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Part: A

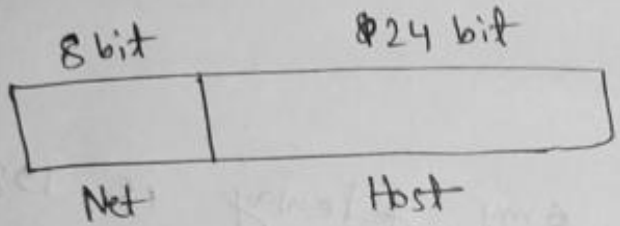
(1)
Address Resolution Protocol (ARP) are used to discovering the link-layer address, such as MAC address, associated with a given internet layer address, which is IP address. Hosts generate ARP protocol so that they can save the mapping IP address with MAC address of the devices in that network.

(2)
TTL means Time to live. It is unitless. By TTL we know the total hop number it can come through. So when TTL is found 121 whereas it is set 128 at the time of transmission, it means this data packet come through (128 - 121) =

7 Hops.

(3)

For class A:



00000000 0000|0000 00000000 00000000

Subnet mask: 11111111 1111|0000 00000000 00000000

Subnet mask (in Decimal): 255. 230. 0.0

Wild card Mask:-

255. 255. 255. 255
(-) 255. 230. 0 . 0
0. 20. 0. 0 → Wild card Mask's IP.

255. 255. 255. 255
(-) 255. 0. 0. 0
0. 255. 255. 255 → Wild card Mask's IP

Part B :

(a)

Destination IP : 192.168.20.254

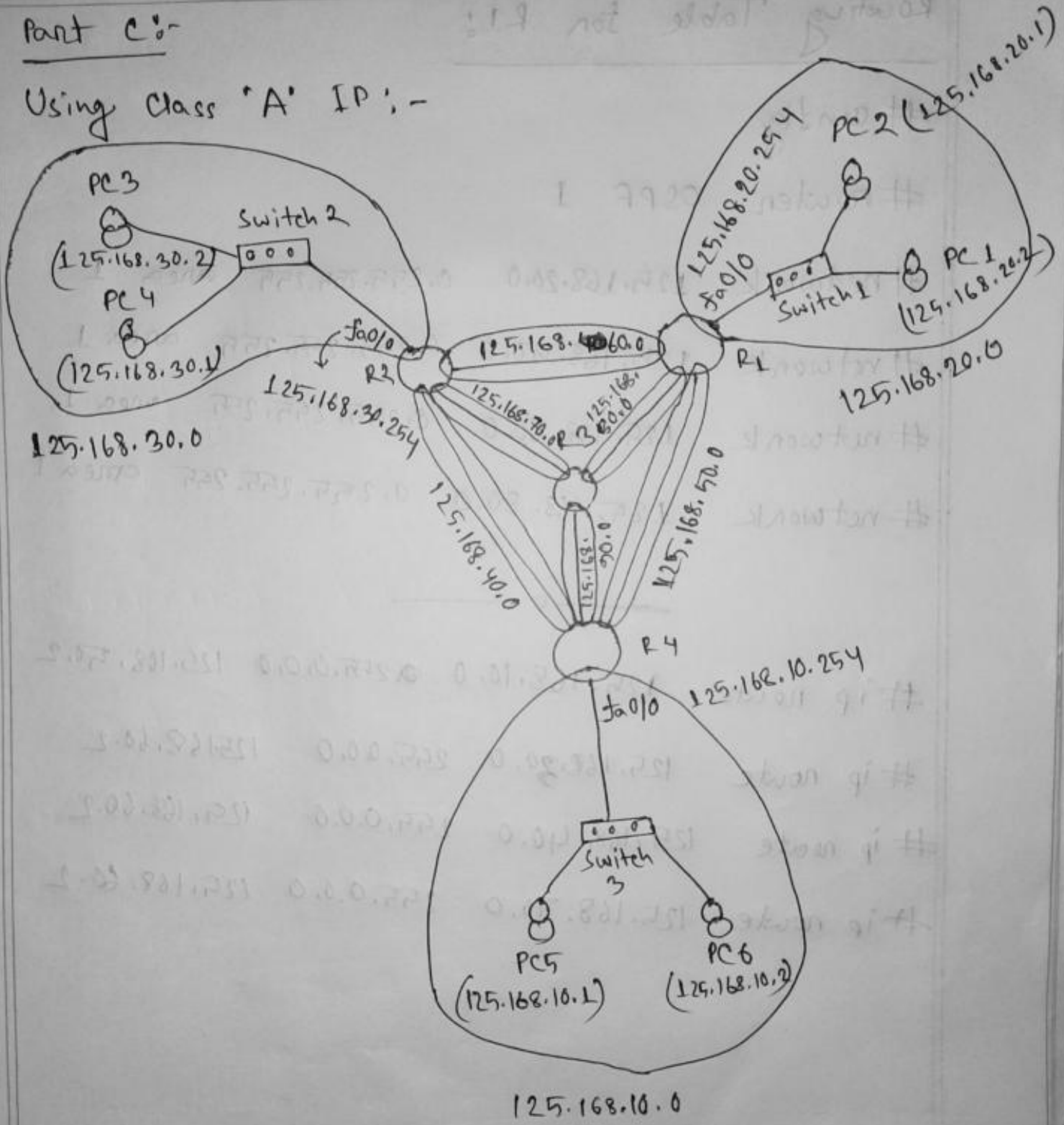
Source MAC : 46:FC:20:10:36:C0

(b)

In my network my geteway is 192.168.20.254.
So when I try to send data out of
my network it will go through my gateway.
And after recieve the data it comes through
my gateway. So I see my gateway IP
address, Not the web server address.
In data link layer my gateway connect to
other router by its ip. And thats how
it continue and go to the web server.

Part C:-

Using Class 'A' IP:-



Routing Table for R1:

#config
#router OSPF 1
#network 125.168.20.0 0.255.255.255 area 1
#network 125.168.50.0 0.255.255.255 area 1
#network 125.168.60.0 0.255.255.255 area 1
#network 125.168.80.0 0.255.255.255 area 1

#ip route 125.168.10.0 255.0.0.0 125.168.50.2
#ip route 125.168.30.0 255.0.0.0 125.168.60.2
#ip route 125.168.40.0 255.0.0.0 125.168.60.2
#ip route 125.168.70.0 255.0.0.0 125.168.60.2