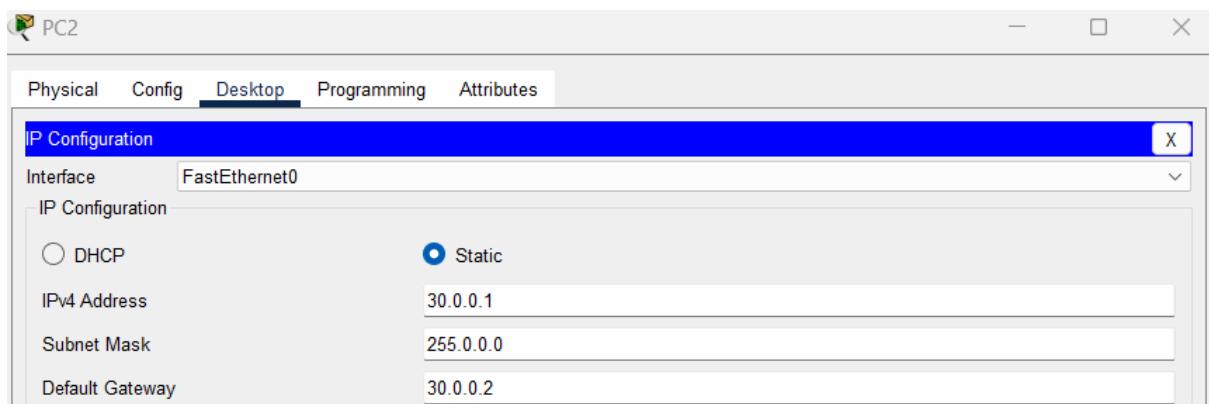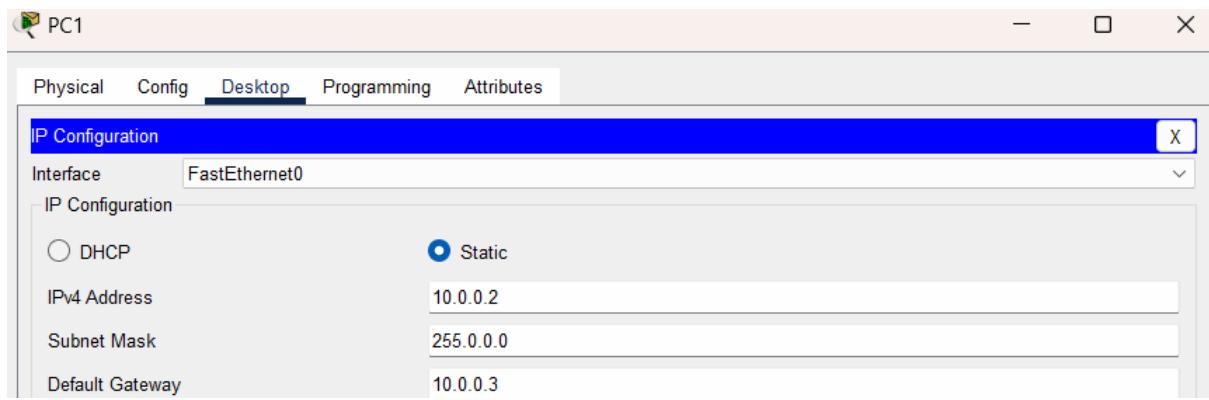
Router>en Router# Router#conf t Router(config)# Router(config)#int Fa0/0 Router(config-if)#ip address 10.0.0.3 255.0.0.0 Router(config-if)#no shut Router(config-if)#int Se2/0 Router(config-if)#ip address 20.0.0.1 255.0.0.0 Router(config-if)#no shut Router(config-if)#exit Router(config)# **Router(config)#ip route 30.0.0.0 255.0.0.0 20.0.0.2**	Router# Router#conf t Router(config)# Router(config)#int Fa0/0 Router(config-if)#ip address 30.0.0.2 255.0.0.0 Router(config-if)#no shut Router(config-if)#int Se3/0 Router(config-if)#ip add 20.0.0.2 255.0.0.0 Router(config-if)#no shut Router(config-if)#exit Router(config)# **Router(config)#ip route 10.0.0.0 255.0.0.0 20.0.0.1** %Default route without gateway, if not a point-to-point interface, may impact performance Router(config)#

Step 3: Configure PCs

Assign static IP addresses to each PC.

- **PC0**: 10.0.0.1, **Subnet Mask**: 255.0.0.0, **Default Gateway**: 10.0.0.3
- **PC1**: 10.0.0.2, **Subnet Mask**: 255.0.0.0, **Default Gateway**: 10.0.0.3
- **PC2**: 30.0.0.1, **Subnet Mask**: 255.0.0.0, **Default Gateway**: 30.0.0.2
- **PC3**: 30.0.0.3, **Subnet Mask**: 255.0..0.0, **Default Gateway**:30.0.0.2

PC1

Physical | Config | Desktop | Programming | Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration
- ( ) DHCP   (●) Static
- IPv4 Address: 10.0.0.2
- Subnet Mask: 255.0.0.0
- Default Gateway: 10.0.0.3

PC2

Physical | Config | Desktop | Programming | Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration
- ( ) DHCP   (●) Static
- IPv4 Address: 30.0.0.1
- Subnet Mask: 255.0.0.0
- Default Gateway: 30.0.0.2

PC3

Physical | Config | Desktop | Programming | Attributes

IP Configuration [X]

Interface: FastEthernet0

IP Configuration
- ( ) DHCP   (●) Static
- IPv4 Address: 30.0.0.3
- Subnet Mask: 255.0.0.0
- Default Gateway: 30.0.0.2

Step 4: Test Connectivity

- **Ping** from one PC to another (e.g., from **PC0** to **PC3**) to ensure static routing is functioning properly.