Q13)Try Static NAT, Dynamic NAT and PAT to translate IPs

## Static NAT (One-to-One Mapping)

Static NAT translates a private IP address to a specific public IP address.

Configuration Commands:

Router> enable

Router# configure terminal

Router(config)# interface FastEthernet 0/0

Router(config-if)# ip address 192.168.1.1 255.255.255.0

Router(config-if)# no shutdown

Router(config-if)# exit

Router(config)# ip nat inside source static 192.168.1.10 203.0.113.10

Router(config)# interface FastEthernet 0/1

Router(config-if)# ip address 203.0.113.1 255.255.255.0

Router(config-if)# ip nat outside

Router(config-if)# exit

Router(config)# interface FastEthernet 0/0

Router(config-if)# ip nat inside

Router(config-if)# exit

Private IP 192.168.1.10 is now statically mapped to 203.0.113.10.

## Dynamic NAT (Many-to-Many Mapping)

Dynamic NAT translates multiple private IPs to a pool of public IPs.

Configuration Commands:
Router(config)# access-list 1 permit 192.168.1.0 0.0.0.255
Router(config)# ip nat pool NAT_POOL 203.0.113.20 203.0.113.30 netmask 255.255.255.0
Router(config)# ip nat inside source list 1 pool NAT_POOL

Router(config)# interface FastEthernet 0/1
Router(config-if)# ip nat outside
Router(config-if)# exit

Router(config)# interface FastEthernet 0/0

```
Router(config-if)# ip nat inside
Router(config-if)# exit
```

Multiple private IPs can now be mapped dynamically to a public IP from the **NAT_POOL**.

## PAT (Port Address Translation / NAT Overload)

PAT allows multiple private IPs to be mapped to a **single** public IP by using different ports.

Configuration Commands:
```
Router(config)# access-list 1 permit 192.168.1.0 0.0.0.255
Router(config)# ip nat inside source list 1 interface FastEthernet 0/1 overload

Router(config)# interface FastEthernet 0/1
Router(config-if)# ip nat outside
Router(config-if)# exit

Router(config)# interface FastEthernet 0/0
Router(config-if)# ip nat inside
Router(config-if)# exit
```

Multiple devices on 192.168.1.0/24 can now use a **single public IP** with different port numbers.