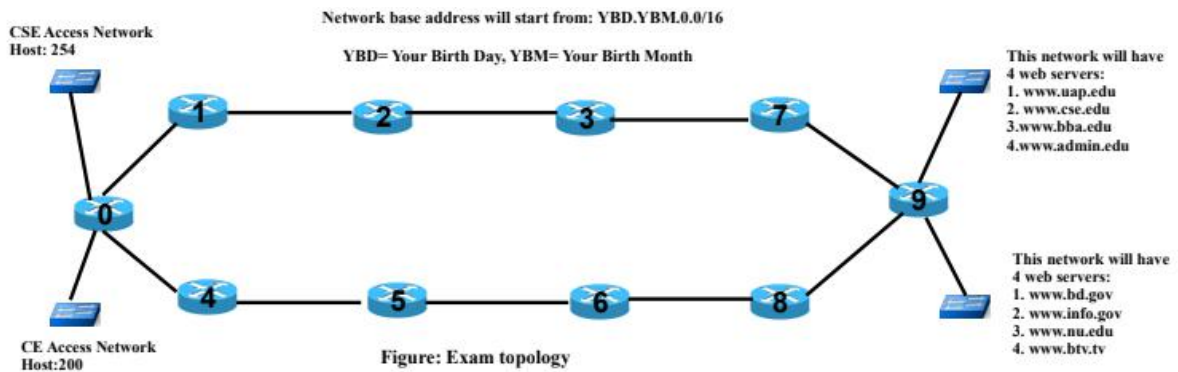


Problem Statement : Design following diagram.



IP Calculation:

Birthday: 02/01/2000

Given IP: 2.1.0.0/16

Subnetmask: 255.255.0.0

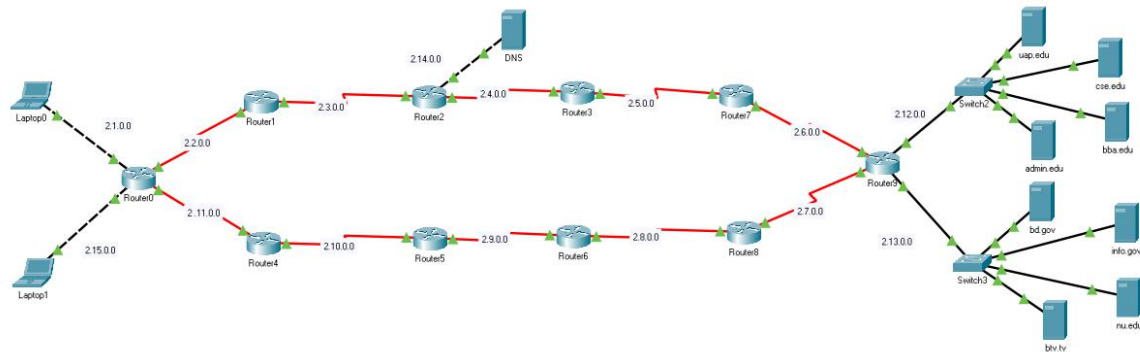
Starting IP: 2.1.0.0

Total number of network: 15

Ip addresses: **2.1.0.0** to **2.15.0.0**

Serial	Network Name	Network Add	Subnet Mask	First Host	Last Hope	Broadcast Add
1	Network-1	2.12.0.0/16	255.255.0.0	2.12.0.1	2.12.255.254	2.12.255.255
2	Network-2	2.13.0.0/16	255.255.0.0	2.13.0.1	2.13.255.254	2.13.255.255
3	CSE Network	2.1.0.0/16	255.255.0.0	2.1.0.1	2.1.255.254	2.1.255.255
4	CE Network	2.15.0.0/16	255.255.0.0	2.15.0.1	2.15.255.254	2.15.255.255
5	DNS	2.14.0.0/16	255.255.0.0	2.14.0.1	2.14.255.254	2.14.255.255
6	R0-R1	2.2.0.0/16	255.255.0.0	2.2.0.2	2.2.255.254	2.2.255.255
7	R1-R2	2.3.0.0/16	255.255.0.0	2.3.0.3	2.3.255.254	2.3.255.255
8	R2-R3	2.4.0.0/16	255.255.0.0	2.4.0.4	2.4.255.254	2.4.255.255
9	R3-R7	2.5.0.0/16	255.255.0.0	2.5.0.5	2.5.255.254	2.5.255.255
10	R7-R9	2.6.0.0/16	255.255.0.0	2.6.0.6	2.6.255.254	2.6.255.255
11	R9-R8	2.7.0.0/16	255.255.0.0	2.7.0.7	2.7.255.254	2.7.255.255
12	R8-R6	2.8.0.0/16	255.255.0.0	2.8.0.8	2.8.255.254	2.8.255.255
13	R6-R5	2.9.0.0/16	255.255.0.0	2.9.0.9	2.9.255.254	2.9.255.255
14	R5-R4	2.10.0.0/16	255.255.0.0	2.10.0.1	2.10.255.254	2.10.255.255
15	R4-R0	2.11.0.0/16	255.255.0.0	2.11.0.1	2.11.255.254	2.11.255.255

Now we will note down necessary information IP-addresses and use it for network setup.



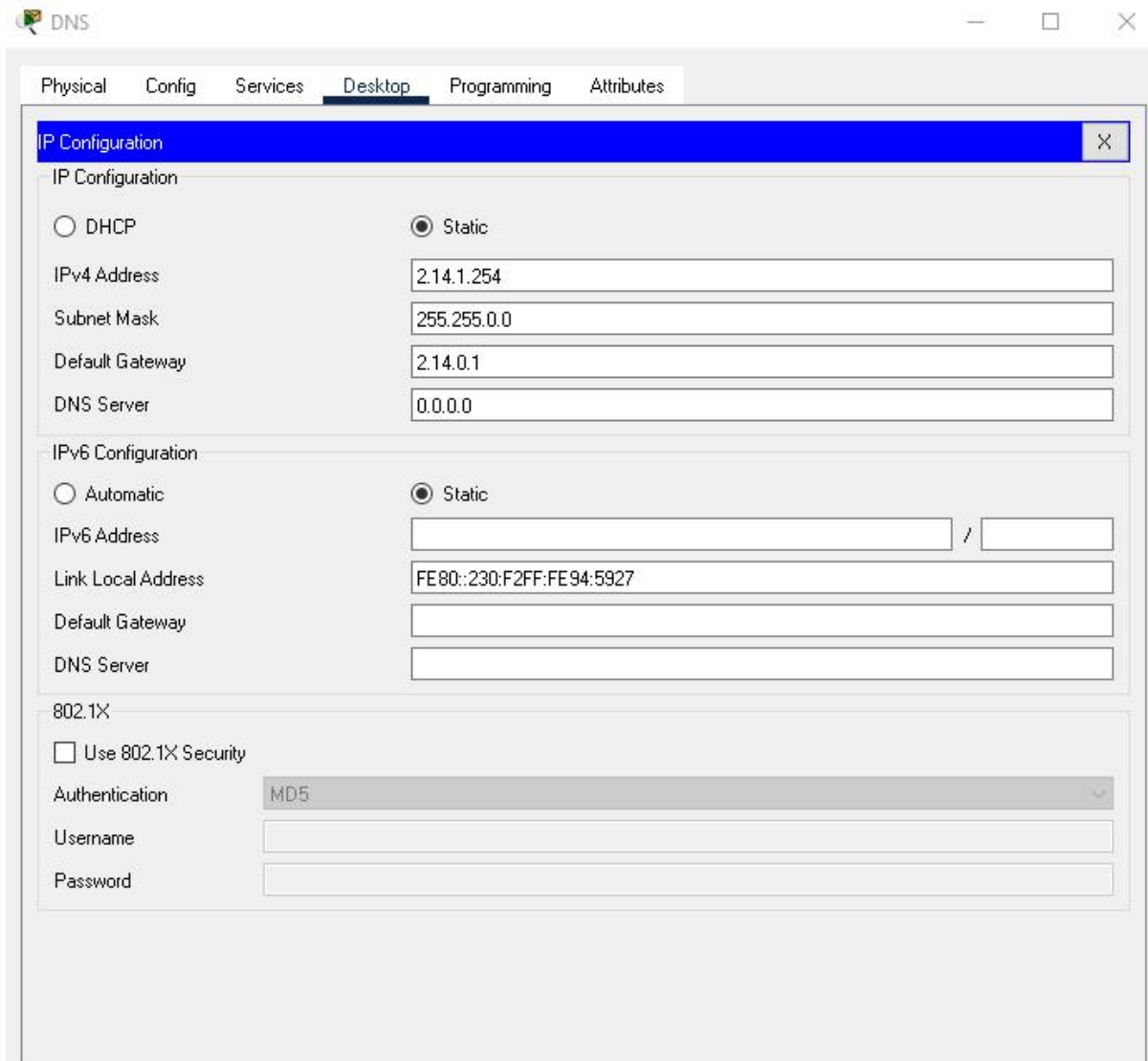
	Device	Name	Address	Default Getway	DNS Server
SERVER	DNS SERVER	used for dns	2.14.1.254	2.14.0.1	--
	UAP	www.uap.edu	2.12.0.254	2.12.0.1	
	CSE	www.cse.edu	2.12.1.254	2.12.0.1	--
	BBA	www.bba.edu	2.12.2.254	2.12.0.1	
	ADMIN	www.admin.edu	2.12.3.254	2.12.0.1	--
	BD GOV	www.bd.gov	2.13.4.254	2.13.0.1	
	INFO GOV	www.info.gov	2.13.5.254	2.13.0.1	--
	NU	www.nu.edu	2.13.6.254	2.13.0.1	--
	BTV	www.btv.tv	2.13.7.254	2.13.0.1	--
PC	Laptop 0	--	2.1.0.254	2.15.0.1	2.14.1.254
	Laptop 1	--	2.15.0.200	2.15.0.1	2.14.1.254

Server Setup :

Select server[uap, cse, bba, admin, bd.gov, info.gov, nu, btv.tv].

Go to Desktop > IP Configuration.

Insert IPv4 address and Default Gateway according to the note.



The screenshot shows a window titled "DNS" with a tabbed interface. The "Desktop" tab is selected. The "IP Configuration" section is active, showing options for DHCP and Static IP. The Static IP is selected, and the fields are filled with: IPv4 Address: 2.14.1.254, Subnet Mask: 255.255.0.0, Default Gateway: 2.14.0.1, and DNS Server: 0.0.0.0. The "IPv6 Configuration" section is also visible, with the Static option selected and the Link Local Address field filled with FE80::230:F2FF:FE94:5927. The "802.1X" section is at the bottom, with the "Use 802.1X Security" checkbox unchecked, and the Authentication dropdown set to MD5. The Username and Password fields are empty.

Section	Option	Value
IP Configuration	DHCP	<input type="radio"/>
	Static	<input checked="" type="radio"/>
	IPv4 Address	2.14.1.254
	Subnet Mask	255.255.0.0
IPv6 Configuration	Automatic	<input type="radio"/>
	Static	<input checked="" type="radio"/>
	IPv6 Address	
	Link Local Address	FE80::230:F2FF:FE94:5927
802.1X	Use 802.1X Security	<input type="checkbox"/>
	Authentication	MD5
	Username	

And we are done for server setup.

PC/Laptop Configuration :

Now we will configure our PC according to our excel note

Select a PC to configure.

Desktop > IP Configuration.

Inset IPv4 address, default gateway, DNS server according to the note.

The screenshot shows a network configuration window titled "IP Configuration" with a close button (X). The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes", with "Desktop" currently selected. The "Interface" dropdown is set to "FastEthernet0".

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 2.1.0.254

Subnet Mask: 255.255.0.0

Default Gateway: 2.1.0.1

DNS Server: 2.14.1.254

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::2E0:A3FF:FE3B:4761

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

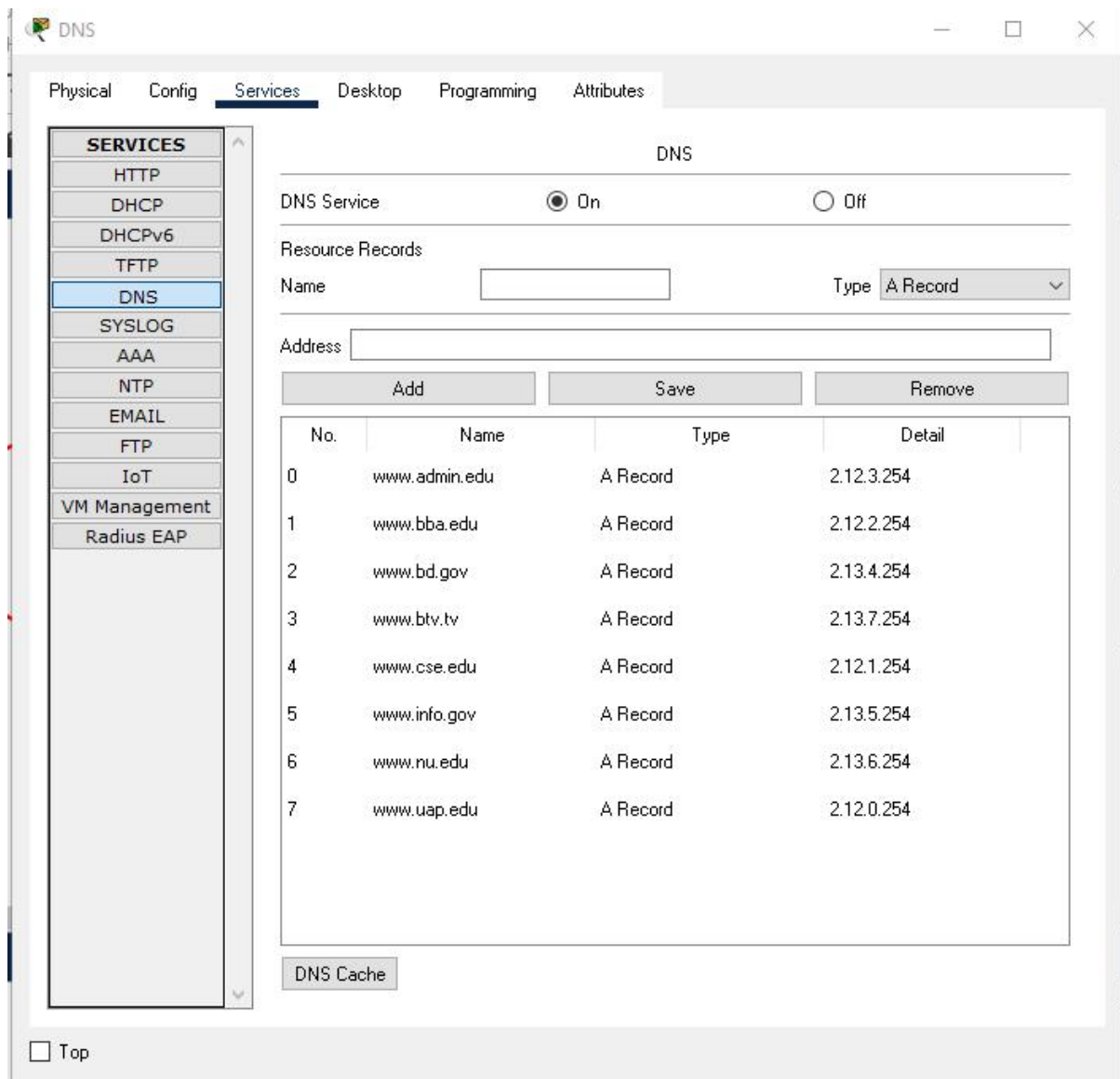
☐ Top

DNS Configuration :

Select west server & east server. Then Services > DNS

ON the DNS. Then enter the Name and addresses of
UAP,CSE,BBA,ADMMIN,BD,INFO,NU,BTV according to the table.

Then click ADD button and you can see the added Name below.



RIP VERSION-2 Configuration :

Now we have to establish RIP version-2 configuration to establish a successful communicative connection between all used routers.

Select a router. Then CLI there comes a box where we need to write some code.

Follow the steps:

enable

conf t

router rip

version 2

no auto summary

network 2.11.0.0

network 2.10.0.0

End

```
Gateway of last resort is not set

  2.0.0.0/16 is subnetted, 2 subnets
C       2.2.0.0 is directly connected, Serial2/0
C       2.3.0.0 is directly connected, Serial3/0

Router>enable
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router rip
Router(config-router)#version 2
Router(config-router)#no auto summary
Router(config-router)#network 2.2.0.0
Router(config-router)#network 2.3.0.0
Router(config-router)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Do this work for all routers according to the table below:

Router	Connected Networks			
Router 0	2.1.0.0	2.15.0.0	2.2.0.0	2.11.0.0
Router 1	2.2.0.0	2.3.0.0	--	--
Router 2	2.3.0.0	2.4.0.0	2.14.0.0	--
Router 3	2.4.0.0	2.5.0.0	--	--
Router 4	2.10.0.0	2.11.0.0	--	--
Router 5	2.9.0.0	2.10.0.0	--	--
Router 6	2.8.0.0	2.9.0.0	--	--
Router 7	2.5.0.0	2.6.0.0	--	--
Router 8	2.7.0.0	2.8.0.0	--	--
Router 9	2.6.0.0	2.7.0.0	2.12.0.0	2.13.0.0

After configuring all routers, we can check using [show ip route] to confirm that all networks are connected.

You can check, if all networks are connected or not, using "show ip route".


```
Router>show ip route
Codes: C - connected, S - static, I - IGRP, 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

    2.0.0.0/16 is subnetted, 15 subnets
R       2.1.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0
C       2.2.0.0 is directly connected, Serial2/0
C       2.3.0.0 is directly connected, Serial3/0
R       2.4.0.0 [120/1] via 2.3.0.2, 00:00:19, Serial3/0
R       2.5.0.0 [120/2] via 2.3.0.2, 00:00:19, Serial3/0
R       2.6.0.0 [120/3] via 2.3.0.2, 00:00:19, Serial3/0
R       2.7.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.8.0.0 [120/5] via 2.3.0.2, 00:00:19, Serial3/0
R       2.9.0.0 [120/6] via 2.3.0.2, 00:00:19, Serial3/0
R       2.10.0.0 [120/7] via 2.3.0.2, 00:00:19, Serial3/0
R       2.11.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0
R       2.12.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.13.0.0 [120/4] via 2.3.0.2, 00:00:19, Serial3/0
R       2.14.0.0 [120/1] via 2.3.0.2, 00:00:19, Serial3/0
R       2.15.0.0 [120/1] via 2.2.0.1, 00:00:20, Serial2/0

Router>
Router>
```

if everything is ok, we are good to go for web search.

