INSTITUTE OF COMPUTER TECHNOLOGY

B-TECH COMPUTER SCIENCE ENGINEERING 2025-26

SUBJECT:COMPUTER NETWORKS

NAME: Rahul Prajapati

ENRLL. NO: 23162171020

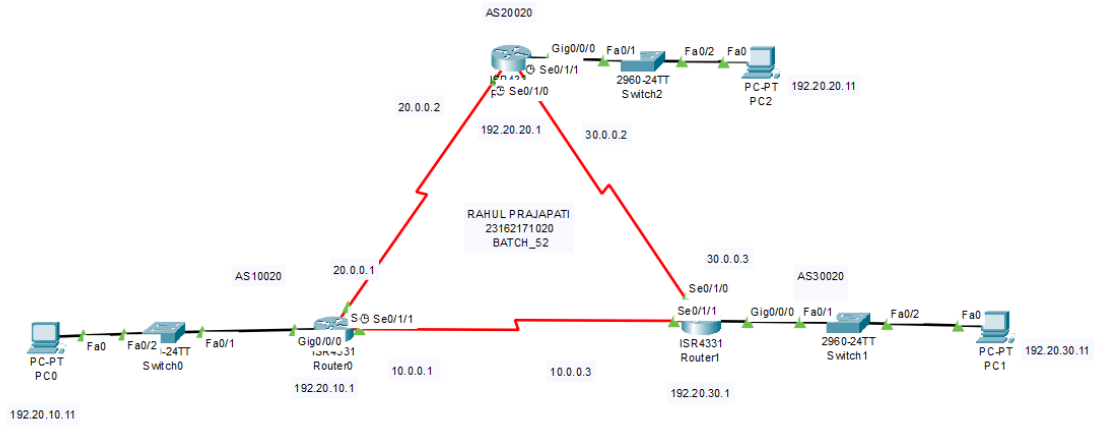
BRANCH: CYBER SECURITY

BATCH: 52

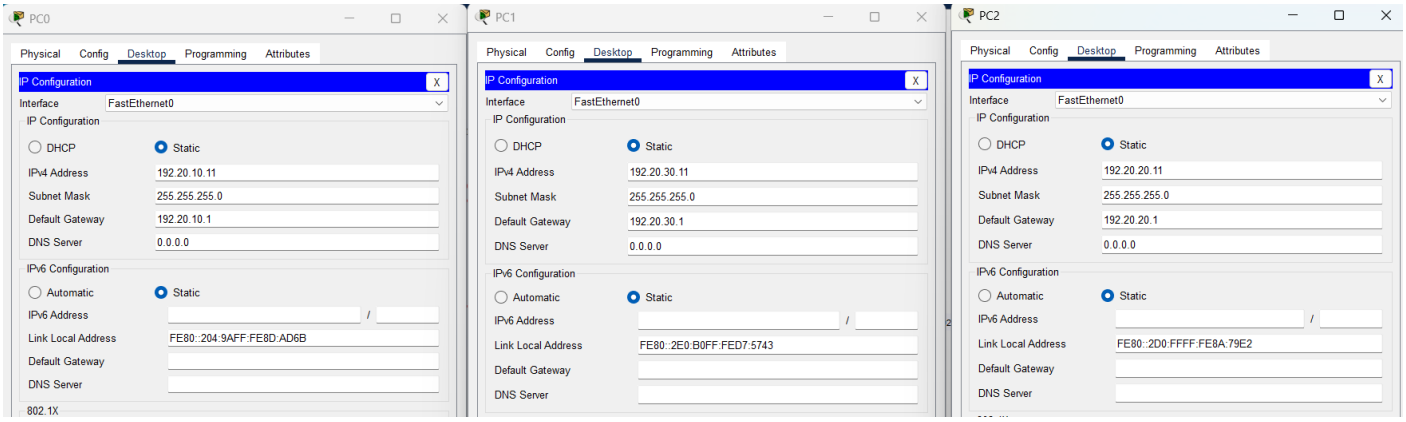
PRACTICAL_09

Aim: To design a network using BGP (Border Gateway Protocol).

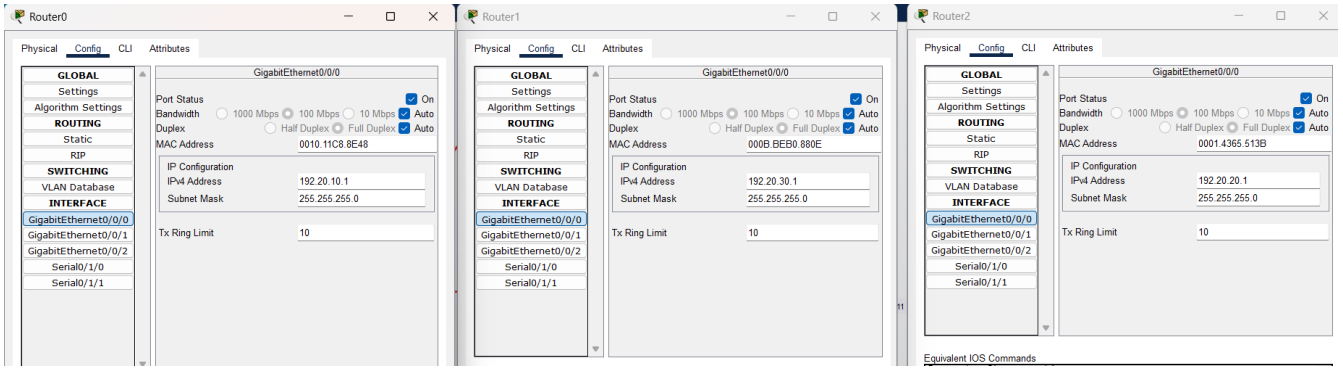
1. NETWORK DESIGN:

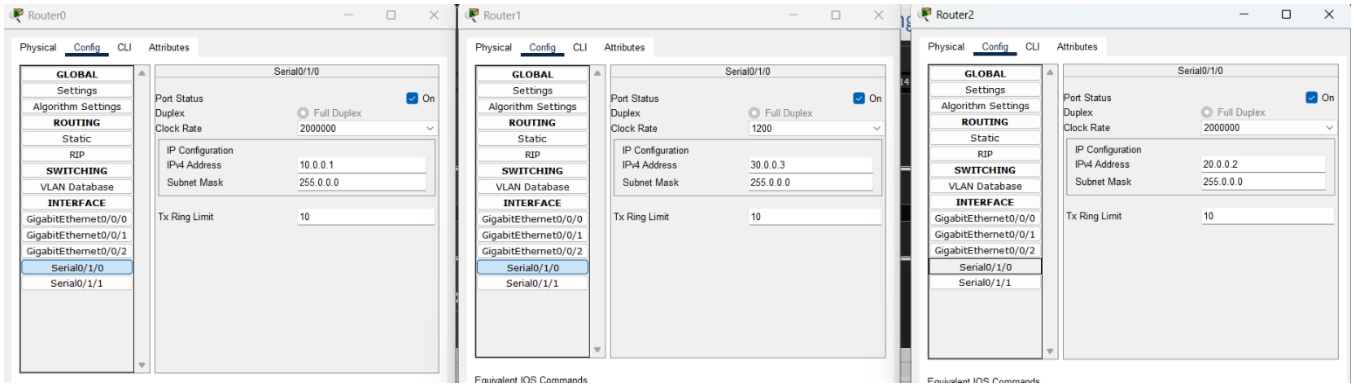


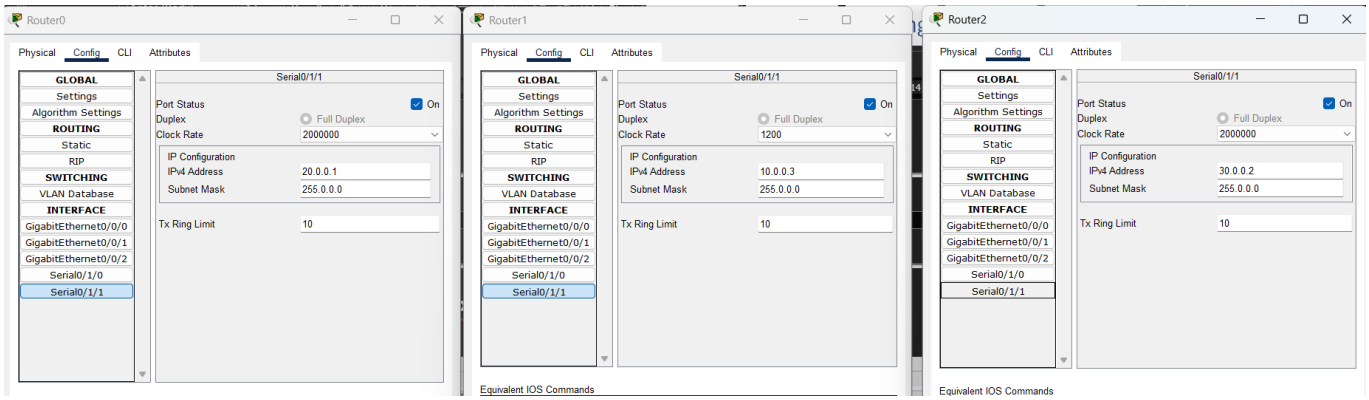
2. PCs_IP:



3. ROUTERs_IP_CONFIGURATION:

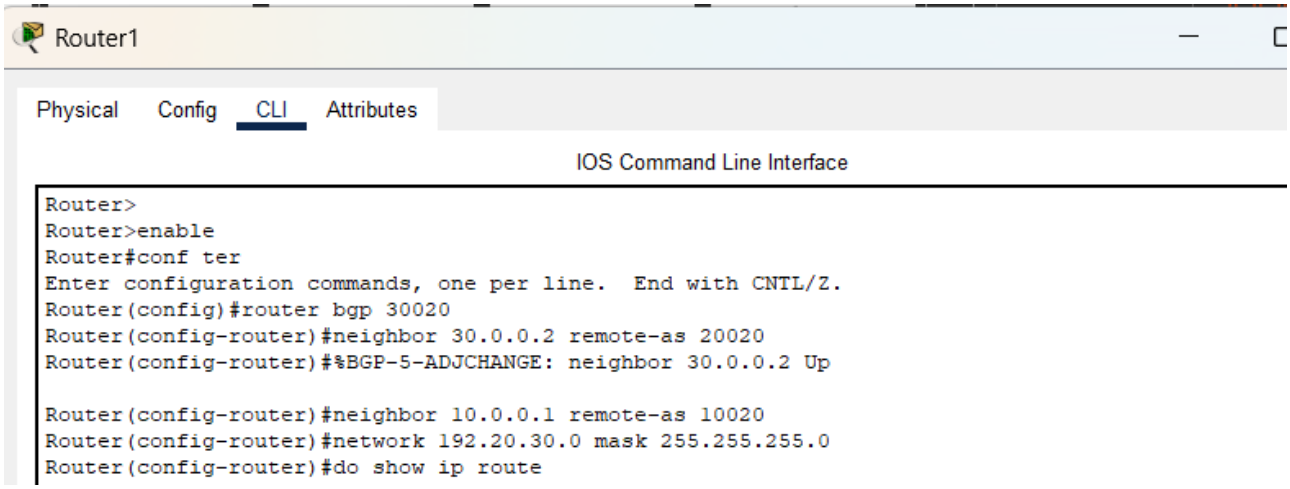


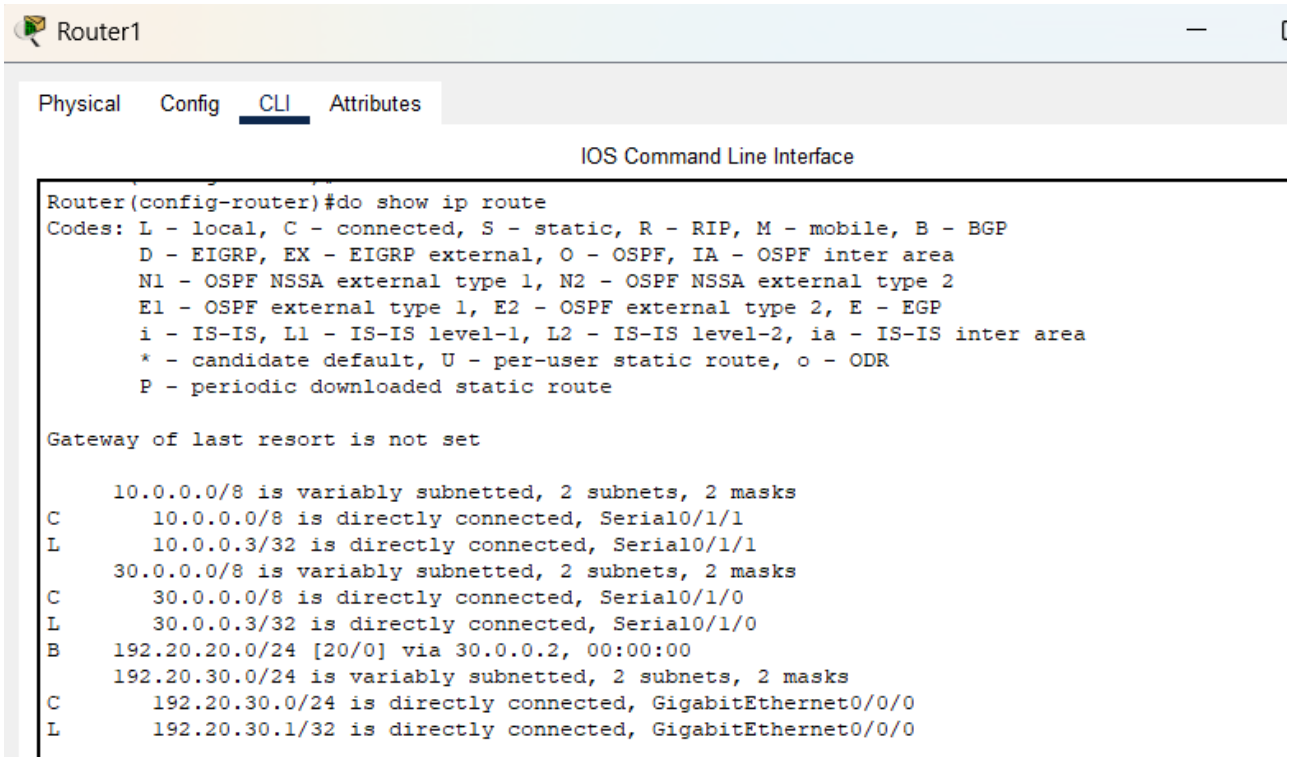




4. IP_ROUTE & CONFIGURATION :

A. ROUTER_1:





A. ROUTER_0:

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router bgp 10020
Router(config-router)#neighbor 10.0.0.3 remote-as 30020
Router(config-router)#neighbor 20.0.0.2 remote-as 20020
Router(config-router)#network 192.20.10.0 mask 255.255.255.0
Router(config-router)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
```

Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
!
router bgp 10020
 bgp log-neighbor-changes
 no synchronization
 neighbor 10.0.0.3 remote-as 30020
 neighbor 20.0.0.2 remote-as 20020
 network 192.20.10.0
!
ip classless
```

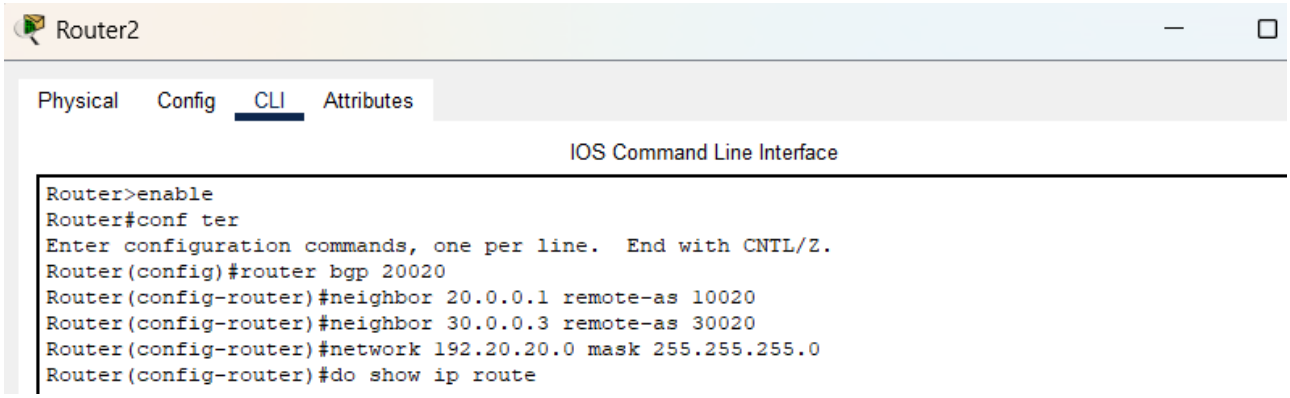
Router0

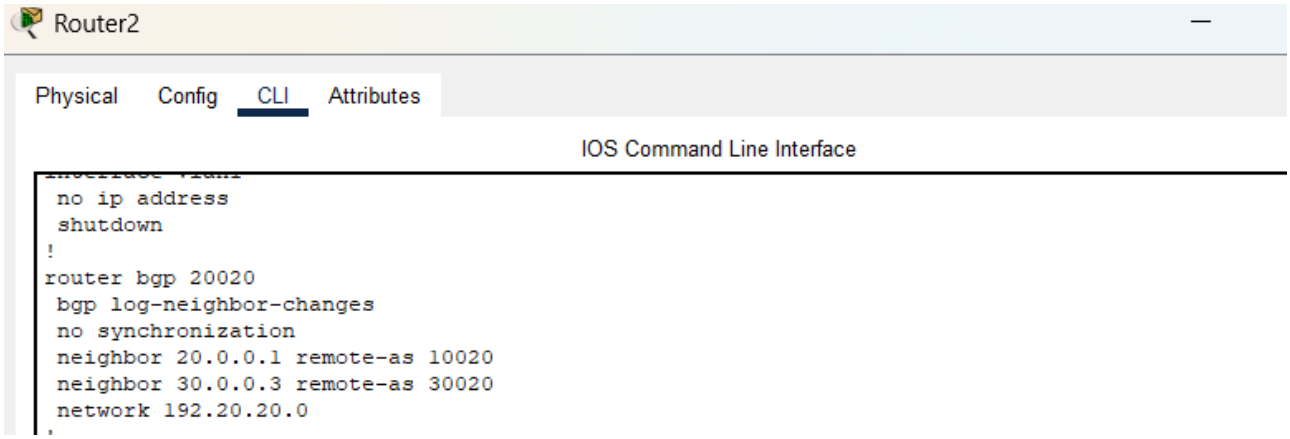
Physical Config CLI Attributes

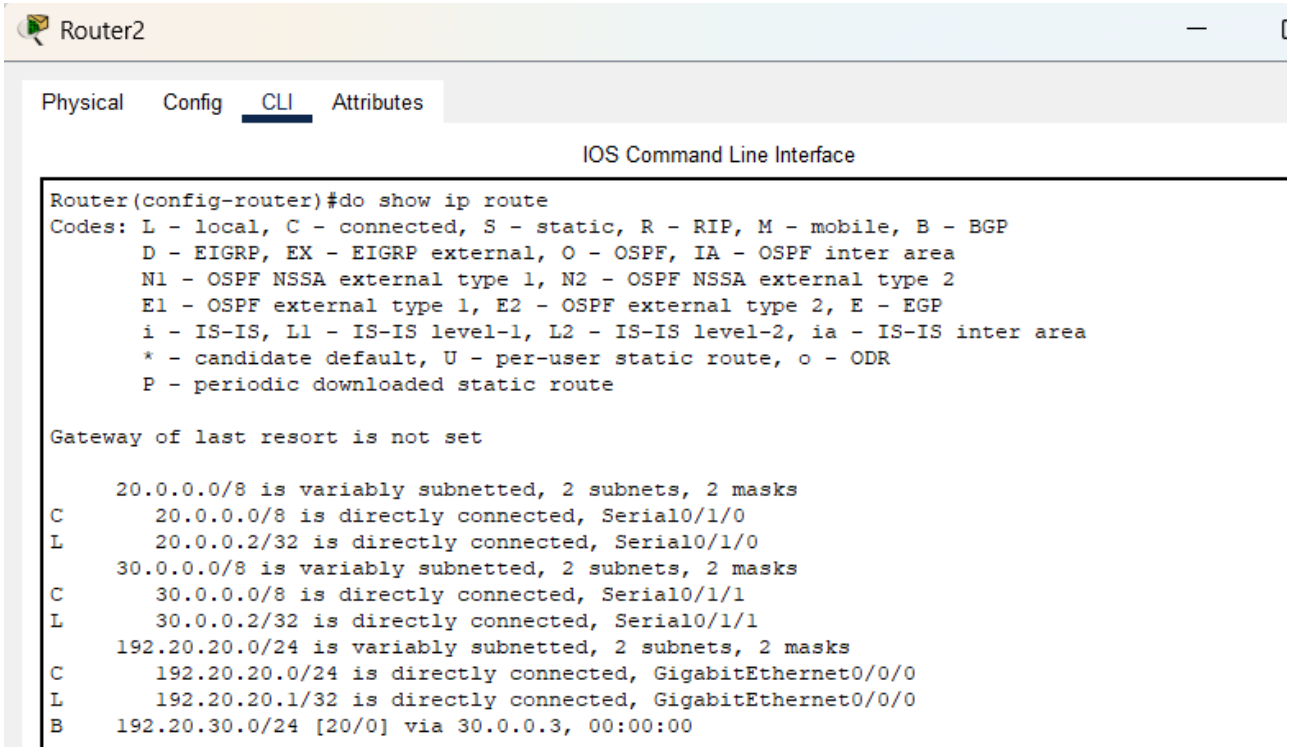
IOS Command Line Interface

```
Router(config)#do show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/8 is directly connected, Serial0/1/0
L       10.0.0.1/32 is directly connected, Serial0/1/0
     20.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       20.0.0.0/8 is directly connected, Serial0/1/1
L       20.0.0.1/32 is directly connected, Serial0/1/1
     192.20.10.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.20.10.0/24 is directly connected, GigabitEthernet0/0/0
L       192.20.10.1/32 is directly connected, GigabitEthernet0/0/0
```

A. ROUTER_2:







Conclusion:

BGP was successfully configured. After assigning IP addresses and enabling BGP on all routers, they exchanged routing information between different Autonomous Systems. This confirmed that BGP supports inter-domain routing and helps maintain stable and scalable communication across networks.