

Region	Device	Interface	IP Address	Subnet Mask	Default Gateway
Chittagong	Router	Fa0/0	192.168.4.1	23	192.168.4.1
		Se0/0/0	192.168.9.66	30	192.168.4.1
		Se0/0/1	192.168.9.73	30	192.168.4.1
	Email	Fa0	192.168.4.2	23	192.168.4.1
	Printer	Fa0	192.168.4.3	23	192.168.4.1
	PC1	Fa0	192.168.4.4	23	192.168.4.1
	PC2	Fa0	192.168.4.5	23	192.168.4.1
Dhaka	Router	Fa0/0	192.168.1.1	22	192.168.1.1
		Se0/0/0	192.168.9.65	30	192.168.1.1
		Se0/1/0	192.168.9.69	30	192.168.1.1
		Se0/0/1	192.168.9.77	30	192.168.1.1
	Printer	Fa0	192.168.1.2	22	192.168.1.1
	PC1	Fa0	192.168.1.3	22	192.168.1.1
	PC2	Fa0	192.168.1.4	22	192.168.1.1
Khulna	Router	Fa0/0	192.168.8.1	24	192.168.8.1
		Se0/1/0	192.168.9.86	30	192.168.8.1
	DHCP	Fa0	192.168.8.2	24	192.168.8.1
	PC1	Fa0	192.168.8.3	24	192.168.8.1
	PC2	Fa0	192.168.8.4	24	192.168.8.1
Rajshahi	Router	Fa0/0	192.168.7.1	24	192.168.7.1
		Se0/0/0	192.168.9.82	30	192.168.7.1

		Se0/1/0	192.168.9.85	30	192.168.7.1
	WEB	Fa0	192.168.7.4	24	192.168.7.1
	DHCP	Fa0	192.168.7.3	24	192.168.7.1
	DNS	Fa0	192.168.7.2	24	192.168.7.1
	PC1	Fa0	192.168.7.5	24	192.168.7.1
	PC2	Fa0	192.168.7.6	24	192.168.7.1
Mymensingh	Router	Fa0/0	192.168.9.1	26	192.168.9.1
		Se0/0/0	192.168.9.81	30	192.168.9.1
		Se0/0/1	192.168.9.78	30	192.168.9.1
	DHCP	Fa0	192.168.9.2	26	192.168.9.1
	PC1	Fa0	192.168.9.3	26	192.168.9.1
	PC2	Fa0	192.168.9.4	26	192.168.9.1
Sylhet	Router	Fa0/0	192.168.6.1	24	192.168.6.1
		Se0/0/1	192.168.9.74	30	192.168.6.1
		Se0/1/0	192.168.9.70	30	192.168.6.1
	DHCP	Fa0	192.168.6.2	24	192.168.6.1
	PC1	Fa0	192.168.6.3	24	192.168.6.1
	PC2	Fa0	192.168.6.4	24	192.168.6.1

**Commands:**  
**Dhaka Router**

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.252.0
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.4.0 255.255.255.0 192.168.9.66
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.70
Router(config)#end
Router(config-if)#no shutdown
```

### **Chittagong Router**

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.4.1 255.255.254.0
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.1.0 255.255.255.0 192.168.9.65
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.65
Router(config)#end
```

### **Sylhet Router**

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.6.1 255.255.255.0
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.4.0 255.255.255.0 192.168.9.66
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.70
Router(config)#end
Router(config-if)#no shutdown
```

### **Rajshahi Router**

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.7.1 255.255.255.0
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.1.0 255.255.255.0 192.168.9.65
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.65
Router(config)#end
```

### **Khulna Router**

```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.8.1 255.255.255.0
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.4.0 255.255.255.0 192.168.9.66
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.70
Router(config)#end
Router(config-if)#no shutdown
```

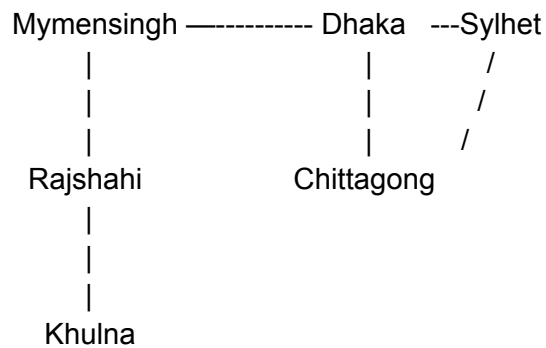
### **Mymensingh Router**

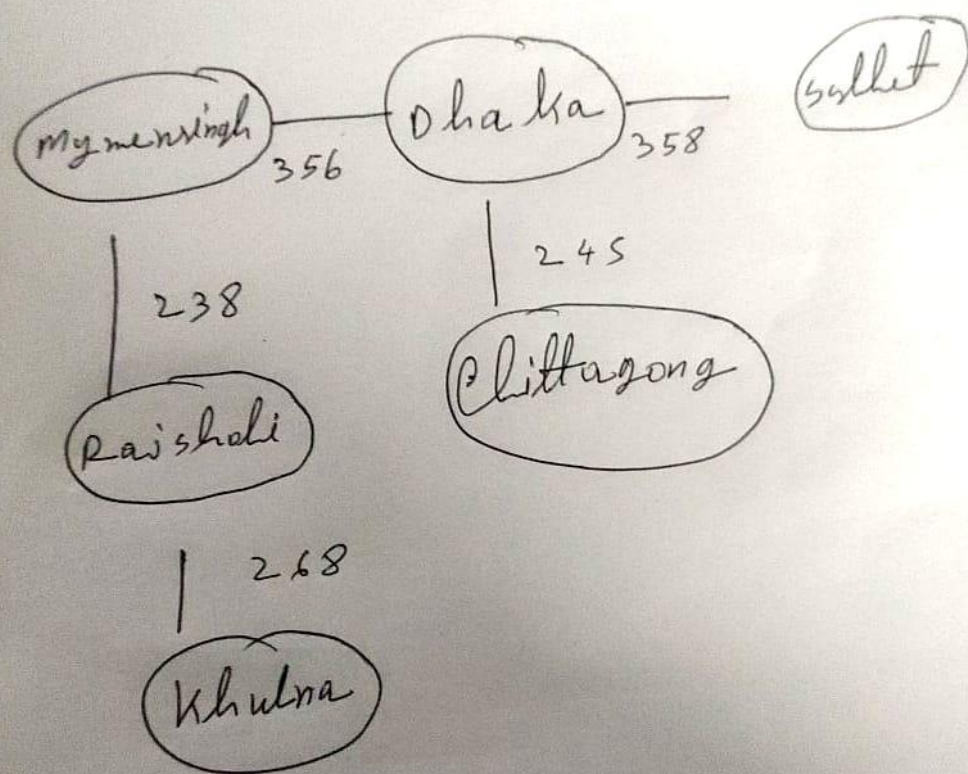
```
Router#en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0
Router(config-if)#ip address 192.168.9.1 255.255.255.192
Router(config-if)#no shutdown
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 192.168.1.0 255.255.255.0 192.168.9.65
Router(config)#ip route 192.168.6.0 255.255.255.0 192.168.9.65
Router(config)#end
```

## Shortest Path:

	Chittagong	Dhaka	Khulna	Rajshahi	Mymensingh	Sylhet
Chittagong (312)	0					
Dhaka (526)	245	0				
Khulna (128)	350	274	0			
Rajshahi (156)	492	242	268	0		
Mymensingh (30)	356	114	354	238	0	
Sylhet (238)	358	242	448	456	280	0

Using Shortest Path Algorithm We find the shortest path as:







# - Hosts - IPs - Given IP - H.B - N.B

Dhaka - 526 - <sup>528</sup>~~1054~~ - 1024 - 10 - 22

Chittagong - 312 - <sup>314</sup>~~626~~ - 512 - 9 - 23

Sylhet - 238 - 240 - 256 - 8 - 24

Rajshahi - 156 - 158 - 256 - 8 - 24

Uthulna - 128 - 130 - 256 - 8 - 24

Mymensingh - 30 - 32 - 32 - 5 - 27

C. Router - 5 - 7 - 8 - 3 - 29

M. Router - 2 - 4 - 4 - 2 - 30

U. Router - 2 - 4 - 4 - 2 - 30

D. Router - 2 - 4 - 4 - 2 - 30

R. Router - 2 - 4 - 4 - 2 - 30

D. Switch - 2 - 4 - 4 - 2 - 30

R. Switch - 2 - 4 - 4 - 2 - 30

U. Switch - 2 - 4 - 4 - 2 - 30

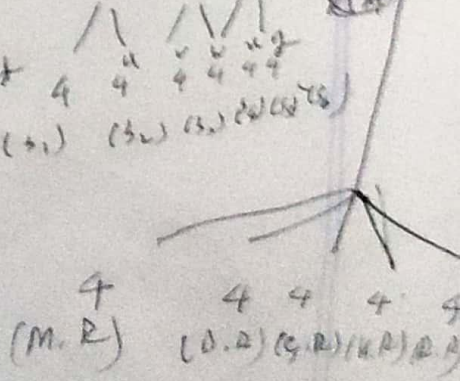
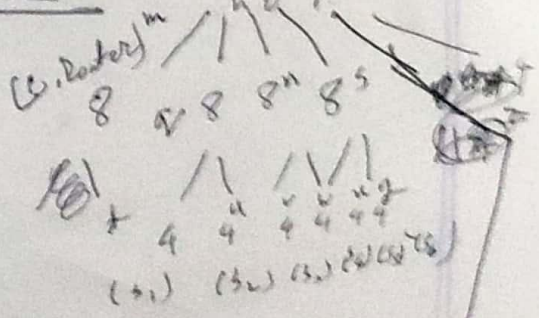
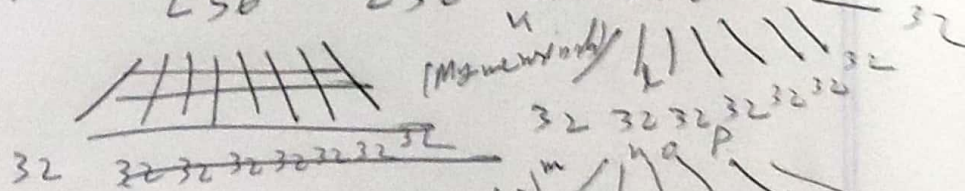
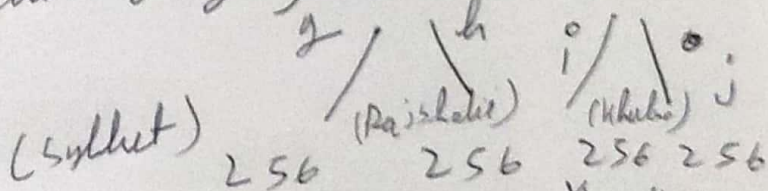
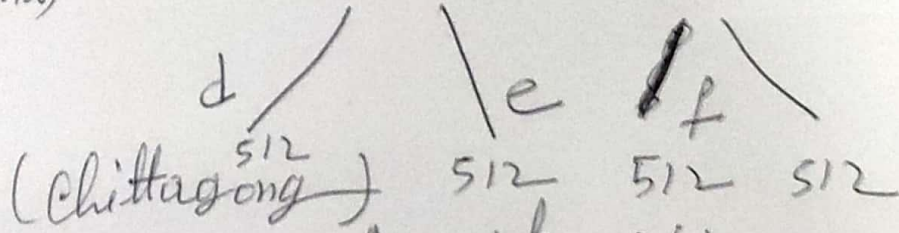
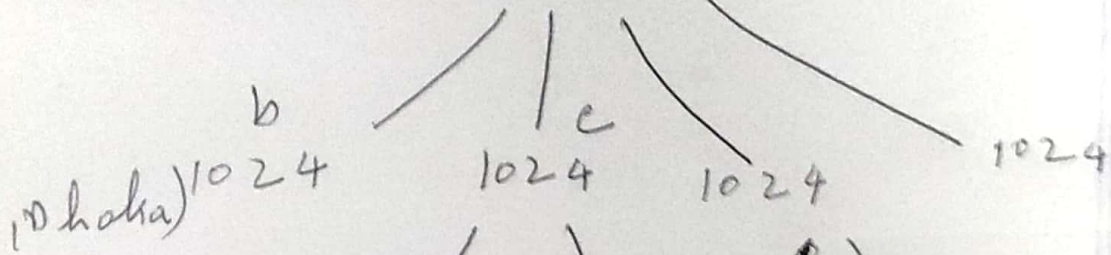
s. switch - 2 - 4 - 4 - 2 - 30

e. switch - 2 - 4 - 4 - 2 - 30

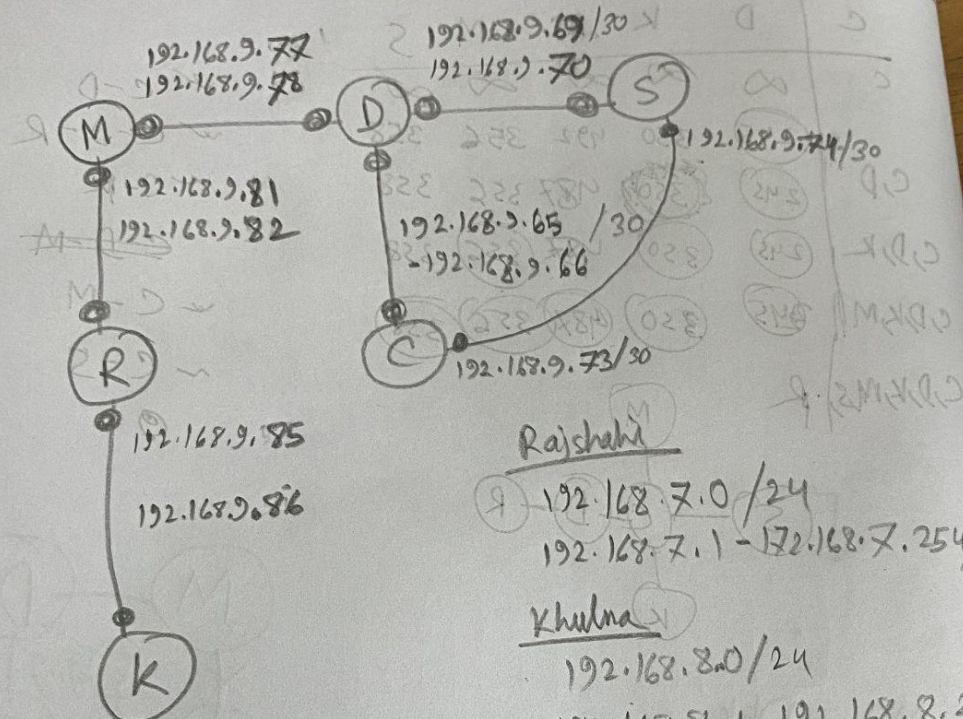
m. switch - 2 - 4 - 4 - 2 - 30



$$\text{Host} = 2^{12} = 4096$$



$D \rightarrow C \rightarrow R \rightarrow K \rightarrow M$   
 $526 \rightarrow 312 \rightarrow 238 \rightarrow 156 \rightarrow 128 \rightarrow 30$



### Dhaka

192.168.1.0/22

192.168.1.1 - 192.168.3.254/22

### Chittagong

192.168.4.0/23

192.168.4.1 - 192.168.5.254/23

### Sylhet

192.168.6.0/24

192.168.6.1 - 192.168.6.254/24

### Rajshahi

192.168.7.0/24

192.168.7.1 - 192.168.7.254/24

### Khulna

192.168.8.0/24

192.168.8.1 - 192.168.8.254

### Mymensingh

192.168.9.0/24

192.168.9.1 - 192.168.9.62