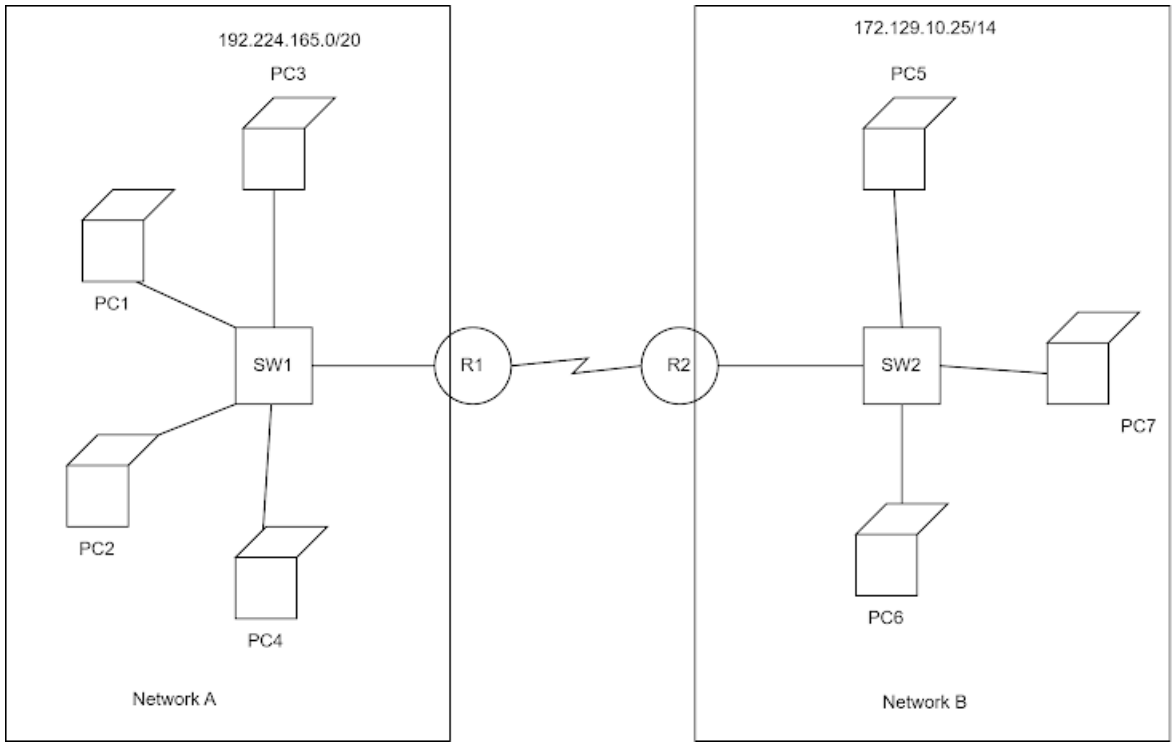
CSE421 Assignment 04 [MSMA | 2024 Fall]

Total points 92.5/100

Answer all the questions in this form. PDF submission is mandatory for this assignment. **You can submit only once even if you submit by mistake. So, make sure that your answers are put correctly by refreshing the page. Deadline: December 15, 2024 (Sunday) 11:59:59pm**

Answer Q1 to Q7 based on the following scenario. IP address of PC3 and PC5 are given in the diagram.



✓ **Q1. Calculate the subnet mask of Network B. (Format: 255.255.255.0)** * 5/5

255.252.0.0 ✓

✓ **Q2. Calculate the network address of Network B. (Format: 10.10.10.10/24)** *5/5

172.128.0.0/14 ✓

✓ **Q3. Calculate the broadcast address of Network B. (Format: 10.10.10.10/24)** *5/5

172.131.255.255/14 ✓

✓ **Q4. Calculate the IP address of PC7 if it has the 600th last usable address of the network. (Format: 10.10.10.10/24)** *5/5

172.131.253.167/14 ✓

✓ **Q5. Calculate the number of PCs that can be added more to network A (Format: 500)** *5/5

4089 ✓

✓ **Q6. Calculate the destination address if PC7 wants to send a packet to all the devices of network B. (Format: 10.10.10.10)** *5/5

255.255.255.255 ✓

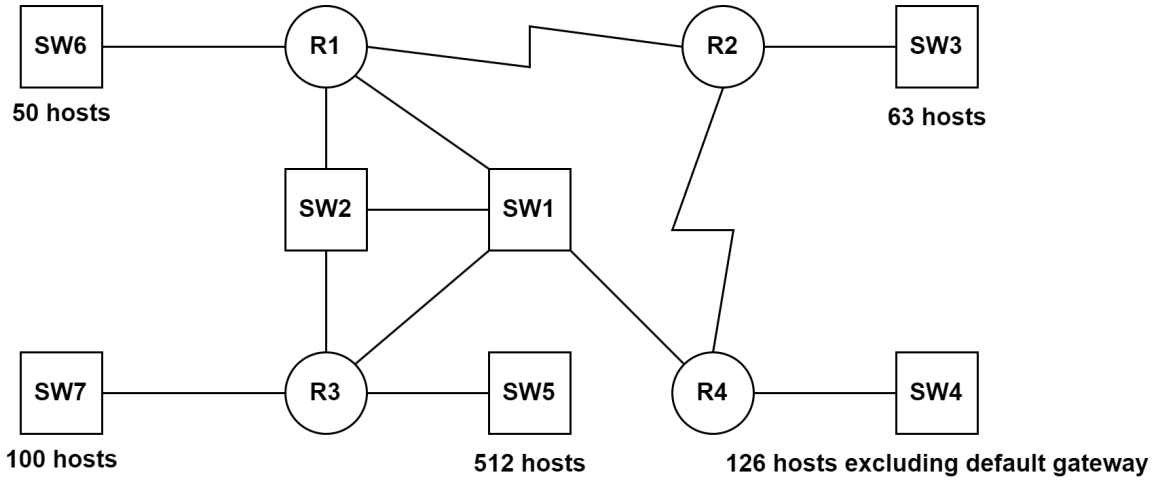
✓ **Q7. Calculate the destination address if PC7 wants to send a packet to all the devices of network A. (Format: 10.10.10.10)** *5/5

192.224.175.255 ✓

✓ **Q8. What will be the simpler version for IPv6 address 1294:0DAB:0000:0000:0000:0000:0010:0000?** *5/5

1294:DAB::10:0 ✓

Given the IP address is 10.15.137.0/17, Answer rest of the questions based on the following topology.



✗ **Q9. Calculate the maximum number of network addresses that you will get if you use FLSM given that the maximum requirement is based on the given topology.** *···/5

4094 ✗

Correct answer

32

Feedback

Highest requirement 512, total address needed 514 so host bit needed 10. Since FLSM will have all networks with same mask, we can't make any network having less than 10 host bits. so, number of new network bits that can be borrowed from host bits 15-10=5. maximum networks = 2^5 = 32

✗ **Q10. Calculate the total number of IP address that will be wasted if you use FLSM. [No relation with Q9]** *2.5/5

31875 ✗

Correct answer

31891

Feedback

updated mask = 17+3 = 20. host bits for every network = 32-20 = 12
using 12 bits we get total 2^12 = 4096 combinations/addresses for each network.
waste in SW1 and SW2 network = 4096 - (5+2)
waste in SW3 LAN= 4096 - (63+2)
waste in SW4 LAN= 4096 - (126+1+2)
waste in SW5 LAN= 4096 - (512+2)
waste in SW6 LAN= 4096 - (50+2)
waste in SW7 LAN= 4096 - (100+2)
waste in WAN network 1= 4096 - (2+2)
waste in WAN network 2= 4096 - (2+2)

add all these to find out the total waste

✓ **Q11. Calculate the network address for the LAN connected to SW3 using VLSM. (Format: 10.10.10.10/24)** *5/5

10.15.133.128/25 ✓

✓ **Q12. Calculate the network address for the LAN connected to SW4 using VLSM. (Format: 10.10.10.10/24)** *5/5

10.15.132.0/24 ✓

✓ **Q13. Calculate the network address for the LAN connected to SW5 using VLSM. (Format: 10.10.10.10/24)** *5/5

10.15.128.0/22 ✓

✓ **Q14. Calculate the network address for the LAN connected to SW6 using VLSM. (Format: 10.10.10.10/24)** *5/5

10.15.134.0/26 ✓

✓ **Q15. Calculate the network address for the LAN connected to SW7 using VLSM. (Format: 10.10.10.10/24)** *5/5

10.15.133.0/25 ✓

✓ **Q16. Calculate the network addresses of rest of the networks if VLSM is used. (Format: 10.10.10.10/24, 11.11.11.11/24, ...)** *5/5

10.15.134.64/29, 10.15.134.72/30, 10.15.134.76/30 ✓

✓ **Q17. Calculate the total number of IP addresses what will be wasted if VLSM is used.** *5/5

739 ✓

Feedback

waste in SW1 and SW2 network = 8 - (5+2)
waste in SW3 LAN= 128 - (63+2)
waste in SW4 LAN= 256 - (126+1+2)
waste in SW5 LAN= 1024 - (512+2)
waste in SW6 LAN= 64 - (50+2)
waste in SW7 LAN= 128 - (100+2)
waste in WAN network 1= 4 - (2+2)
waste in WAN network 2= 4 - (2+2)

add all these to find out the total waste

Submit Workings and Hierarchical Tree for VLSM. * 15/15

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Add file