

ASSIGNMENT

Course Name: Sessional Based on CSE 3205 (Computer Networks)

Course No.: CSE 3206

Topic: Subnet

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Packet Tracer – Subnet Scenario 2

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G 0/0	172. 31. 1. 1	255.255.255.240	N/A
	S 0/0/0	172. 31. 1. 64	255.255.255.240	N/A
R2	G 0/0	172. 31. 1. 17	255.255.255.240	N/A
	S 0/0/0	172. 31. 1. 78	255.255.255.240	N/A
	S 0/0/1	172. 31. 1. 81	255.255.255.240	N/A
R3	G 0/0	172. 31. 1. 33	255.255.255.240	N/A
	S 0/0/0	172. 31. 1. 97	255.255.255.240	N/A
	S 0/0/1	172. 31. 1. 94	255.255.255.240	N/A
R4	G 0/0	172. 31. 1. 49	255.255.255.240	N/A
	S 0/0/0	172. 31. 1. 110	255.255.255.240	N/A
S1	VLAN1	172. 31. 1. 2	255.255.255.240	172. 31. 1. 1
S2	VLAN1	172. 31. 1. 18	255.255.255.240	172. 31. 1. 17
S3	VLAN1	172. 31. 1. 34	255.255.255.240	172. 31. 1. 33
S4	VLAN1	172. 31. 1. 50	255.255.255.240	172. 31. 1. 49
PC1	NIC	172. 31. 1. 15	255.255.255.240	172. 31. 1. 1
PC2	NIC	172. 31. 1. 30	255.255.255.240	172. 31. 1. 17
PC3	NIC	172. 31. 1. 46	255.255.255.240	172. 31. 1. 33
PC4	NIC	172. 31. 1. 62	255.255.255.240	172. 31. 1. 49

PART 1: Design and Ip Addressing Scheme

Step 1:

- 7 subnets are needed
- 4 bits
- 16 subnets (2^4)
- 14 (16-2)
- First 5 subnet's binary value:
172. 31. 1. 0 = 172. 31. 1. 0 0 0 0 0 0 0 0
172. 31. 1. 16 = 172. 31. 1. 0 0 0 1 0 0 0 0
172. 31. 1. 32 = 172. 31. 1. 0 0 1 0 0 0 0 0
172. 31. 1. 48 = 172. 31. 1. 0 0 1 1 0 0 0 0
172. 31. 1. 64 = 172. 31. 1. 0 1 0 0 0 0 0 0
- Binary value of new subnet masking:
1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1. 1 1 1 1 1 1 1 1. 1 1 1 1 0 0 0 0
Decimal Value of new subnet masking:
255. 255. 255. 240

g. Completion of the subnet table:

Subnet No.	Subnet IP N/W Address	1 st Possible Host Address	Last Possible Host Address	Broadcast Address
0	172. 31. 1. 0	172. 31. 1. 1	172. 31. 1. 14	172. 31. 1. 15
1	172. 31. 1. 16	172. 31. 1. 17	172. 31. 1. 30	172. 31. 1. 31
2	172. 31. 1. 32	172. 31. 1. 33	172. 31. 1. 46	172. 31. 1. 47
3	172. 31. 1. 48	172. 31. 1. 49	172. 31. 1. 62	172. 31. 1. 63
4	172. 31. 1. 64	172. 31. 1. 65	172. 31. 1. 78	172. 31. 1. 79
5	172. 31. 1. 80	172. 31. 1. 81	172. 31. 1. 94	172. 31. 1. 95
6	172. 31. 1. 96	172. 31. 1. 97	172. 31. 1. 110	172. 31. 1. 111
7	172. 31. 1. 112	172. 31. 1. 113	172. 31. 1. 126	172. 31. 1. 127

Step 2:

- a. R1 = 172. 31. 1. 1 to 172. 31. 1. 15
- b. R2 = 172. 31. 1. 17 to 172. 31. 1. 30
- c. R3 = 172. 31. 1. 33 to 172. 31. 1. 46
- d. R4 = 172. 31. 1. 49 to 172. 31. 1. 62
- e. R1-R2 = 172. 31. 1. 65 to 172. 31. 1. 78
- f. R2-R3 = 172. 31. 1. 81 to 172. 31. 1. 94
- g. R3-R4 = 172. 31. 1. 97 to 172. 31. 1. 110

Step 3:

- a. R1 = 172. 31. 1. 1, R2 = 172. 31. 1. 17, R3 = 172. 31. 1. 33, R4 = 172. 31. 1. 49
- b. Done above
- c. S1 = 172. 31. 1. 2, S2 = 172. 31. 1. 18, S3 = 172. 31. 1. 34, S4 = 172. 31. 1. 50
- d. PC1 = 172. 31. 1. 15, PC2 = 172. 31. 1. 30, PC3 = 172. 31. 1. 46, PC4 = 62

PART 2: Assign IP Addressing to Network Devices and Verify Connectivity

Step1:

```
R1>en
R1#config t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface G0/0
R1(config-if)#ip address 172.31.1.1 255.255.255.240
R1(config-if)#no shutdown
```

R2>en

R2#config t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#interface G0/0

R2(config-if)#ip address 172.31.1.17 255.255.255.240

R2(config-if)#no shutdown

Step 2:

S3>en

S3#config t

Enter configuration commands, one per line. End with CNTL/Z.

S3(config)#interface vlan1

S3(config-if)#ip address 172.31.1.34 255.255.255.240

S3(config-if)#no shutdown

S3(config-if)#exit

S3(config)#ip default-gateway 172.31.1.33

Step 3:

PC4 Connected.

