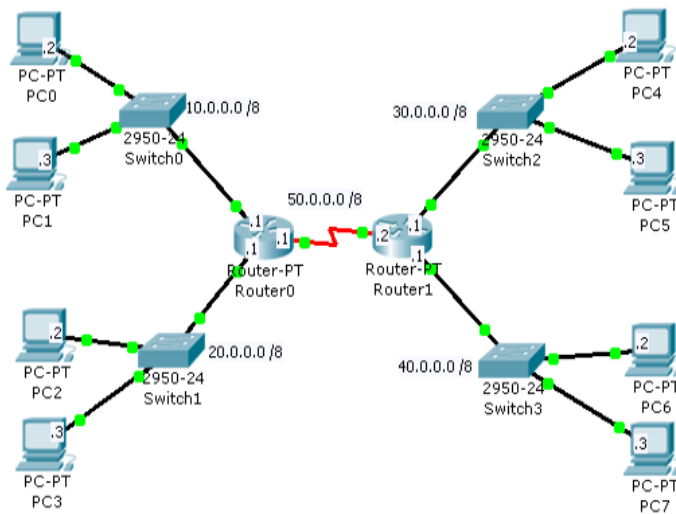RAMSHA RIZWAN
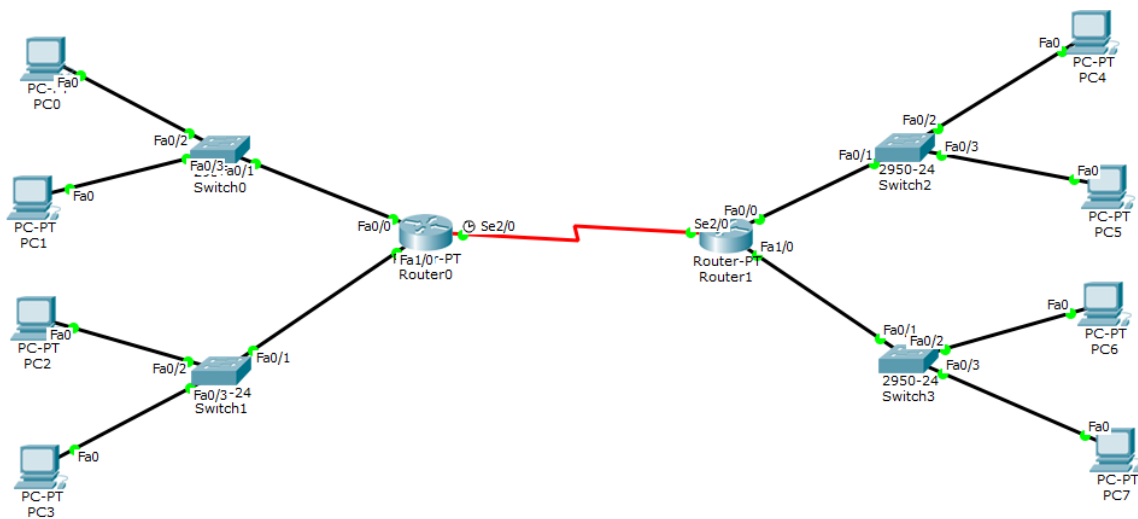20B-078-CS
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DCCN

LAB 14

TASK:

NETWORK:

1. Configure the network as shown in above figure

2. Use RIP to enable dynamic routing

IMPLEMENTATION:

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ROUTER0 CLI:

BASIC CONFIGURATION:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 10.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#int f0/1
%Invalid interface type and number
Router(config)#int f1/0
Router(config-if)#ip add 20.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#int s2/0
Router(config-if)#ip add 50.0.0.1 255.0.0.0
Router(config-if)#no shut
```

RIP CONFIGURATION:

```
Router(config)#router rip
Router(config-router)#network 50.0.0.0
Router(config-router)#network 10.0.0.0
Router(config-router)#network 20.0.0.0
Router(config-router)#exit
```

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ROUTER1 CLI:

BASIC CONFIGURATION:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 30.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#int f1/0
Router(config-if)#ip add 40.0.0.1 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#int s2/0
Router(config-if)#ip add 50.0.0.2 255.0.0.0
Router(config-if)#no shut

Router(config-if)#
```

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RIP CONFIGURATION:

```
Router(config)#router rip
Router(config-router)#network 50.0.0.0
Router(config-router)#network 30.0.0.0
Router(config-router)#network 40.0.0.0
Router(config-router)#exit
Router(config)#
```

PACKET TRANSFERRED SUCCESSFULLY:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
🔴	Successful	Router1	PC7	ICMP	■	0.000	N	7
🔴	Successful	PC6	PC2	ICMP	■	0.000	N	8
🔴	Successful	PC4	PC0	ICMP	■	0.000	N	9

TASK # 1:

To deny the traffic from 40.0.0.2 /8 from entering into 20.0.0.0 /8 network Configuration on Router0.

```
Router(config)#access-list 1 deny host 40.0.0.2
Router(config)#access-list permit any
                           ^
% Invalid input detected at '^' marker.

Router(config)#access-list 1 permit any
Router(config)#int f1/0
Router(config-if)#ip access-group 1 out
Router(config-if)#
```

```
Router#show access-lists
Standard IP access list 1
    10 deny host 40.0.0.2 (5 match(es))
    20 permit any
```

PACKET DOES NOT TRANSFER:

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
🔴	Failed	PC3	PC6	ICMP	■	0.000	N	17
🔴	Failed	PC6	PC2	ICMP	■	0.000	N	18
🔴	Failed	PC6	PC3	ICMP	■	0.000	N	19

TASK # 2:

```
Router#show access-lists
Standard IP access list 1
    10 deny host 40.0.0.2 (5 match(es))
    20 permit any
Router#
```

TASK # 3: To remove the ACL from the router and interface

```
Router>EN
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no access-list 1
Router(config)#
```

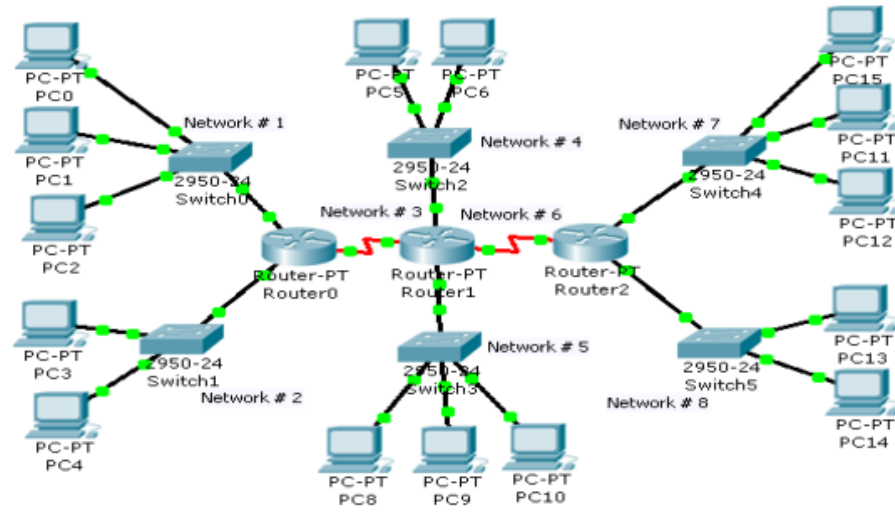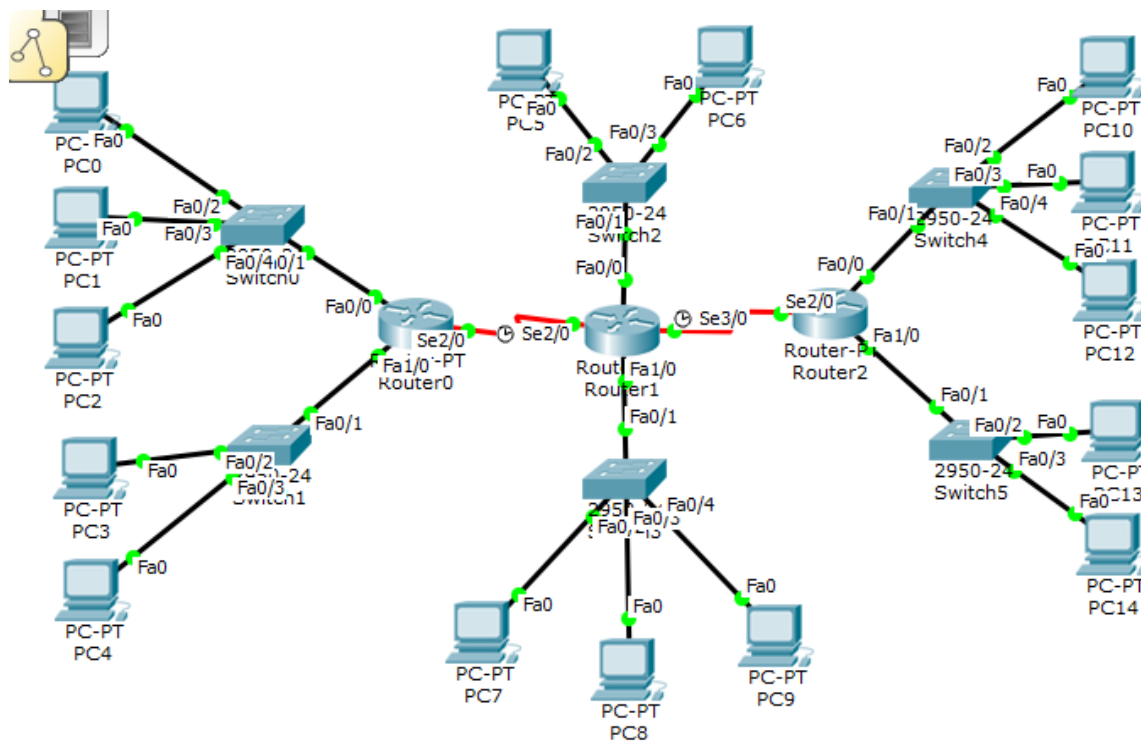| | Successful | PC6 | PC2 | ICMP | | 0.000 | N | 21 |
| | Successful | PC6 | PC3 | ICMP | | 0.000 | N | 22 |

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TASK 2:

EXERCISE (8 marks)

1. Reconstruct the network using any 8 Class C IP addresses having second octet be your *roll number.*

OUTPUT:

ROUTER0 CLI:

BASIC CONFIGURATION:

```
IOS Command Line Interface
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 192.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#int f1/0
Router(config-if)#ip add 193.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#int s2/0
Router(config-if)#ip add 198.78.0.1 255.255.255.0
Router(config-if)#no shut

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
```

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RIP CONFIGURATION:

```
Router(config)#router rip
Router(config-router)#network 192.78.0.0
Router(config-router)#network 193.78.0.0
Router(config-router)#network 198.78.0.0
Router(config-router)#exit
Router(config)#
```

ROUTER1 CLI:

BASIC CONFIGURATION:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 194.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#int f1/0
Router(config-if)#ip add 195.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#int s2/0
Router(config-if)#ip add 198.78.0.2 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
```

RIP CONFIGURATION:

```
Router(config)#router rip
Router(config-router)#network 194.78.0.0
Router(config-router)#network 195.78.0.0
Router(config-router)#network 198.78.0.0
Router(config-router)#network 199.78.0.0
Router(config-router)#exit
Router(config)#
```

ROUTER2 CLI:

BASIC CONFIGURATION:

```
Router>en
Router#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int f0/0
Router(config-if)#ip add 196.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to
up

Router(config-if)#exit
Router(config)#int f1/0
Router(config-if)#ip add 197.78.0.1 255.255.255.0
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to
up

Router(config-if)#exit
Router(config)#int s2/0
Router(config-if)#ip add 199.78.0.2 255.255.255.0
Router(config-if)#no shut
```

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RIP CONFIGURATION:

```
Router(config)#router rip
Router(config-router)#network 196.78.0.0
Router(config-router)#network 197.78.0.0
Router(config-router)#network 199.78.0.0
Router(config-router)#exit
Router(config)#
```

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
●	Successful	PC10	PC4	ICMP		0.000	N	7
●	Successful	PC0	PC3	ICMP		0.000	N	8
●	Successful	PC6	PC4	ICMP		0.000	N	9

2. Create Standard ACL of the following:

- ACL1: Permit only two PCs from Network # 1 to approach Network # 8. Meanwhile other networks must be able to approach Network # 8

- ACL2: Deny the traffic from Network # 2 to reach the Network # 1

- ACL3: Permit only the Network # 4 to approach the Network # 5. Meanwhile other networks must not reach Network # 5

- ACL4: Deny any two hosts from Network # 7 to reach the Network # 8. Meanwhile other networks are permitted to reach the Network # 8

```
Router(config)#access-list 1 deny host 192.78.0.2
Router(config)#access-list 1 permit any
Router(config)#int f1/0
Router(config-if)#ip access-group 1 out
Router(config-if)#exit
Router(config)#
```

●	Successful	PC13	PC1	ICMP	0.000	N	13
●	Successful	PC10	PC13	ICMP	0.000	N	14
●	Failed	PC13	PC0	ICMP	0.000	N	15

```
Router(config)#access-list 2 deny 193.78.0.0
Router(config)#access-list 2 permit any
Router(config)#int f0/0
Router(config-if)#ip access-group 2 out
Router(config-if)#exit
Router(config)#
```

●	Failed	PC3	PC2	ICMP	0.000

```
Router(config)#access-list 3 deny host 196.78.0.2
Router(config)#access-list 3 deny host 196.78.0.3
Router(config)#access-list 3 permit any
Router(config)#int f1/0
Router(config-if)#ap access-group 3 out
                   ^
% Invalid input detected at '^' marker.

Router(config-if)#ip access-group 3 out
Router(config-if)#exit
```

re	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num
●	Failed	PC11	PC13	ICMP		0.000	N	18
●	Successful	PC0	PC13	ICMP		0.000	N	19
●	Failed	PC11	PC13	ICMP		0.000	N	20

3. Why the most specific statements must be on top of ACL?

BECAUSE, STATEMENTS ARE RUN SEQUENTIALLY.