

Herbs house => switch

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.176.1 255.255.248.0
Router(config-if)#no shutdown
```

Gulf coast

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.184.1 255.255.248.0
Router(config-if)#no shutdown
```

Asgard

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.64.1 255.255.192.0
Router(config-if)#no shutdown
```

Lamentis

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.128.1 255.255.224.0
Router(config-if)#no shutdown
```

Void

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.160.1 255.255.240.0
Router(config-if)#no shutdown
```

Tva headquarter

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.10.0.1 255.255.192.0
Router(config-if)#no shutdown
```

Herb house => gulf coast

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
Router(config-if)#ip address 10.10.192.49 255.255.255.252
Router(config-if)#no shutdown
```

Gulf coast => herb house

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
Router(config-if)#ip address 10.10.192.50 255.255.255.252
Router(config-if)#no shutdown
```

Gulf coast => Asgard

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/1
Router(config-if)#ip address 10.10.192.53 255.255.255.252
Router(config-if)#no shutdown
```

Asgard => Gulf coast

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
```

```
Router(config-if)#ip address 10.10.192.54 255.255.255.252
Router(config-if)#no shutdown
```

Asgard => TVA headquarter

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/1
Router(config-if)#ip address 10.10.192.57 255.255.255.252
Router(config-if)#no shutdown
```

TVA headquarter => Asgard

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
Router(config-if)#ip address 10.10.192.58 255.255.255.252
Router(config-if)#no shutdown
```

TVA headquarter => Lamentis

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/1/0
Router(config-if)#ip address 10.10.192.61 255.255.255.252
Router(config-if)#no shutdown
```

Lamentis => TVA headquarter

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
Router(config-if)#ip address 10.10.192.62 255.255.255.252
Router(config-if)#no shutdown
```

TVA headquarter => The void

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

```
Router(config)#interface serial0/0/1
Router(config-if)#ip address 10.10.192.65 255.255.255.252
Router(config-if)#no shutdown
```

The void => TVA headquarter

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/0
Router(config-if)#ip address 10.10.192.66 255.255.255.252
Router(config-if)#no shutdown
```

The void => isp

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se0/1/0
Router(config-if)#ip address 182.168.0.2 255.255.255.0
Router(config-if)#no shutdown
```

Isp => the void

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface se0/0/0
Router(config-if)#ip address 182.168.0.1 255.255.255.0
Router(config-if)#no shutdown
```

Backup route =>

Herbs house => asgard

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/0/1
Router(config-if)#ip address 10.10.192.69 255.255.255.252
Router(config-if)#no shutdown
```

```
Router(config)#ip route 10.10.192.68 255.255.255.252 se0/0/1 5
```

Asgard => herbs house

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial0/1/0
Router(config-if)#ip address 10.10.192.70 255.255.255.252
Router(config-if)#no shutdown
```

Herb house => gulf coast static route

Static route

```
Router(config)#ip route 10.10.184.0 255.255.248.0 serial0/0/0
Router(config)#ip route 10.10.192.52 255.255.255.252 serial0/0/0
Router(config)#ip route 10.10.64.0 255.255.192.0 serial0/0/0
Router(config)#ip route 10.10.192.56 255.255.255.252 serial0/0/0
Router(config)#ip route 10.10.192.56 255.255.255.252 serial0/0/1 5
Router(config)#ip route 10.10.0.0 255.255.192.0 serial0/0/0
Router(config)#ip route 10.10.192.64 255.255.255.252 serial0/0/0
Router(config)#ip route 10.10.192.60 255.255.255.252 serial0/0/0
Router(config)#ip route 10.10.128.0 255.255.224.0 serial0/0/0
Router(config)#ip route 10.10.160.0 255.255.240.0 serial0/0/0
```

Gulf coast

```
ip route 10.10.176.0 255.255.248.0 serial0/0/0
ip route 10.10.192.52 255.255.255.252 serial0/0/1
ip route 10.10.64.0 255.255.192.0 serial0/0/1
ip route 10.10.192.56 255.255.255.252 serial0/0/1
ip route 10.10.0.0 255.255.192.0 serial0/0/1
ip route 10.10.192.64 255.255.255.252 serial0/0/1
ip route 10.10.192.60 255.255.255.252 serial0/0/1
ip route 10.10.128.0 255.255.224.0 serial0/0/1
ip route 10.10.160.0 255.255.240.0 serial0/0/1
ip route 10.10.192.68 255.255.255.252 serial0/0/1
```

asgard

```
ip route 10.10.192.48 255.255.255.252 serial0/0/0
```

```
ip route 10.10.176.0 255.255.248.0 serial0/0/0
ip route 10.10.184.0 255.255.248.0 serial0/0/0
ip route 10.10.0.0 255.255.192.0 serial0/0/1
ip route 10.10.192.64 255.255.255.252 serial0/0/1
ip route 10.10.192.60 255.255.255.252 serial0/0/1
ip route 10.10.128.0 255.255.224.0 serial0/0/1
ip route 10.10.160.0 255.255.240.0 serial0/0/1
```

lamentis

```
ip route 10.10.192.48 255.255.255.252 serial0/0/0
ip route 10.10.176.0 255.255.248.0 serial0/0/0
ip route 10.10.184.0 255.255.248.0 serial0/0/0
ip route 10.10.192.52 255.255.255.252 serial0/0/0
ip route 10.10.192.56 255.255.255.252 serial0/0/0
ip route 10.10.0.0 255.255.192.0 serial0/0/0
ip route 10.10.64.0 255.255.192.0 serial0/0/0
ip route 10.10.192.64 255.255.255.252 serial0/0/0
ip route 10.10.160.0 255.255.240.0 serial0/0/0
ip route 10.10.192.68 255.255.255.252 serial0/0/0
```

the void

```
ip route 10.10.192.48 255.255.255.252 serial0/0/0
ip route 10.10.176.0 255.255.248.0 serial0/0/0
ip route 10.10.184.0 255.255.248.0 serial0/0/0
ip route 10.10.192.52 255.255.255.252 serial0/0/0
ip route 10.10.192.56 255.255.255.252 serial0/0/0
ip route 10.10.128.0 255.255.224.0 serial0/0/0
ip route 10.10.0.0 255.255.192.0 serial0/0/0
ip route 10.10.64.0 255.255.192.0 serial0/0/0
ip route 10.10.192.60 255.255.255.252 serial0/0/0
ip route 10.10.192.68 255.255.255.252 serial0/0/0
```

tva headquarter

```
ip route 10.10.192.48 255.255.255.252 serial0/0/0
ip route 10.10.176.0 255.255.248.0 serial0/0/0
ip route 10.10.184.0 255.255.248.0 serial0/0/0
```

```
ip route 10.10.192.52 255.255.255.252 serial0/0/0
ip route 10.10.128.0 255.255.224.0 serial0/1/0
ip route 10.10.64.0 255.255.192.0 serial0/0/0
ip route 10.10.160.0 255.255.240.0 serial0/0/1
ip route 10.10.192.68 255.255.255.252 serial0/0/0
```

DHCP excluding first 10 ips from The headquarter=> herbs house, gulf coast, asgard

```
Router>en
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip DHCP excluded-address 10.10.176.1 10.10.176.10
Router(config)#ip DHCP excluded-address 10.10.184.1 10.10.184.10
Router(config)#ip DHCP excluded-address 10.10.64.1 10.10.64.10
```

Configuring the headquarter as DHCPV4 server

```
Router(config)#ip dhcp pool herbs-house-pool
Router(dhcp-config)#network 10.10.176.0 255.255.248.0
Router(dhcp-config)#default-router 10.10.176.1
Router(dhcp-config)#dns-server 10.10.0.5
Router(dhcp-config)#exit
Router(config)#
Router(config)#ip dhcp pool gulf-coast-pool
Router(dhcp-config)#network 10.10.184.0 255.255.248.0
Router(dhcp-config)#default-router 10.10.184.1
Router(dhcp-config)#dns-server 10.10.0.5
Router(dhcp-config)#exit
Router(config)#ip dhcp pool asgard-pool
Router(dhcp-config)#network 10.10.64.0 255.255.192.0
Router(dhcp-config)#default-router 10.10.64.1
Router(dhcp-config)#dns-server 10.10.0.5
Router(dhcp-config)#exit
```

Configuring herbs house as relay =>

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip helper-address 10.10.192.58
Router(config-if)#exit
Router(config)#interface fa0/0
Router(config-if)#no shutdown
Router(config-if)#exit
```

Configuring gulf coast as relay =>

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip helper-address 10.10.192.58
Router(config-if)#no shutdown
Router(config-if)#exit
```

Configuring asgard as relay =>

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip helper-address 10.10.192.58
Router(config-if)#no shutdown
Router(config-if)#exit
```


Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
Herb's House	Fa0/0	10.10.176.1/21	255.255.248.0	N/A
	Se0/0/0	10.10.192.49/30	255.255.255.252	N/A
	Se0/0/1	10.10.192.69	255.255.255.252	N/A
Asgard	Fa0/0	10.10.64.1/18	255.255.192.0	N/A
	Se0/0/0	10.10.192.54/30	255.255.255.252	N/A
	Se0/0/1	10.10.192.57/30	255.255.255.252	N/A
	Se0/1/0	10.10.192.70	255.255.255.252	N/A
Gulf Coast	Fa0/0	10.10.184.1/21	255.255.248.0	N/A
	Se0/0/0	10.10.192.50/30	255.255.255.252	N/A
	Se0/0/1	10.10.192.53/30	255.255.255.252	N/A
Lamentis 1	Fa0/0	10.10.128.1/19	255.255.224.0	N/A
	Se0/0/0	10.10.192.62/30	255.255.255.252	N/A
The Void	Fa0/0	10.10.160.1/20	255.255.240.0	N/A
	Se0/0/0	10.10.192.66/30	255.255.255.252	N/A
	Se0/1/0	182.168.0.2/24	255.255.255.0	N/A
TVA Headquarters	Fa0/0	10.10.0.1/18	255.255.192.0	N/A
	Se0/0/0	10.10.192.58/30	255.255.255.252	N/A
	Se0/0/1	10.10.192.65/30	255.255.255.252	N/A
	Se0/1/0	10.10.192.61/30	255.255.255.252	N/A
ISP	Fa0/0	185.168.0.1/24	255.255.255.0	N/A
	Se0/0/0	182.168.0.1/24	255.255.255.0	N/A
PC0	NIC	10.10.176.3/21	255.255.248.0	10.10.176.1
PC1	NIC	10.10.0.2/18	255.255.192.0	10.10.0.1
PC2	NIC	10.10.160.2/20	255.255.240.0	10.10.160.1

PC3	NIC	10.10.128.3/19	255.255.224.0	10.10.128.1
PC4	NIC	10.10.64.2/18	255.255.192.0	10.10.64.1
PC5	NIC	10.10.184.3/21	255.255.248.0	10.10.184.1
PC6	NIC	10.10.184.2/21	255.255.248.0	10.10.184.1
PC7	NIC	10.10.64.3/18	255.255.192.0	10.10.64.1
PC8	NIC	10.10.176.2/21	255.255.248.0	10.10.176.1
PC9	NIC	10.10.128.2/19	255.255.224.0	10.10.128.1
PC10	NIC	10.10.160.3/20	255.255.240.0	10.10.160.1
PC11	NIC	10.10.0.3/18	255.255.192.0	10.10.0.1
PC12	NIC	185.168.0.2/24	255.255.255.0	185.168.0.1
PC13	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC14	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC15	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
DNS Server	NIC	10.10.0.5/18	255.255.192.0	10.10.0.1
Web Server	NIC	10.10.0.4/18	255.255.192.0	10.10.0.1
Server0	NIC	185.168.0.3/24	255.255.255.0	N/A

TVA Headquarters – 10.10.0.0/18

Asgard – 10.10.64.0/18

Lamentis 1 – 10.10.128.0/19

The Void – 10.10.160.0/20

Herb's House – 10.10.176.0/21

Gulf Coast – 10.10.184.0/21

S – 10.10.192.0/29

S – 10.10.192.8/29

S – 10.10.192.16/29

S – 10.10.192.24/29

S – 10.10.192.32/29

S – 10.10.192.40/29

WR – 10.10.192.48/30

WR – 10.10.192.52/30

WR – 10.10.192.56/30

WR – 10.10.192.60/30

WR – 10.10.192.64/30

WR – 10.10.192.68/30

Diagrams:

10301281

Here, TVA Headquarters = TVAH

The Void = TV

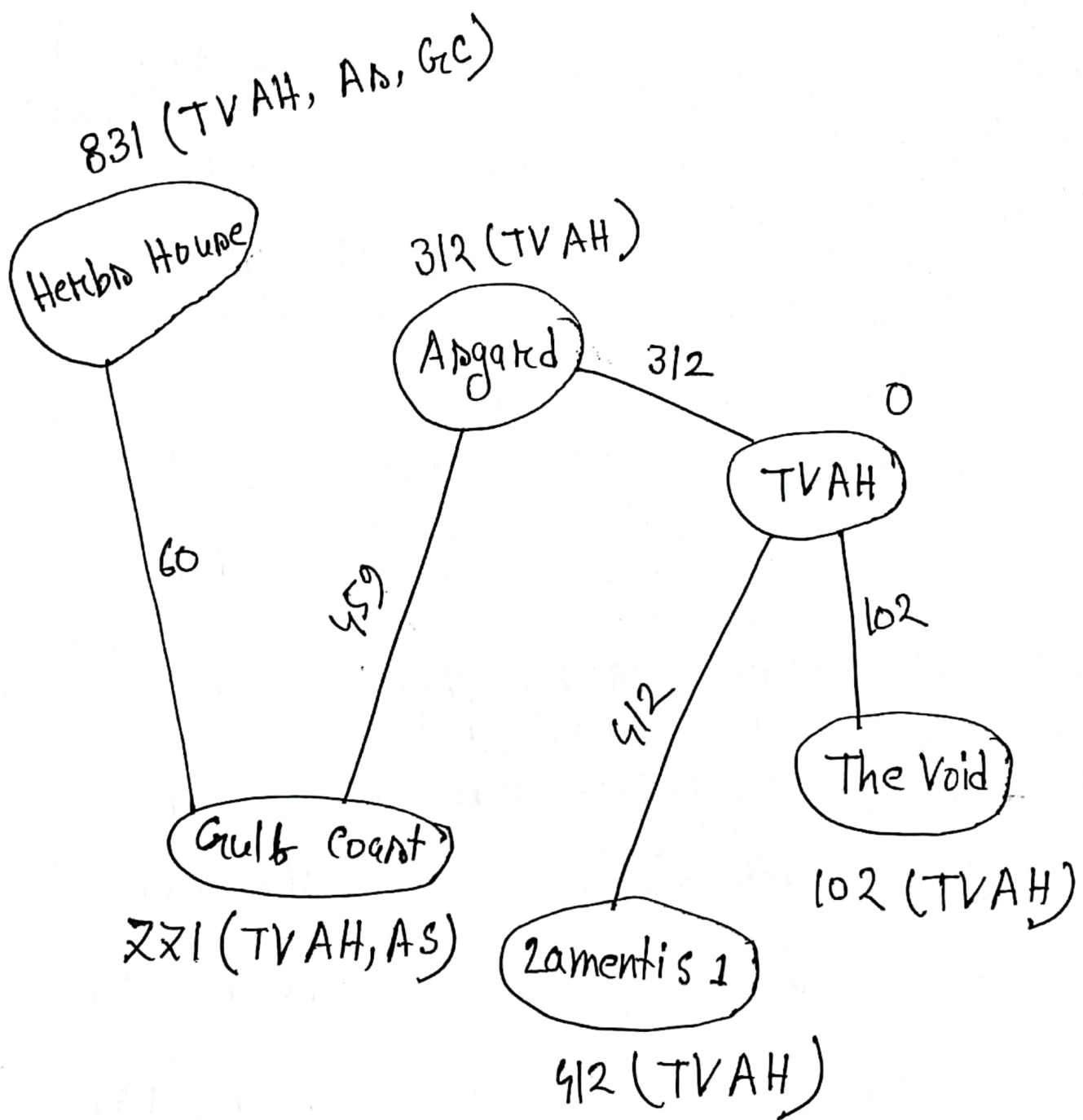
Gift Count = GC

Lamentia 1 = La

Herb's House = HH

Adgated = AS

step	N'	D(TV), P(TV)	D(AS), P(AS)	D(HH), P(HH)	D(GC), P(GC)	D(La), P(La)
0	TVAH	102, TVAH	312, TVAH	947, TVAH	878, TVAH	412, TVAH
1	TVAH TV		312, TVAH	947, TVAH	878, TVAH	412, TVAH
2	TVAH TV AS			924, AS	771, AS	412, TVAH
3	TVAH TV AS La			838, La	771 AS	
4	TVAH TV AS La GC			831, GC		
5	TVAH TV AS La GC HH					



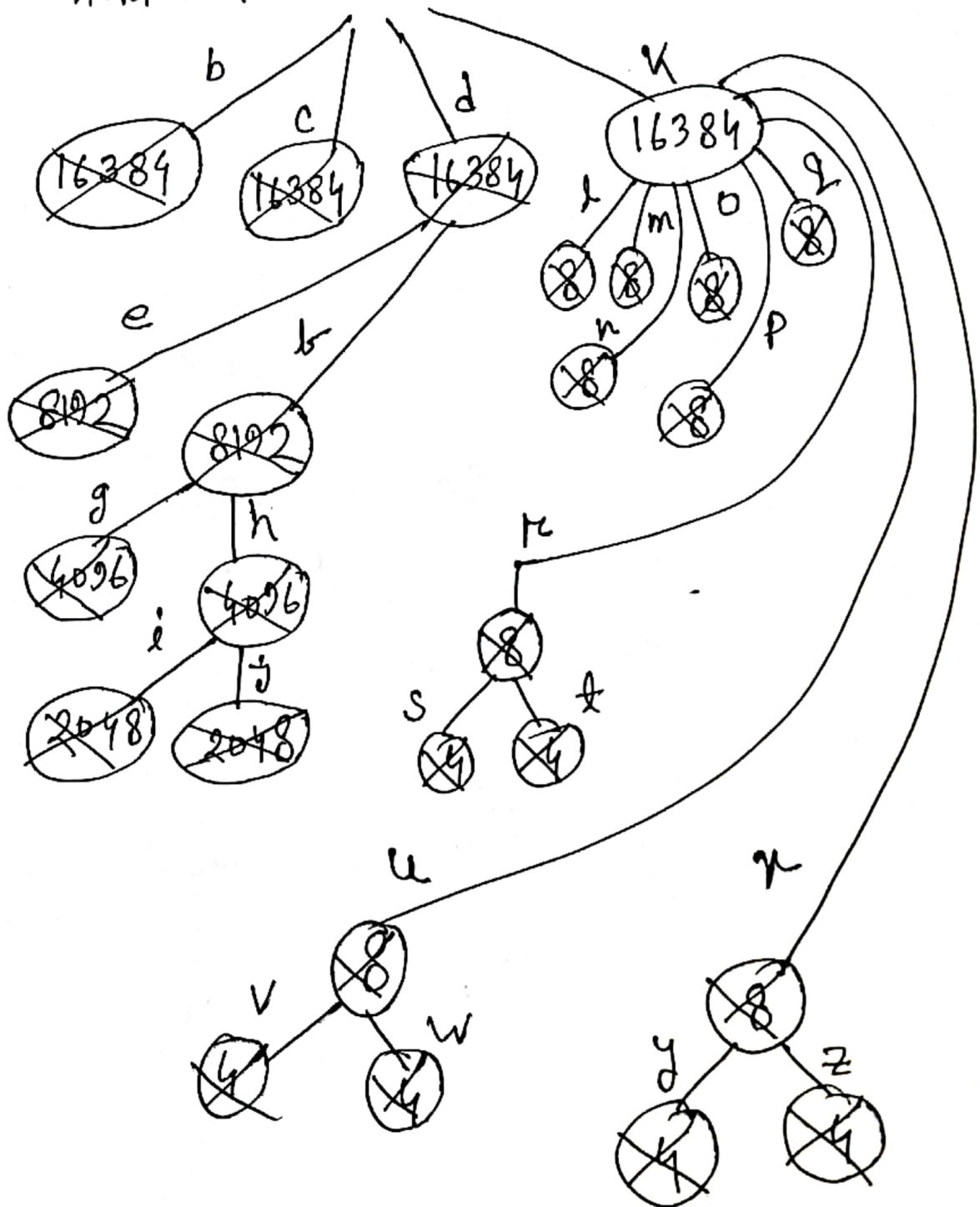
19301281

#	Host	IPS	Given IPS	H.B	N.B
TVAH	2112	14228	16384	14	18
Angard	4250	8514	16384	14	18
Lamentib	3829	2662	8192	13	19
Void	1240	2484	4096	12	20
Herbs house	1020	2044	2048	11	21
Gulf coast	511	1026	2048	11	21
S1	5	2	8	3	29
S2	3	5	8	3	29
S3	3	5	8	3	29
S4	3	5	8	3	29
S5	3	5	8	3	29
S6	3	5	8	3	29
R1	2	4	4	2	30
R2	2	4	4	2	30
R3	2	4	4	2	30
R4	2	4	4	2	30
R5	2	4	4	2	30
R6	2	4	4	2	30

main network = 10.10.0.0/16

19301281

So, Host = $2^{16} = 65536$



1030/281

a/

10.10.0.0/16

b

c

d

k

10.10.0.0/8

10.10.64.0/18

10.10.128.0/18

10.10.192.0/18

e (TVAH)

(Asgard)

10.10.128.0/19

10.10.160.0/19

(Lam1)

h

10.10.160.0/20

10.10.176.0/20

i (Void)

j

10.10.176.0/21

10.10.184.0/21

l (Herb House)

(cult coast)

10.10.192.0/29

10.10.192.8/29

10.10.192.16/29

10.10.192.24/29

p (S1)

q (S2)

(S3)

(S4)

10.10.192.32/29

10.10.192.40/29

10.10.192.48/29

10.10.192.56/29

s (S5)

(S6)

10.10.192.48/30

10.10.192.52/30

v (R1)

w (R2)

10.10.192.56/30

10.10.192.60/30

y (R3)

(R4)

10.10.192.64/30

10.10.192.68/30

(R5)

(R6)

10.10.192.64/29

x