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----------------------------PRACTICAL 09----------------------------
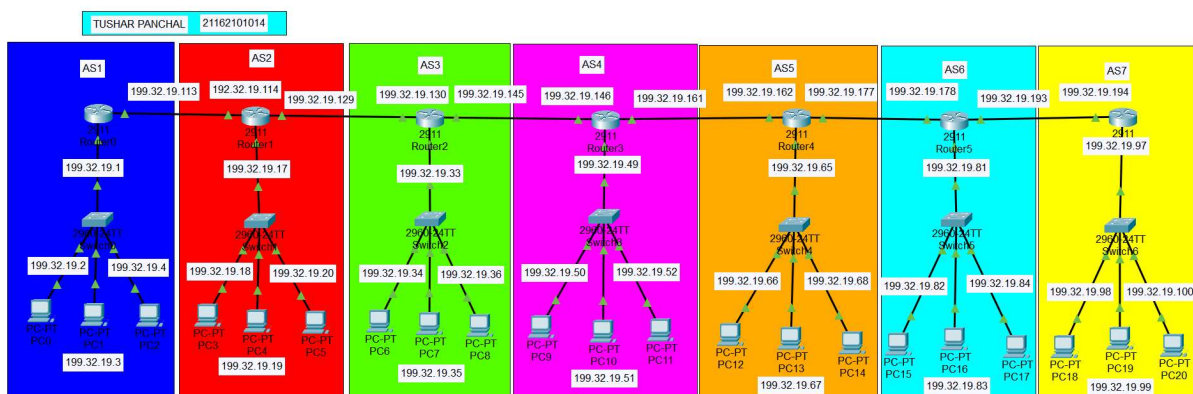
❖ **AIM :** To design a network using Border gateway protocol (BGP).

❖ **Scenario :**

Design a network containing two Autonomous Systems (AS). Each AS contains 4 routers. Establish the connection between the network of 2 AS using the BGP routing protocol.

✓ **Procedure :**

1. **Design the Circuit :**

2. <u>Calculate IP :</u>

AS1

NIP 199.32.19.0

FIP 199.32.19.1

LIP 199.32.19.14

BIP 199.32.19.15

AS2

NIP 199.32.19.16

FIP 199.32.19.17

LIP 199.32.19.30

BIP 199.32.19.31

NIP 199.32.19.32

FIP 199.32.19.33

LIP 199.32.19.46

BIP 199.32.19.47

AS3

NIP 199.32.19.48

FIP 199.32.19.49

LIP 199.32.19.63

BIP 199.32.19.64

AS4

NIP 199.32.19.64

FIP 199.32.19.65

LIP 199.32.19.78

BIP 199.32.19.79

AS5

NIP 199.32.19.80

FIP 199.32.19.81

LIP 199.32.19.94

BIP 199.32.19.95

AS5

NIP 199.32.19.96

FIP 199.32.19.17

LIP 199.32.19.110

BIP 199.32.19.111

3. **Assign IP :**

Router0 — □ X

| Physical | Config | CLI | Attributes |

GigabitEthernet0/0

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
GigabitEthernet0/0
GigabitEthernet0/1
GigabitEthernet0/2

Port Status ☑ On
Bandwidth ○ 1000 Mbps ○ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex ○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address 000B.BE1C.2E01

IP Configuration
IPv4 Address 199.32.19.113
Subnet Mask 255.255.255.240

Tx Ring Limit 10

PC0 — □ X

| Physical | Config | Desktop | Programming | Attributes |

IP Configuration [X]

Interface FastEthernet0 ∨

IP Configuration
○ DHCP ● Static
IPv4 Address 199.32.19.2
Subnet Mask 255.255.255.240
Default Gateway 199.32.19.1
DNS Server 0.0.0.0

4. **Set up BGP :**

```
Router(config)#router bgp 1
Router(config-router)#network 199.32.19.0 mask 255.255.255.240
Router(config-router)#network 199.32.19.112 mask 255.255.255.240
Router(config-router)#neighbor 199.32.19.114 remote-as 2
Router(config-router)#exit

Router#wr mem
Building configuration...
[OK]
Router#
```

» **Packet transfer successful :**

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
●	Successful	PC1	PC19	ICMP	■	0.000	N	0	(edit)	(dele..
●	Successful	PC19	PC7	ICMP	■	0.000	N	1	(edit)	(dele..
●	Successful	PC4	PC15	ICMP	■	0.000	N	2	(edit)	(dele..