Experiment #	<TO BE FILLED BY STUDENT>	**Student ID**	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	**Student Name**	[@KLWKS_BOT] THANOS

Lab 7: Configuration of ARP and Static Routing using Cisco network switch and verify the connectivity

Date of the Session:___/___/_____ **Session Time:____to_____**

Learning outcome:

- Understand the role of a router in a computer network and its importance in facilitating communication between different network segments.
- Gain familiarity with Huawei L3 network switches and their specific features and capabilities related to router functionality and static routing.

Pre-Lab Task:

1. Explain the purpose of a router in a network infrastructure. How does a router differ from other networking devices, such as switches and hubs?

A router directs data between different networks, determining the best path for transmission. Unlike switches (Layer 2, MAC-based) and hubs (broadcasts to all devices), routers operate at Layer 3 using IP addresses for network communication.

2. Describe the key components and interfaces of a Huawei L3 network switch that enable routing functionality. What features or capabilities does the switch offer for routing?

- **Components:** CPU, memory, routing table, switching fabric, Ethernet/SFP ports.
- **Routing Features:** Static & dynamic routing, VLAN routing, ACLs for security, QoS for traffic management.

Experiment #	<TO BE FILLED BY STUDENT>	**Student ID**	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	**Student Name**	[@KLWKS_BOT] THANOS

3. What is static routing, and how does it differ from dynamic routing protocols? When would it be appropriate to use static routing in a network setup?

- **Static Routing:** Manually configured, fixed paths.
- **Dynamic Routing:** Uses protocols (OSPF, RIP, BGP) to adapt to network changes.
- **Use Static Routing:** Small/stable networks, enhanced security, predictable traffic routes.

Experiment #	<TO BE FILLED BY STUDENT>	**Student ID**	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	**Student Name**	[@KLWKS_BOT] THANOS

In Lab Task:

Basic Router setup using Huawei L3 network switch and Static Routing.

Writing space for the Problem:(For Student's use only)

Device Configuration details

Device Name(Label)	Interface	IP Address	Subnet Mask	Default Gateway address
PC0	FastEthrenet0	10.0.0.2	255.0.0.0	10.0.0.1
PC1	FastEthrenet0	10.0.0.3	255.0.0.0	10.0.0.1
PC2	FastEthrenet0	12.0.0.2	255.0.0.0	12.0.0.1
PC3	FastEthrenet0	12.0.0.3	255.0.0.0	12.0.0.1
Router - A	g0/0	10.0.01	255.0.0.0	
Router - A	s0/0/0	11.0.01	255.0.0.0	
Router - B	g0/0	12.0.01	255.0.0.0	
Router - B	s0/0/0	11.0.0.2	255.0.0.0	

Router – A

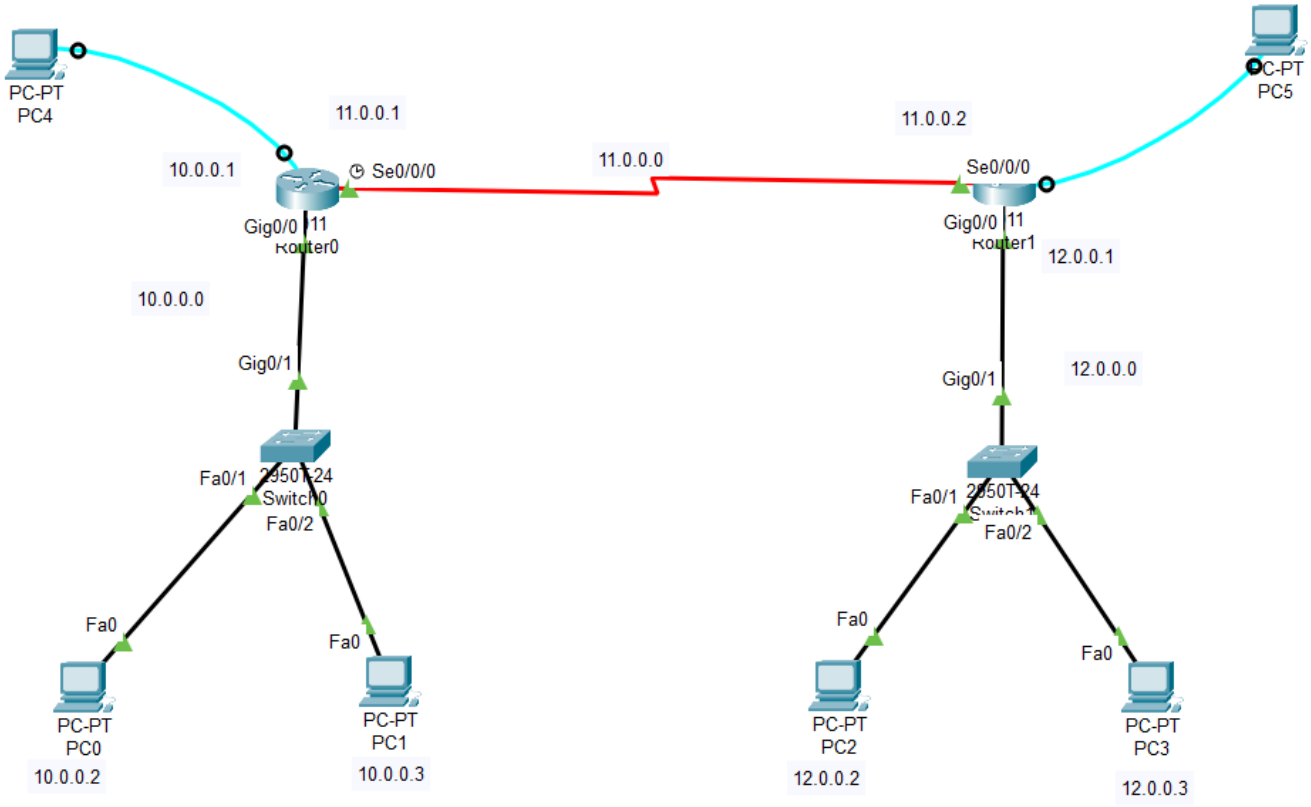
```
Router>en
Router#config t
Router(config)#int g0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#int s0/0/0
Router(config-if)#clock rate 64000
Router(config-if)#ip address 11.0.0.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#ip route 12.0.0.0 255.0.0.0 11.0.0.2
```

Router – B

```
Router>en
Router#config t
Router(config)#int g0/0
Router(config-if)#ip address 12.0.0.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#int s0/0/0
Router(config-if)#ip address 11.0.2 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#ip route 10.0.0.0 255.0.0.0 11.0.0.1
```

Experiment #	<TO BE FILLED BY STUDENT>	Student ID	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	Student Name	[@KLWKS_BOT] THANOS

DIAGRAM



Experiment #	<TO BE FILLED BY STUDENT>	Student ID	<TO BE FILLED BY STUDENT>
Date	<TO BE FILLED BY STUDENT>	Student Name	[@KLWKS_BOT] THANOS

Post Lab Task:

1. Describe the topology you configured using the Huawei L3 network switch and the router. What devices were connected, and what was the purpose of each device in the network?

The topology included a **Huawei L3 switch** and a **router**, with PCs connected to different VLANs. The switch handled inter-VLAN routing, while the router provided WAN connectivity.

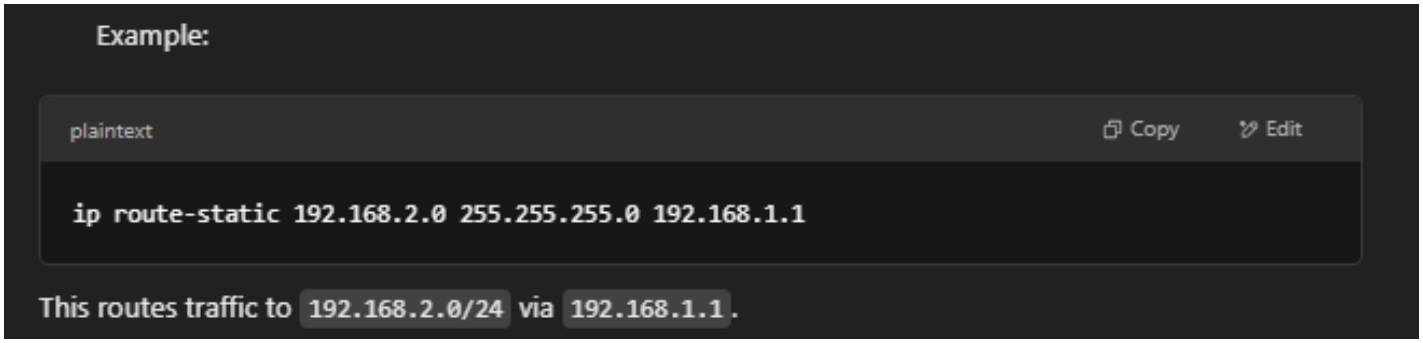
2. Explain the concept of static routing and its significance in network environments. How did you configure static routes on the Huawei L3 network switch to enable communication between different networks?

Static routing manually directs traffic between networks. It is useful in stable environments where precise control is needed. On the **Huawei L3 switch**, static routes were configured using:

plaintext Copy Edit

```
ip route-static <destination-network> <mask> <next-hop-address>
```

3. Describe the syntax and parameters used for configuring static routes on the Huawei L3 network switch. How did you specify the destination network and the next-hop router?



Evaluator Remark (if Any):	**Marks Secured _____ out of 50**
	Signature of the Evaluator with Date