UNIVERSITY OF Baguio

SCHOOL OF INFORMATION TECHNOLOGY

NAME: Sueno, Johnray K.	
SECTION: IDC2	DATE SUBMITTED: 12/07/2024

(SITNET4) PORTFOLIO

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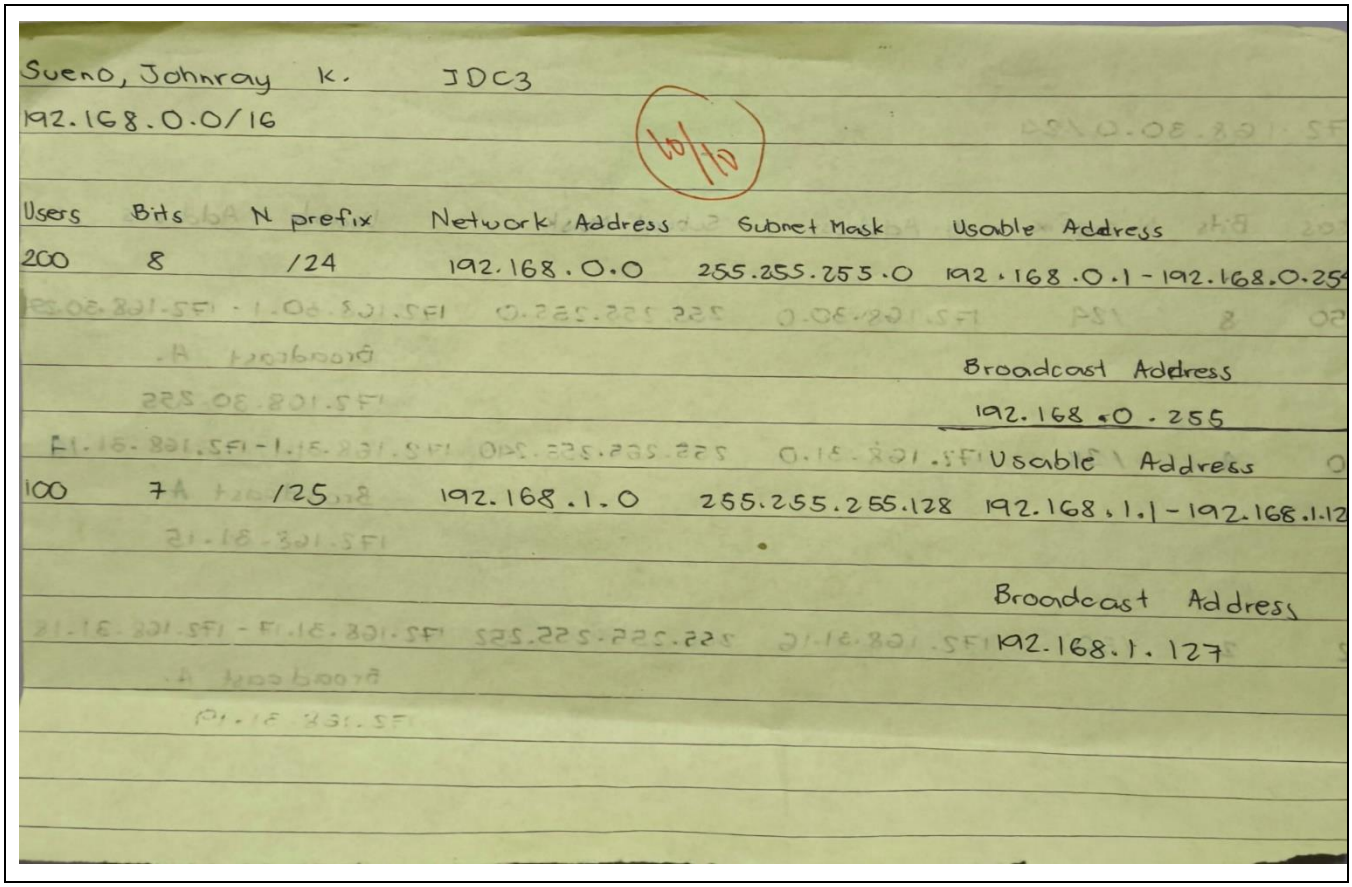
FIRST GRADING: LECTURE

Quiz 1:



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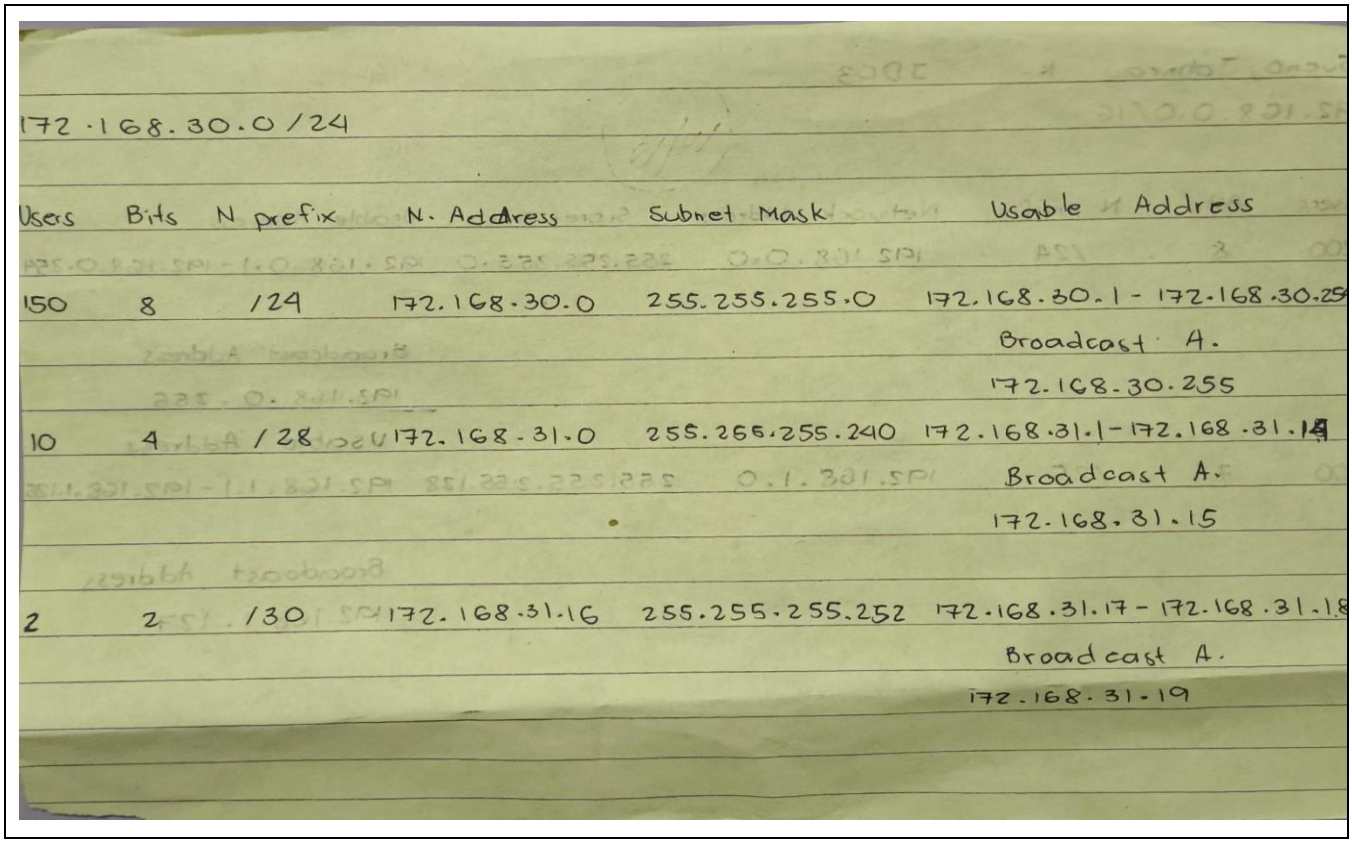
192.168.0.0/16

10/10

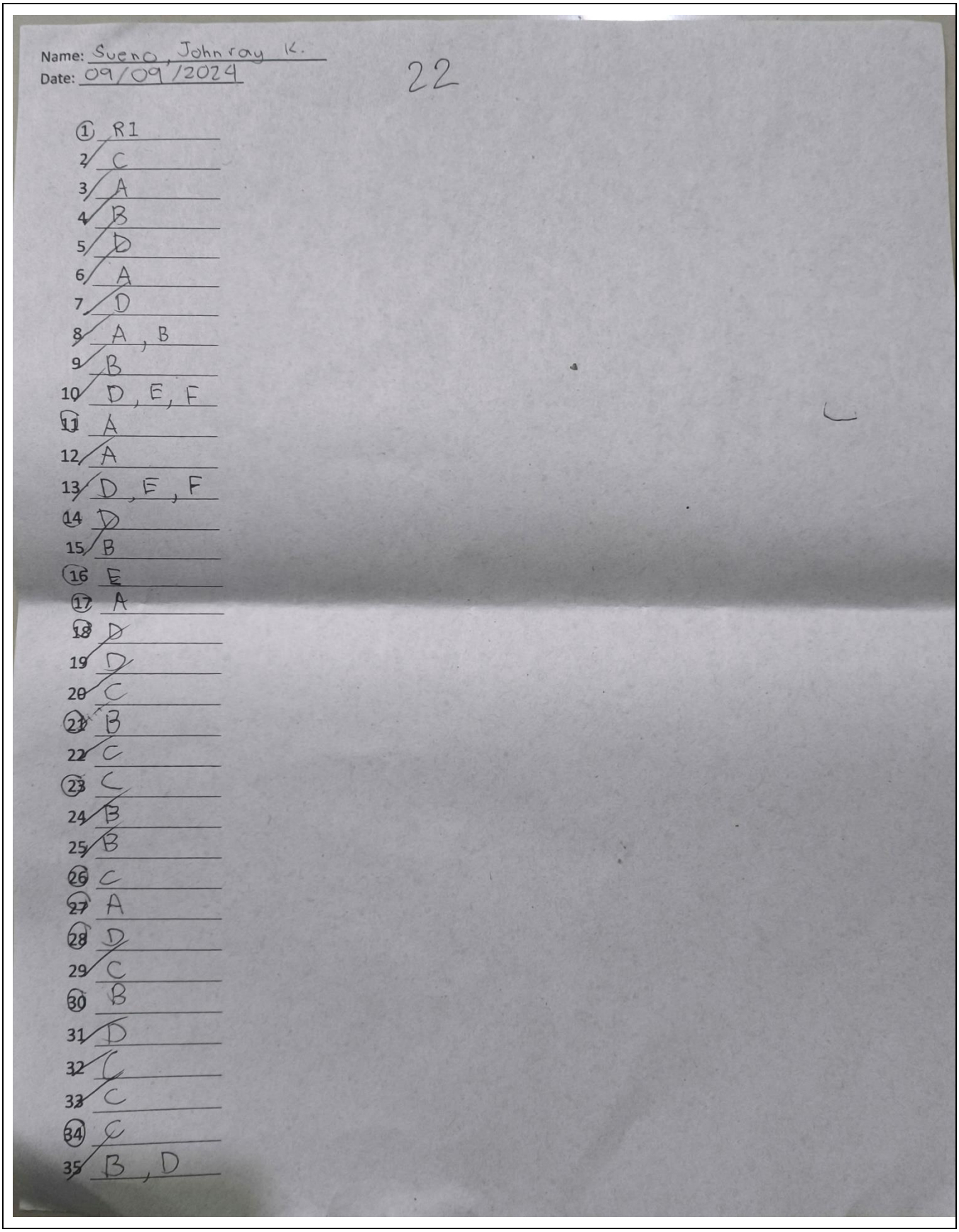
Users	Bits	N prefix	Network Address	Subnet Mask	Usable Address
200	8	/24	192.168.0.0	255.255.255.0	192.168.0.1 - 192.168.0.25
					Broadcast Address 192.168.0.255
100	7	/25	192.168.1.0	255.255.255.128	Usable Address 192.168.1.1 - 192.168.1.12
					Broadcast Address 192.168.1.127



172.168.30.0/24

Users	Bits	N prefix	N. Address	Subnet Mask	Usable Address
150	8	/24	172.168.30.0	255.255.255.0	172.168.30.1 - 172.168.30.25
					Broadcast A. 172.168.30.255
10	4	/28	172.168.31.0	255.255.255.240	172.168.31.1 - 172.168.31.14
					Broadcast A. 172.168.31.15
2	2	/30	172.168.31.16	255.255.255.252	172.168.31.17 - 172.168.31.18
					Broadcast A. 172.168.31.19

QUIZ 2



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1. R1
2. C
3. A
4. B
5. D
6. A
7. D
8. A, B
9. B
10. D, E, F
11. A
12. A
13. D, E, F
14. D
15. B
16. E
17. A
18. D
19. D
20. C
21. B
22. C
23. C
24. B
25. B
26. C
27. A
28. D
29. C
30. B
31. D
32. C
33. C
34. C
35. B, D

ASSIGNMENT 1

19/50

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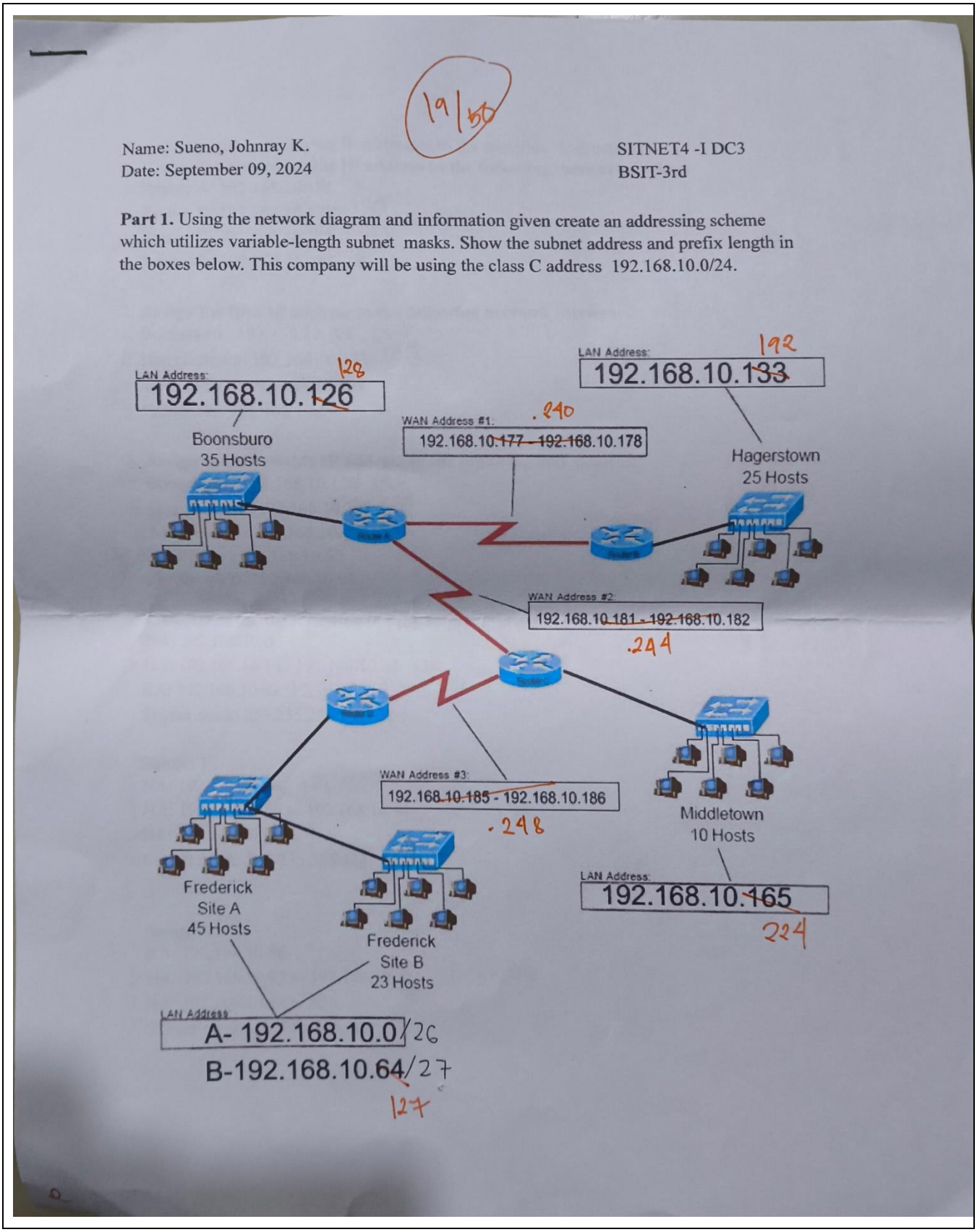
SITNET4 -I DC3
BSIT-3rd

Part 1. Using the network diagram and information given create an addressing scheme which utilizes variable-length subnet masks. Show the subnet address and prefix length in the boxes below. This company will be using the class C address 192.168.10.0/24.



Part 2. Assign the following IP addresses to the specified instructions.

1. Assign the second usable IP address to the following network devices:

a. Router A: 192.168.10.181 130
b. Router B: 192.168.10.178 194
c. Router C: 192.168.10.182 226
d. Router D: 192.168.10.186 2

2. Assign the fifth IP address to the following network devices:

a. Boonsburo : 192.168.10.101 130
b. Haggerstown: 192.168.10.133 197
c. Middletown : 192.168.10.165 229
d. Frederick : 192.168.10.5

3. Assign the last usable IP address to the following end devices:

a. Boonsburo : 192.168.10.126 190
b. Haggerstown: 192.168.10.158 222
c. Middletown : 192.168.10.174 238
d. Frederick : 192.168.10.62 63
e. Frederick B :192.168.10.94

4. Compute for the following in each subnet: Subnet 0

NA: 192.168.10.0
HA: 192.168.10.1 to 192.168.10.62 126
BA: 192.168.10.63 127
Subnet mask: 255.255.255.192 128

Subnet 1

NA: 192.168.10.64 128
HA: 192.168.10.65 to 192.168.10.94 129-190
BA: 192.168.10.95 191
Subnet mask: 255.255.255.224 192

Subnet 2

NA: 192.168.10.96 192
HA: 192.168.10.97 to 192.168.10.126 193-222
BA: 192.168.10.127 223
Subnet mask: 255.255.255.192 224

Subnet 3

NA: 192.168.10.128 224

HA: 192.168.10.129 to 192.168.10.158 225 - 238

BA: 192.168.10.159 239

Subnet mask: 255.255.255.224 240

Subnet 4

NA: 192.168.10.160 240

HA: 192.168.10.161 to 192.168.10.174 241 - 242

BA: 192.168.10.175 243

Subnet mask: 255.255.255.240 252

Subnet 5

NA: 192.168.10.176 244

HA: 192.168.10.177 to 192.168.10.178 245 - 246

BA: 192.168.10.179 247

Subnet mask: 255.255.255.252

Subnet 6

NA: 192.168.10.180 248

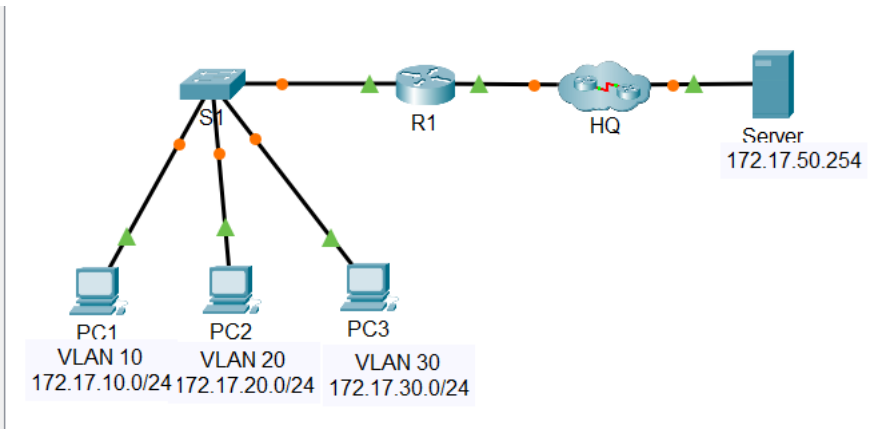
HA: 192.168.10.181 to 192.168.10.182 249 - 250

BA: 192.168.10.183 251

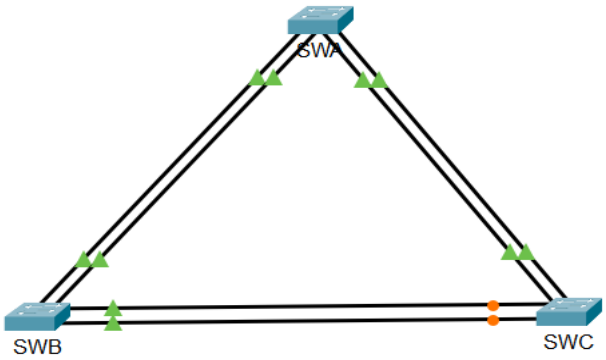
Subnet mask: 255.255.255.252

FIRST GRADING: LABOLATORY

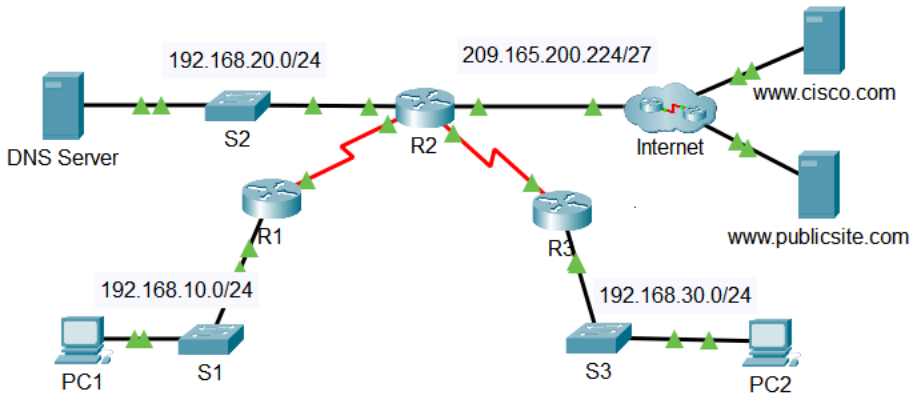
LABOLATORY ACTIVITY 2: INTERVLAN ROUTING



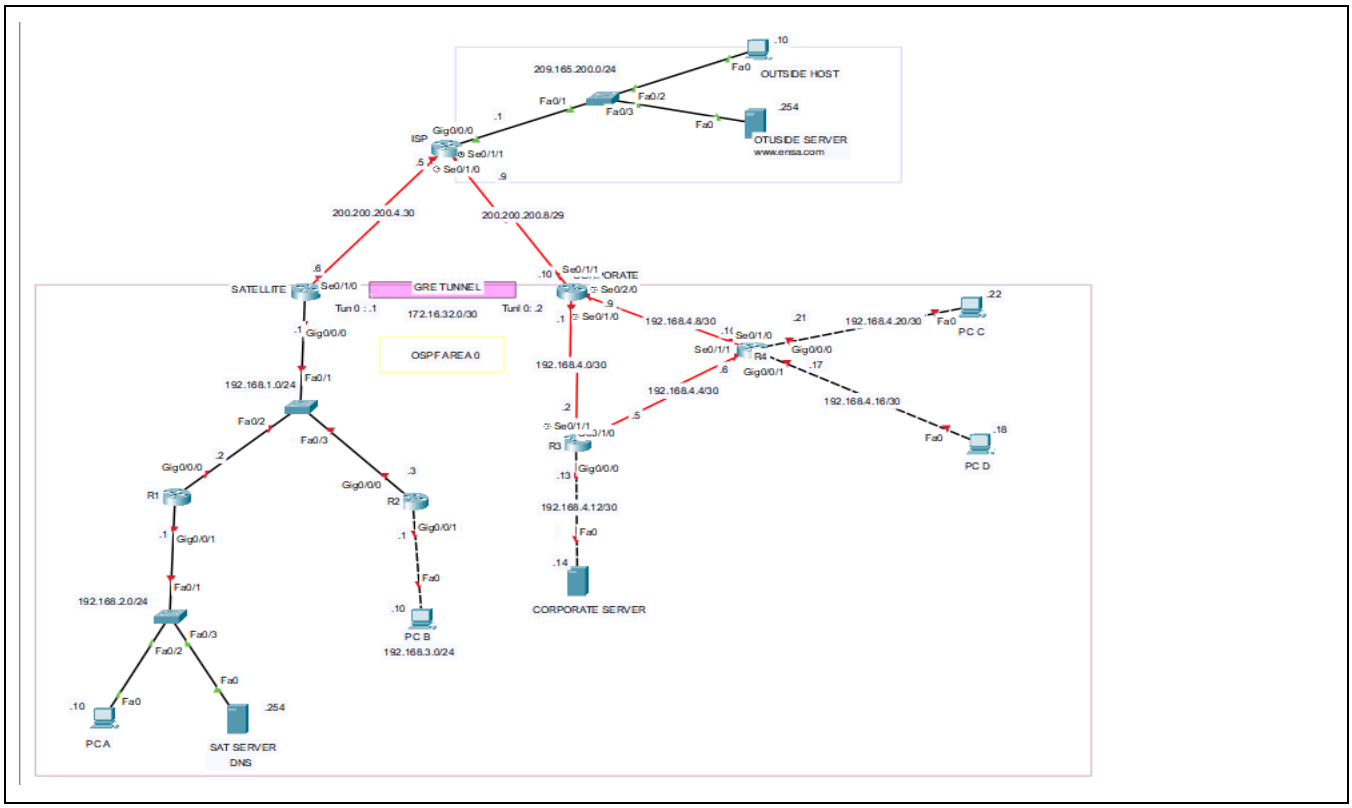
LABOLATORY ACTIVITY 3: IMPLEMENT ETHERCHANNEL



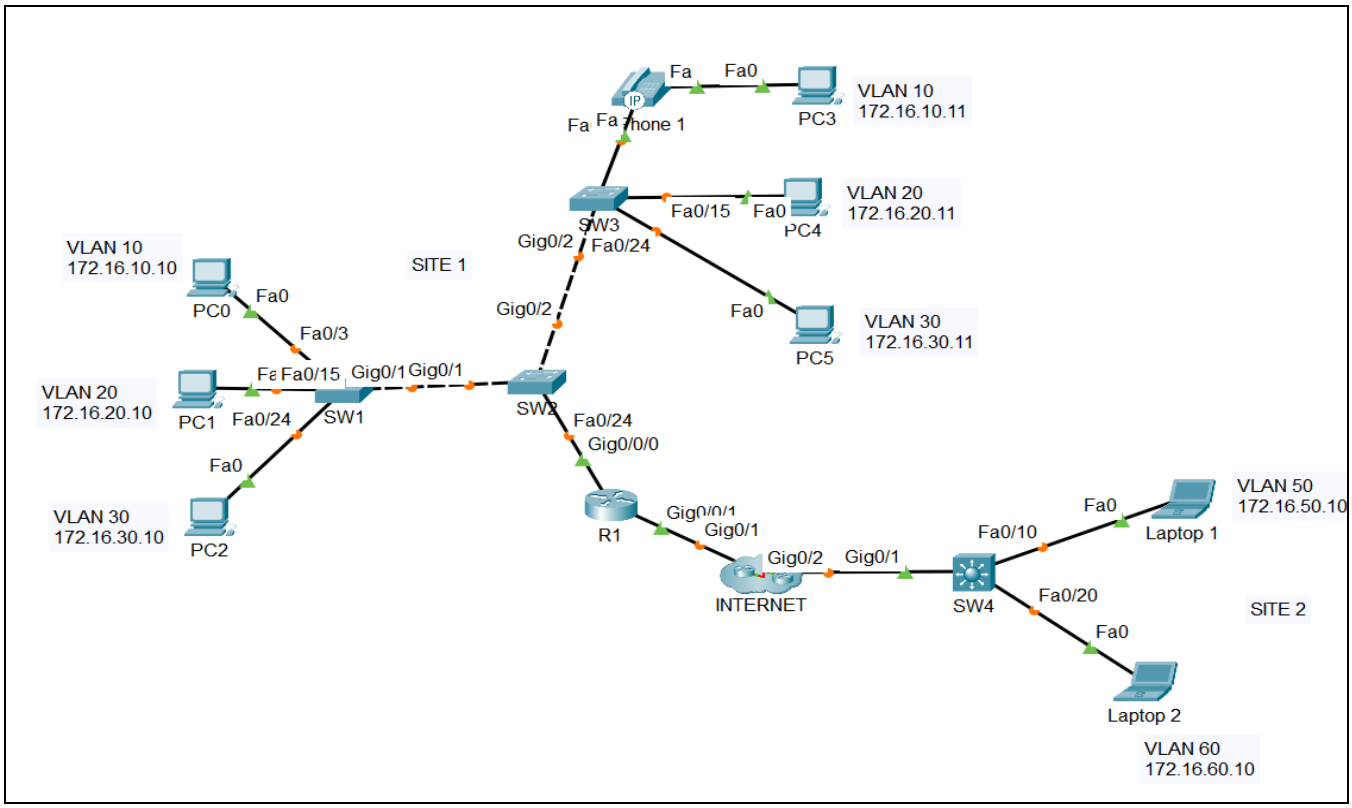
LABOLATORY ACTIVITY 4: IMPLEMENT DHCPv4



LABOLATORY ACTIVITY 5: ENSA INSTRUCTOR TRAINING

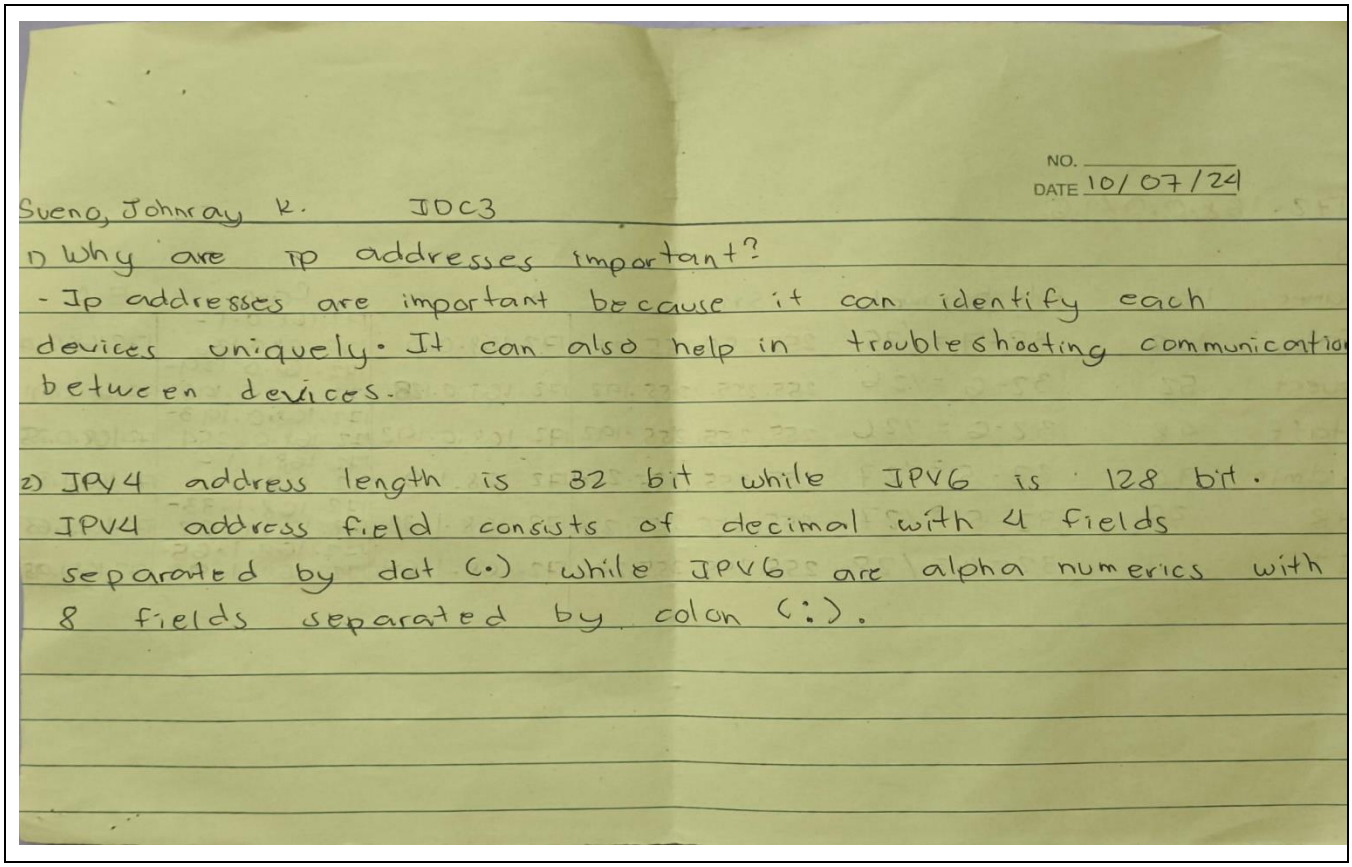


FIRST GRADING EXAM



MIDTERM:

QUIZ 1



NO.
DATE 10/07/24

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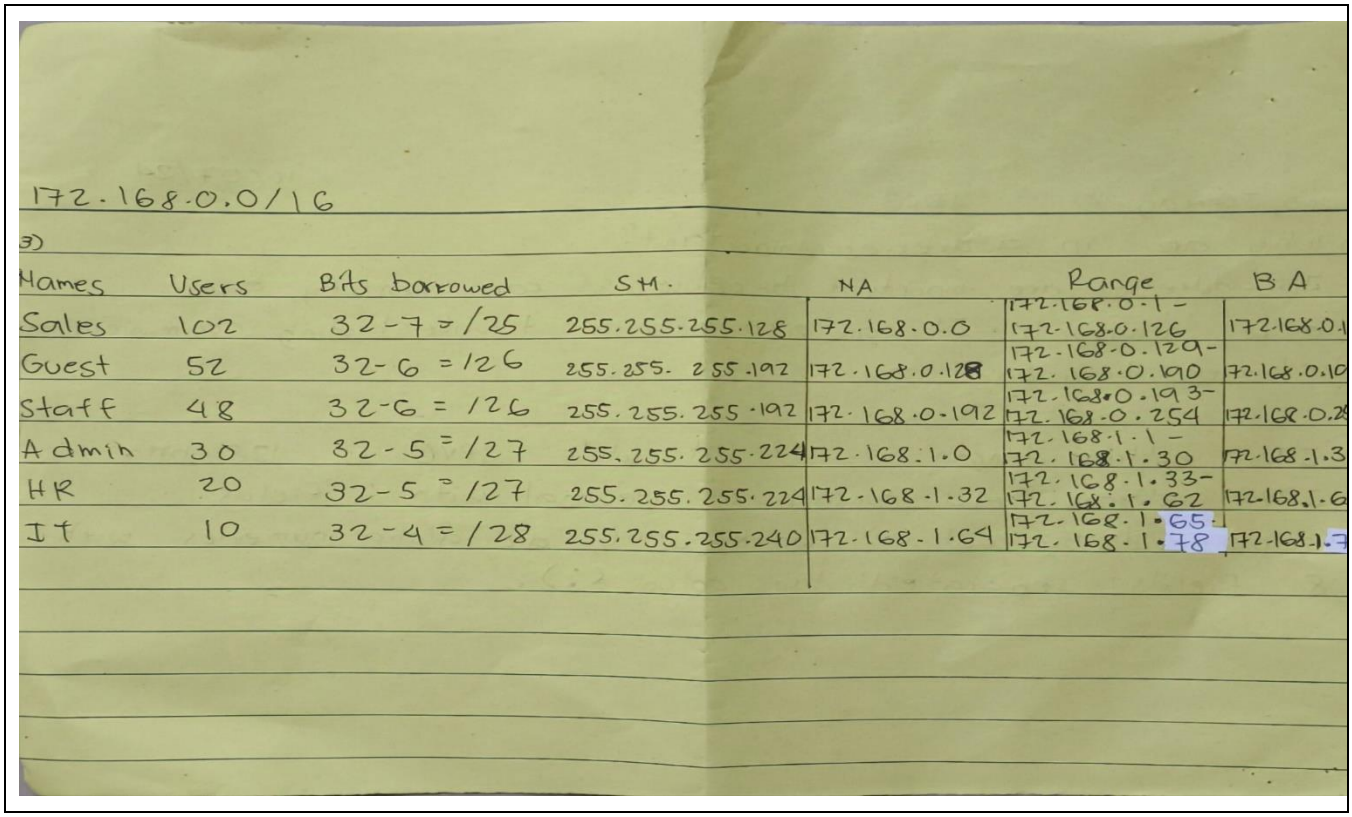
1) Why are IP addresses important?

- Ip addresses are important because it can identify each devices uniquely. It can also help in troubleshooting communicatio between devices.

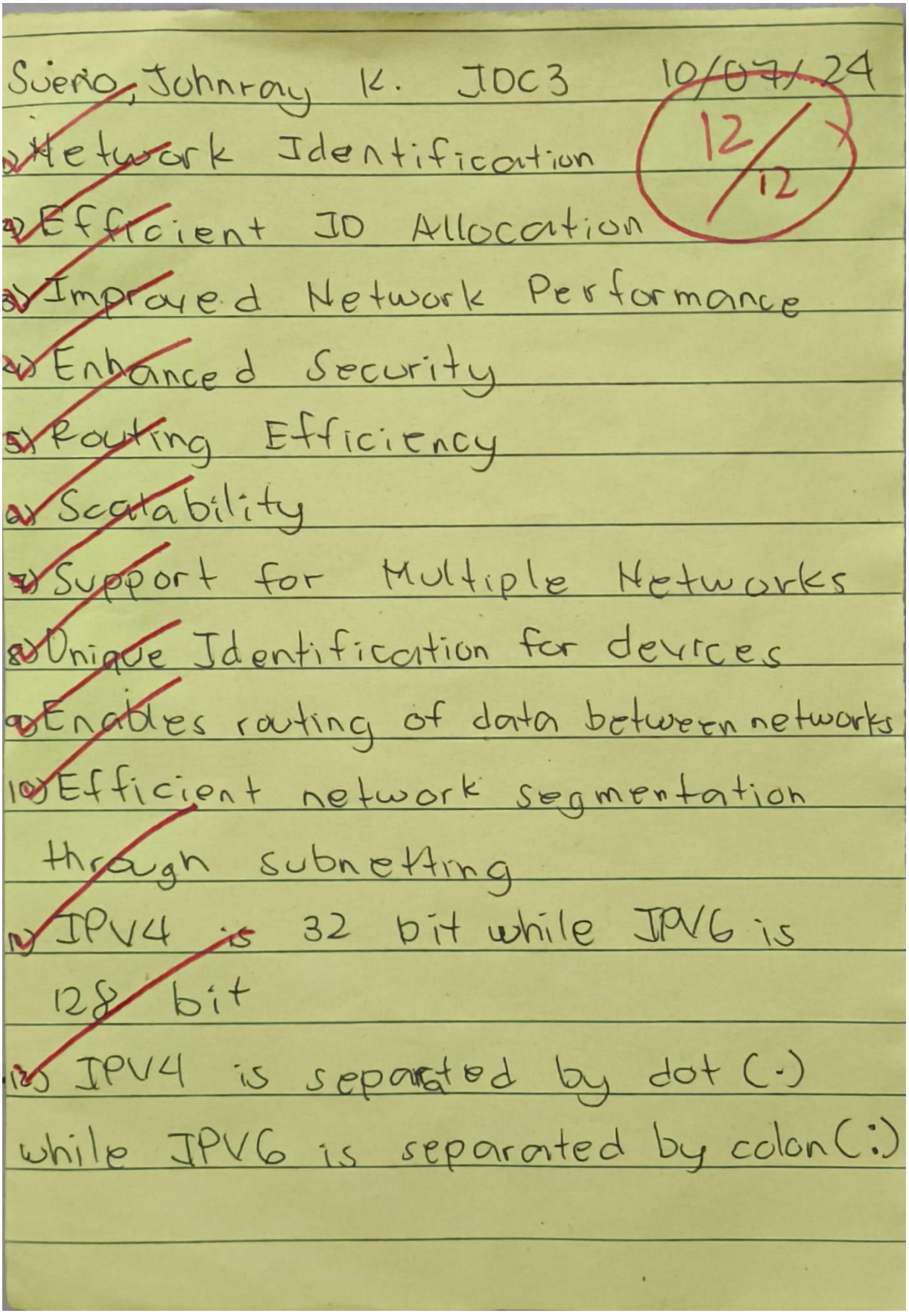
2) IPV4 address length is 32 bit while IPV6 is 128 bit. IPV4 address field consists of decimal with 4 fields separated by dot (.) while IPV6 are alpha numerics with 8 fields separated by colon (:).



172.168.0.0/16

3)

Names	Users	Bits borrowed	SM.	NA	Range	BA
Sales	102	32-7 = /25	255.255.255.128	172.168.0.0	172.168.0.1 - 172.168.0.126	172.168.0.1
Guest	52	32-6 = /26	255.255.255.192	172.168.0.128	172.168.0.129- 172.168.0.190	172.168.0.10
Staff	48	32-6 = /26	255.255.255.192	172.168.0.192	172.168.0.193- 172.168.0.254	172.168.0.25
Admin	30	32-5 = /27	255.255.255.224	172.168.1.0	172.168.1.1 - 172.168.1.30	172.168.1.3
HR	20	32-5 = /27	255.255.255.224	172.168.1.32	172.168.1.33- 172.168.1.62	172.168.1.6
IT	10	32-4 = /28	255.255.255.240	172.168.1.64	172.168.1.65- 172.168.1.78	172.168.1.7



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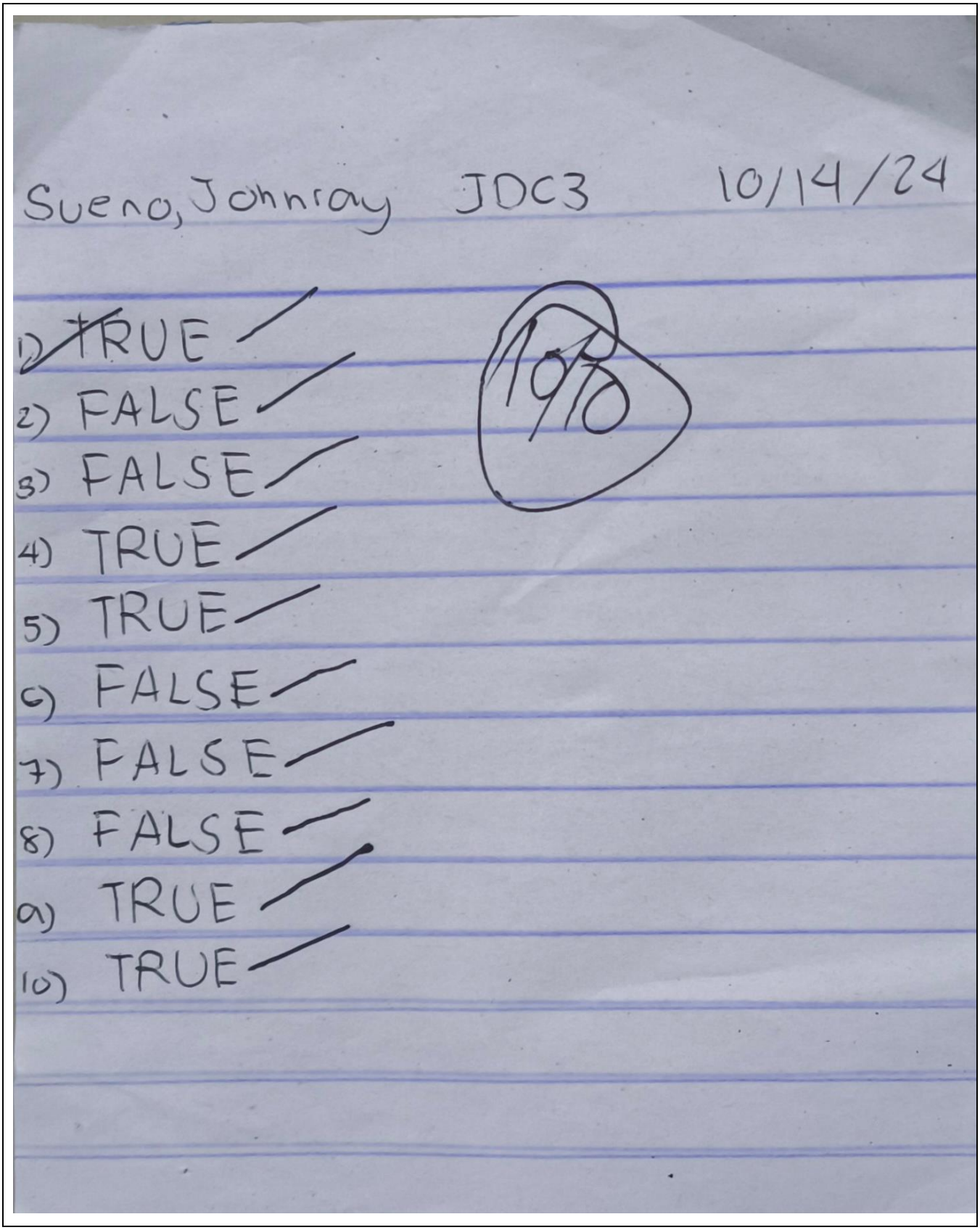
12/12

1) Network Identification
2) Efficient ID Allocation
3) Improved Network Performance
4) Enhanced Security
5) Routing Efficiency
6) Scalability
7) Support for Multiple Networks
8) Unique Identification for devices
9) Enables routing of data between networks
10) Efficient network segmentation through subnetting
11) IPV4 is 32 bit while IPV6 is 128 bit
12) IPV4 is separated by dot (.) while IPV6 is separated by colon (:)

SEATWORK 2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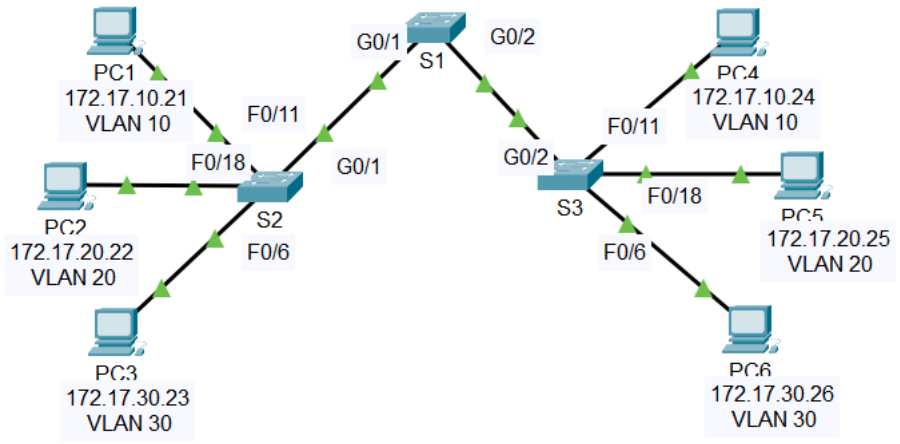
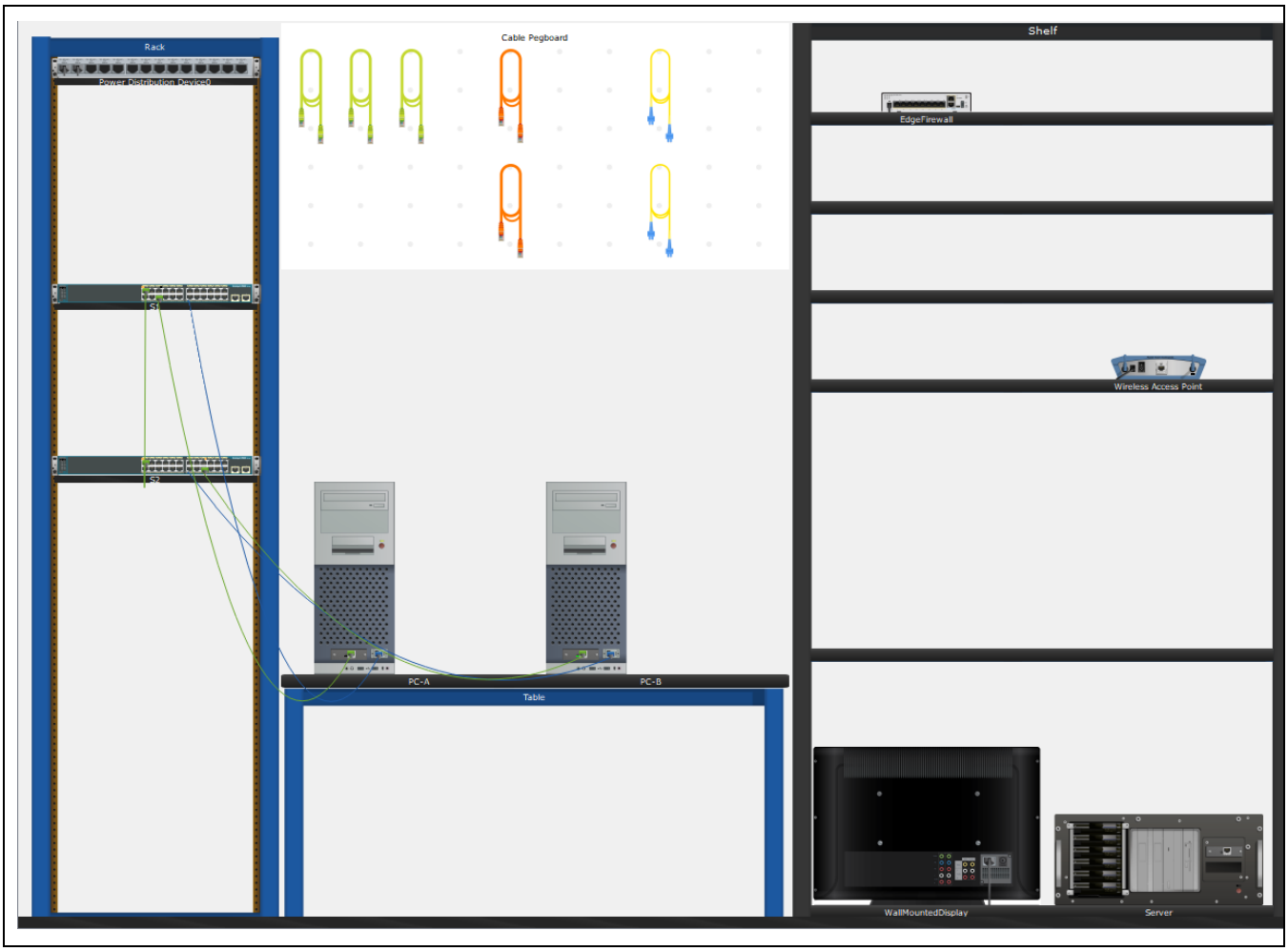
1) TRUE
2) FALSE
3) FALSE
4) TRUE
5) TRUE
6) FALSE
7) FALSE
8) FALSE
9) TRUE
10) TRUE
10/10

MIDTERM LABOLATORY:

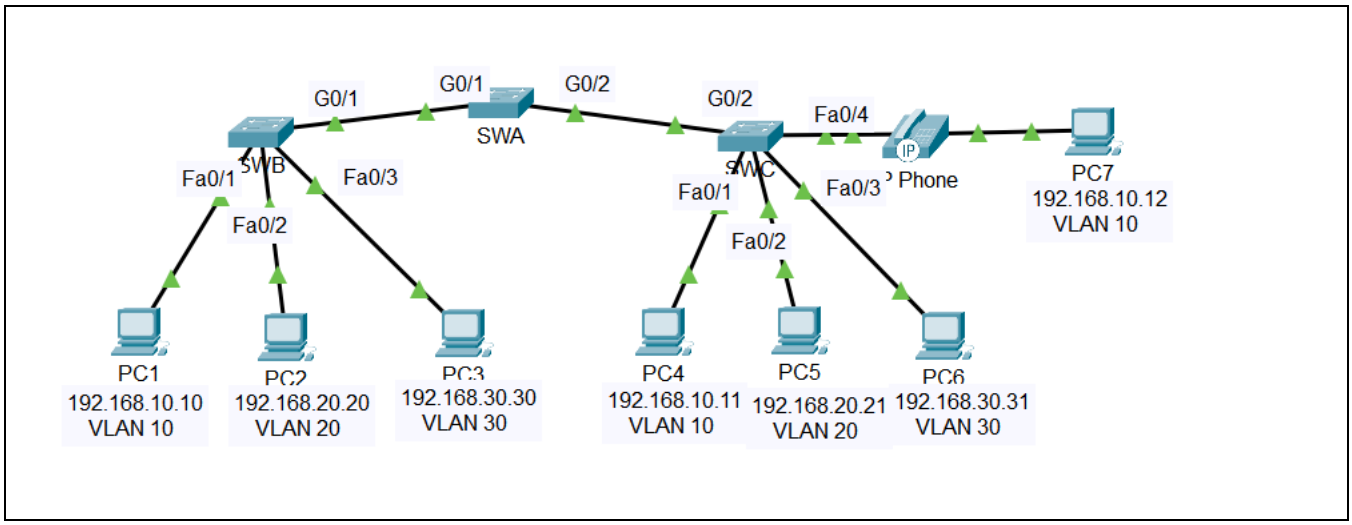
LABOLATORY ACTIVITY 1: CONFIGURE TRUNKS



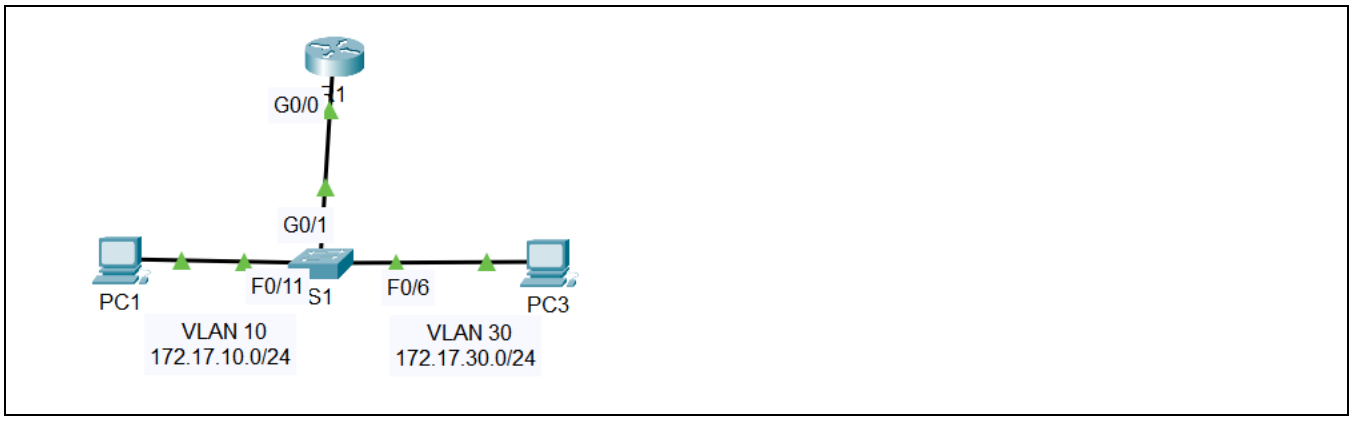
LABOLATORY ACTIVITY 2:



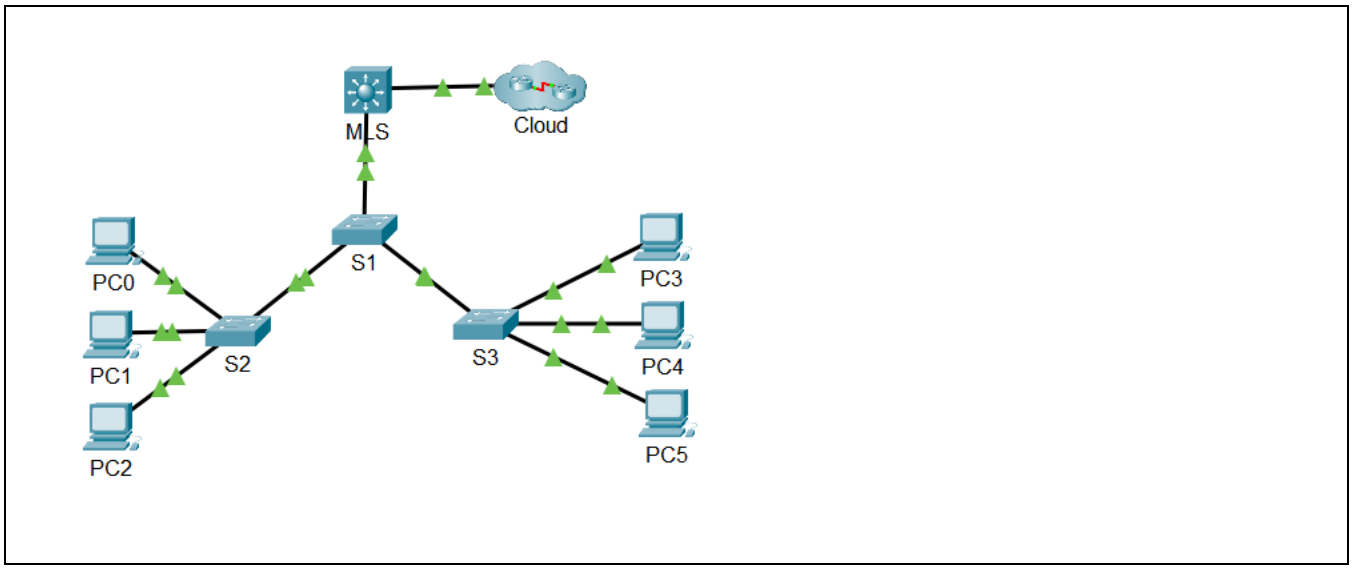
LABOLATORY ACTIVITY 3: IMPLEMENT VLANS AND TRUNKING



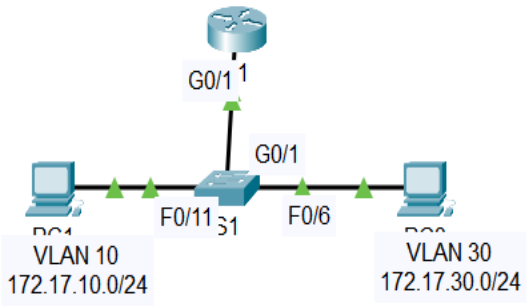
LABOLATORY ACTIVITY 4: CONFIGURE ROUTER-ON-A-STICK INTER-VLAN ROUTING



LABOLATORY ACTIVITY 5: CONFIGURE LAYER 4 SWITCHING AND INTER-VLAN ROUTING



LABOLATORY ACTIVITY 6: TROUBLESHOOT INTER-VLAN ROUTING



LABOLATORY ACTIVITY 6: DOCUMENTATION

- Test connectivity and use the necessary **show** commands to verify configurations.
- Verify that all configured settings match the requirements shown in the Addressing Table.
- List all of the problems and possible solutions in the **Documentation Table**.

Documentation Table

Problems	Solutions
The default gateway of PC3 in incorrect	*Change the default gateway 172.17.10.1 to 172.17.30.1*
Interface G0/1.10 is administratively down	*Use the command no shutdown to interface g0/.10 to change the status to Up.*
The encapsulation dot1Q in interface G0/1.10 is wrong.	*First, use the command no encapsulation dot1q 30. Next, use the command encapsulation dot1q 10.*
The encapsulation dot1Q in interface G0/1.30 is wrong.	*First, use the command no encapsulation dot1q 10.* *Next, use the command encapsulation dot1q 30.*
The trunking/ line protocol in interface g0/1 is down.	*Use the command in interface g0/1 switchport mode trunk on S1.*

Part 2: Implement the Solutions

Implement your recommended solutions.

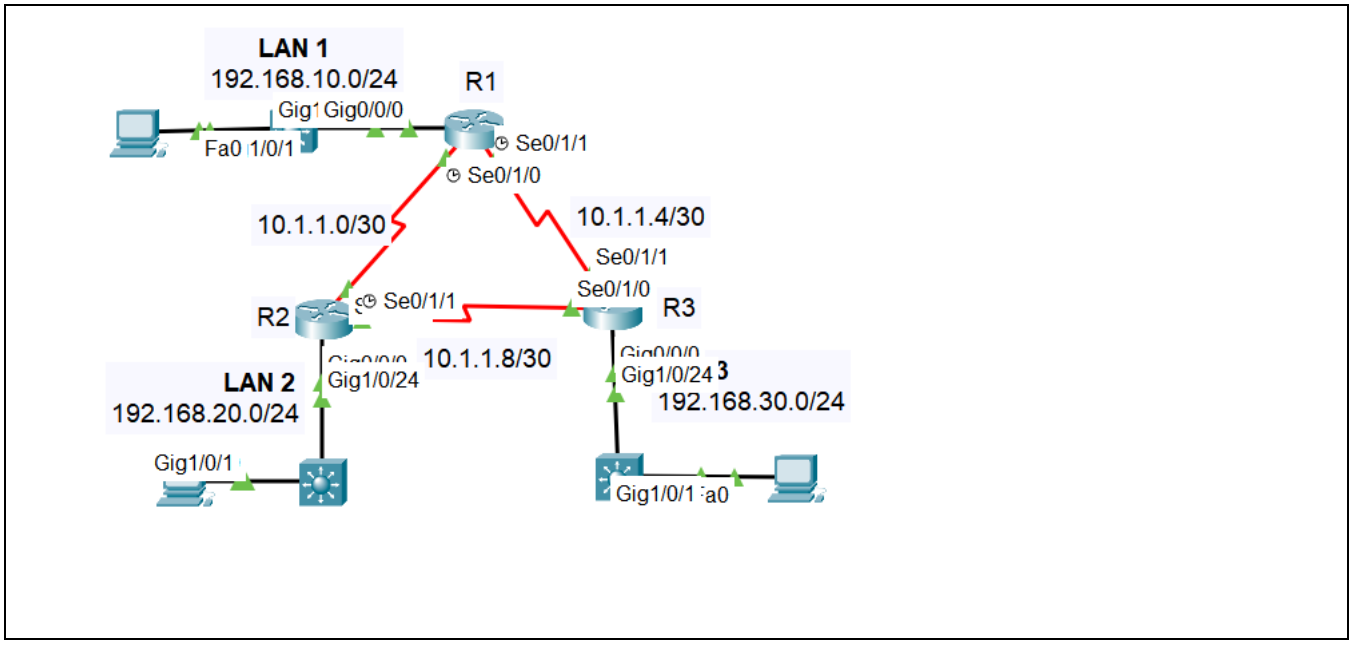
Close configuration window

Part 3: Verify Network Connectivity

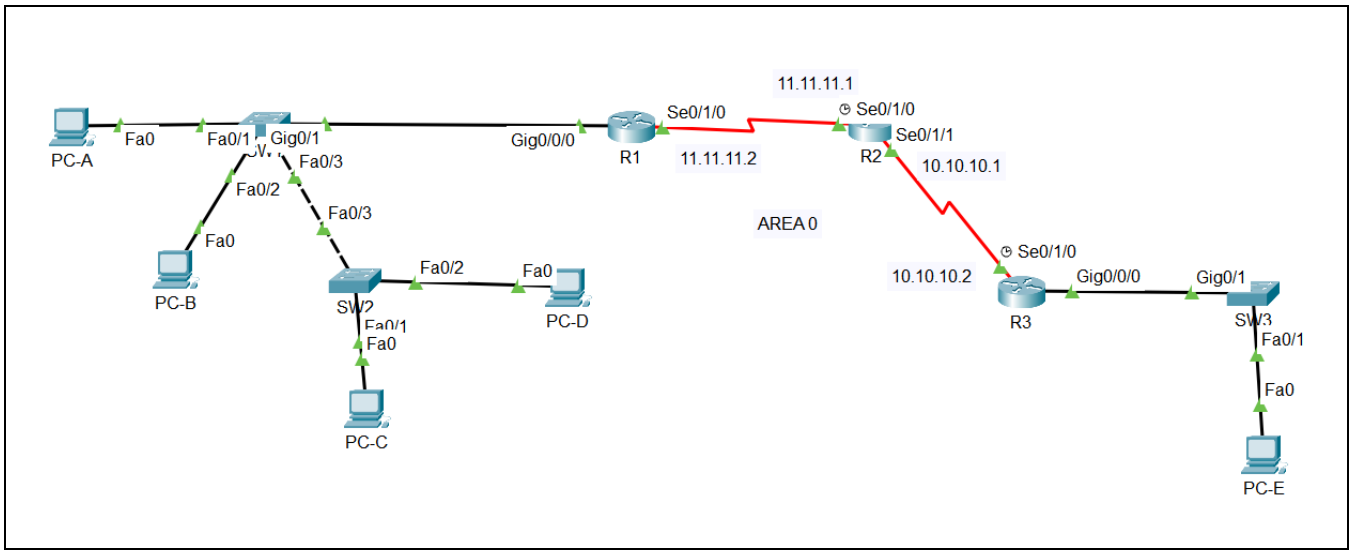
Verify the PCs can ping each other and R1. If not, continue to troubleshoot until the pings are successful.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC1	R1	ICMP		0.000	N	0	(edit)	
	Successful	PC3	R1	ICMP		0.000	N	1	(edit)	
	Successful	PC1	PC3	ICMP		0.000	N	2	(edit)	
	Successful	PC3	PC1	ICMP		0.000	N	3	(edit)	

LABOLATORY ACTIVITY 7: POINT-TO-POINT SINGLE-AREA OSPFv2 CONFIGURATION

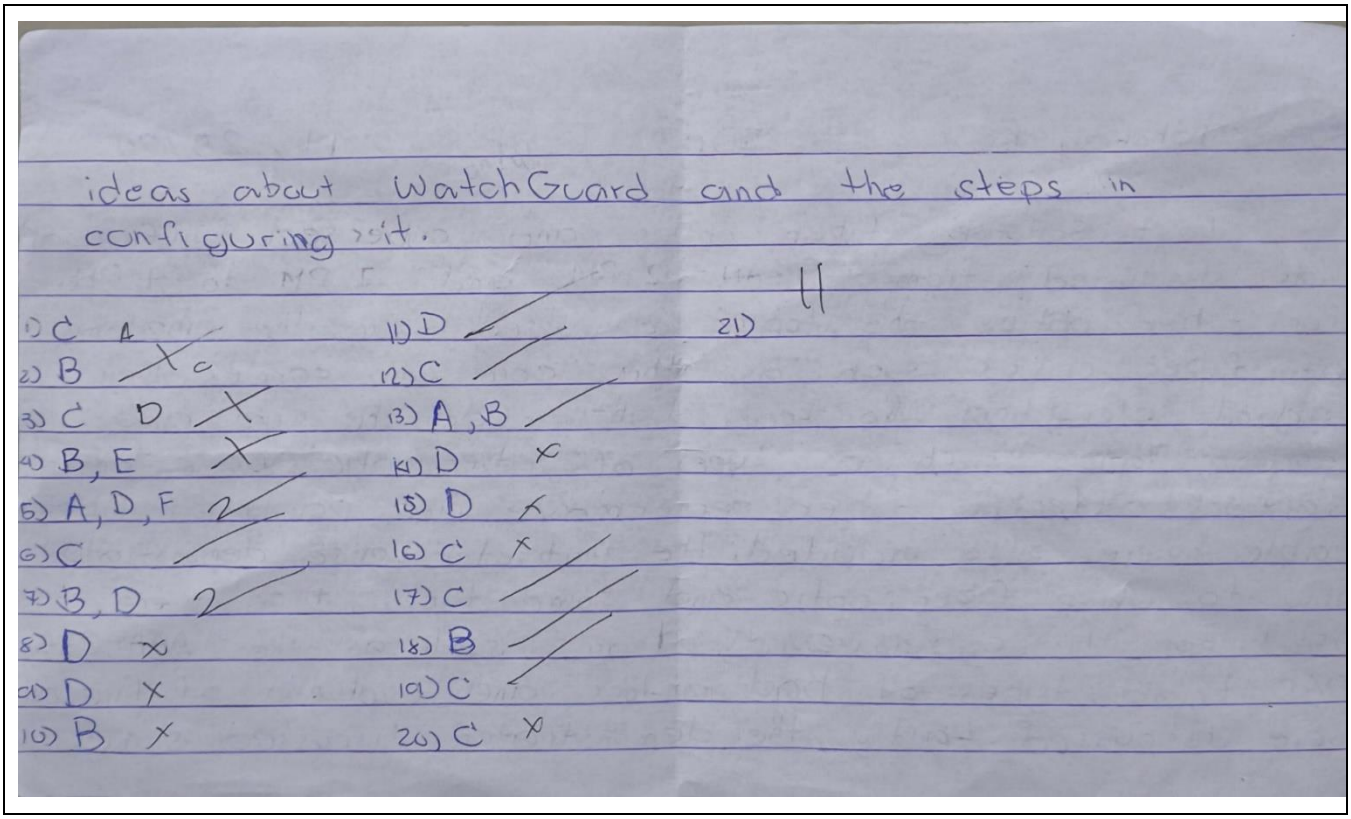


MIDTERM EXAM



FINALS LECTURE:

QUIZ 1



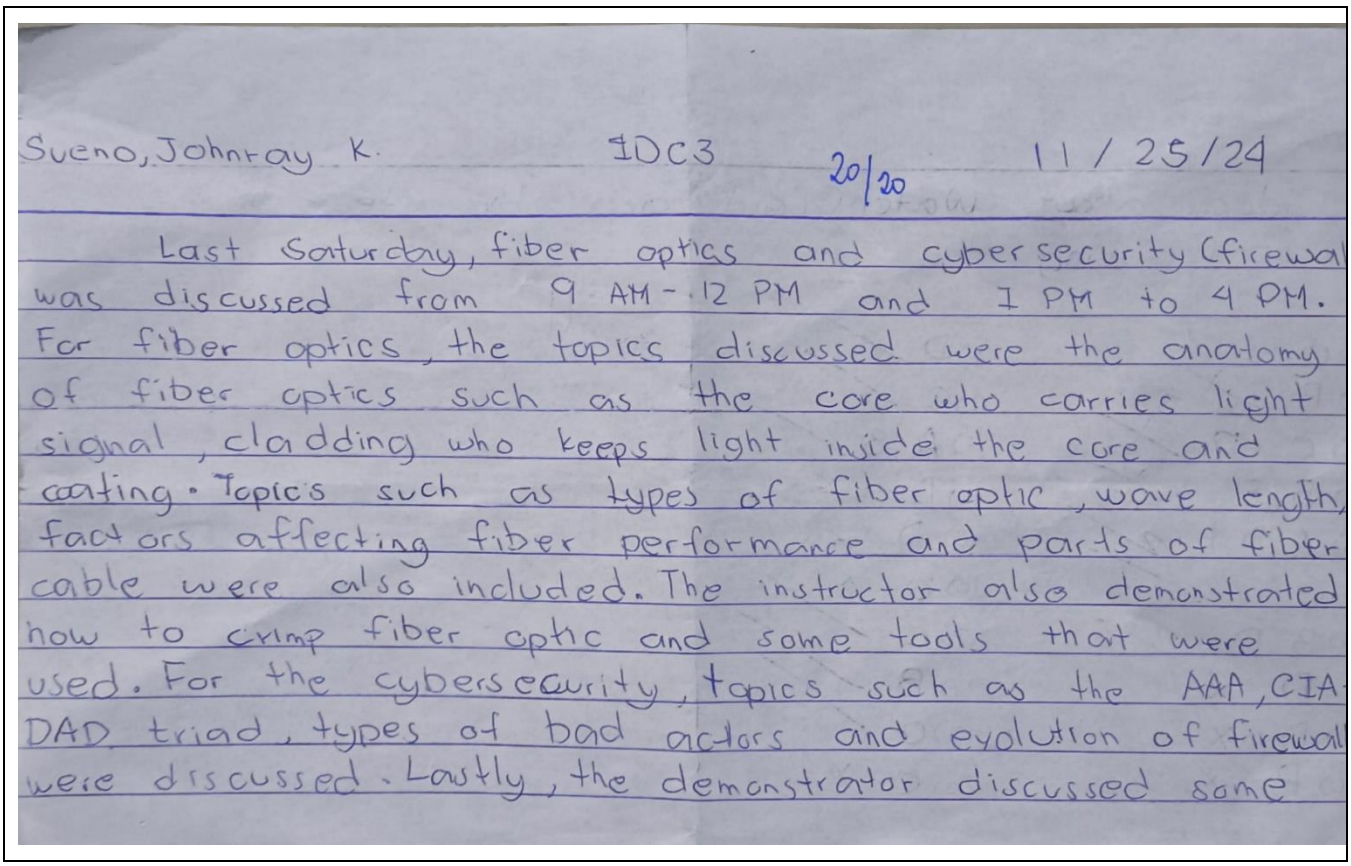
ideas about WatchGuard and the steps in configuring it.

1) C A
2) B X c
3) C D X
4) B, E X
5) A, D, F 2
6) C
7) B, D 2
8) D X
9) D X
10) B X

11) D
12) C
13) A, B
14) D X
15) D X
16) C X
17) C
18) B
19) C
20) C X

21)

SEATWORK 1



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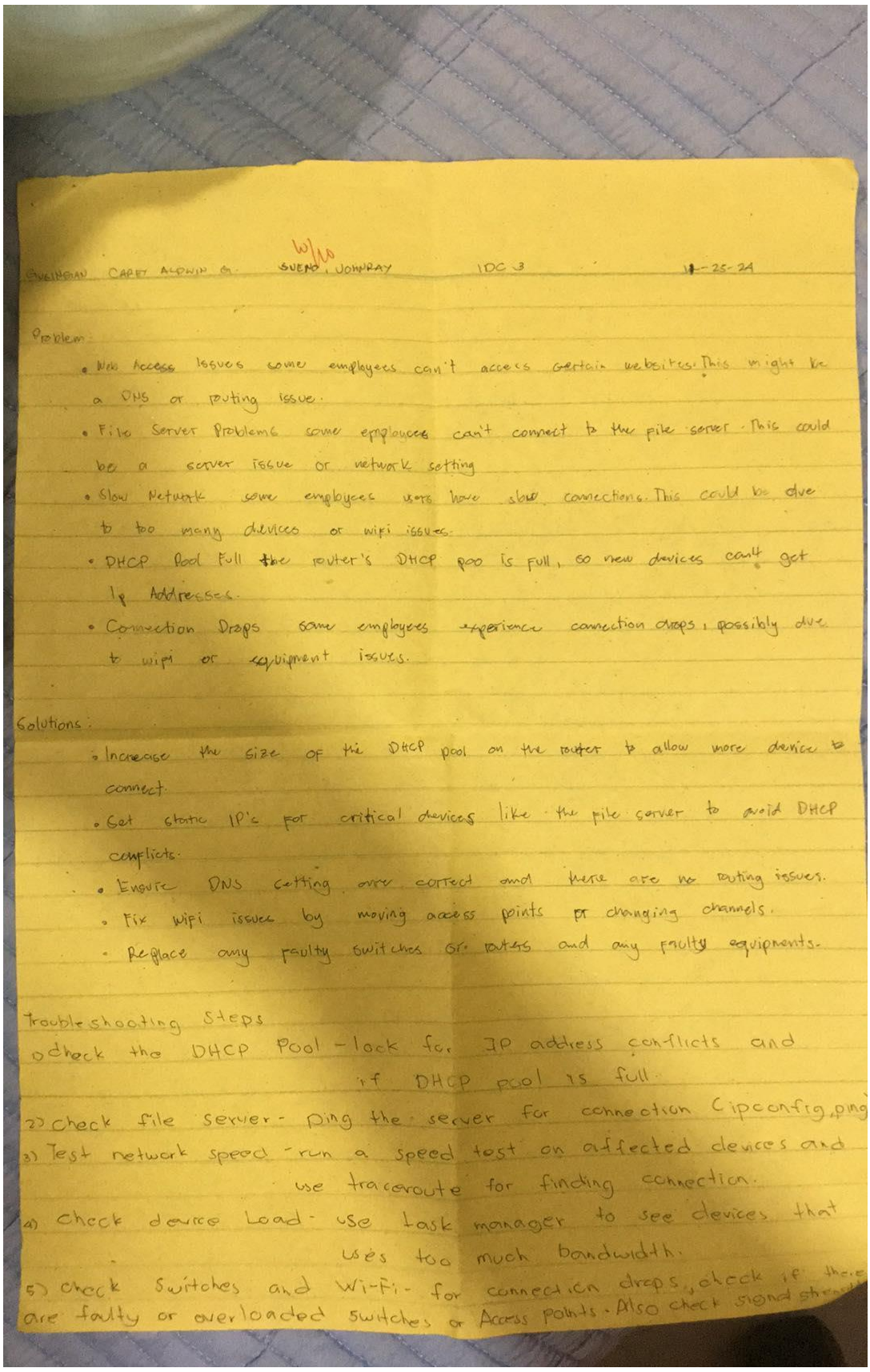
Last Saturday, fiber optics and cybersecurity (firewal was discussed from 9 AM - 12 PM and 1 PM to 4 PM. For fiber optics, the topics discussed were the anatomy of fiber optics such as the core who carries light signal, cladding who keeps light inside the core and coating. Topics such as types of fiber optic, wave length, factors affecting fiber performance and parts of fiber cable were also included. The instructor also demonstrated how to crimp fiber optic and some tools that were used. For the cybersecurity, topics such as the AAA, CIA DAD triad, types of bad actors and evolution of firewall were discussed. Lastly, the demonstrator discussed some

SEATWORK 2



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Problem:

- Network Access Issues some employees can't access certain websites. This might be a DNS or routing issue.
- File Server Problems some employees can't connect to the file server. This could be a server issue or network setting
- Slow Network some employees users have slow connections. This could be dive to too many devices or wifi issues.
- DHCP Pool Full the router's DHCP pool is full, so new devices can't get Ip Addresses.
- Connection Drops some employees experience connection drops, possibly due to wifi or equipment issues.

Solutions:

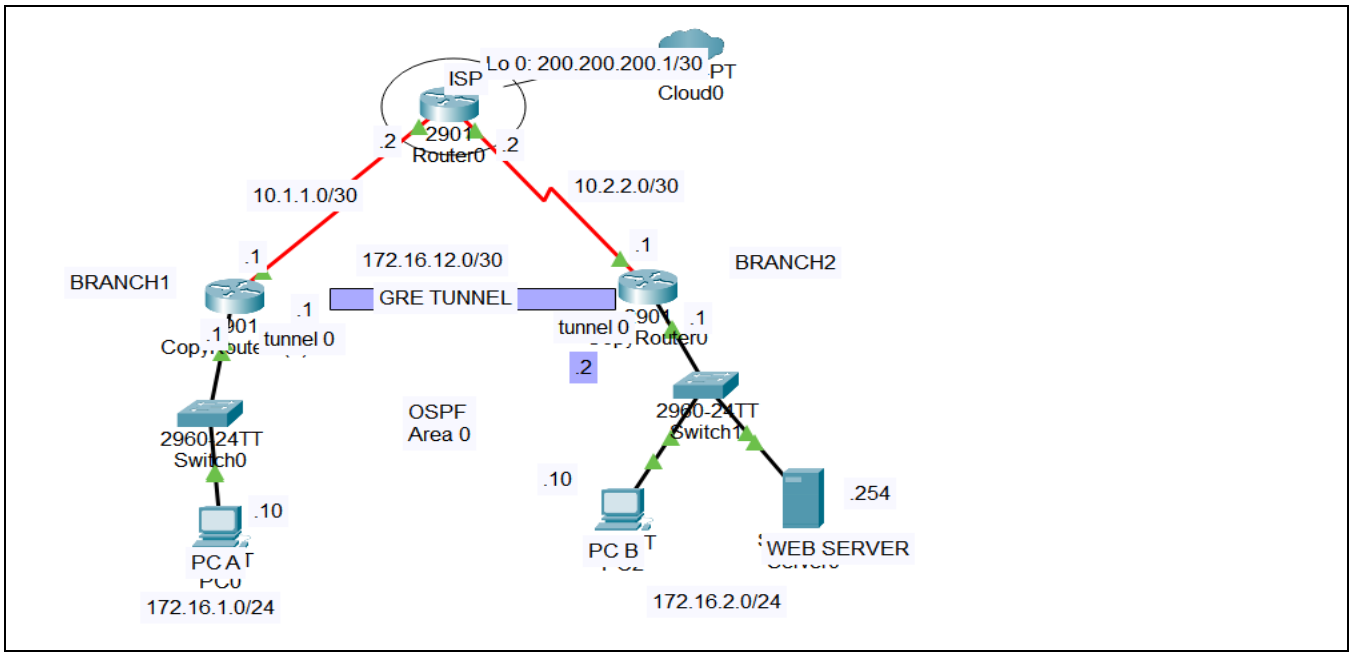
- Increase the size of the DHCP pool on the router to allow more devices to connect.
- Set static IP's for critical devices like the file server to avoid DHCP conflicts.
- Ensure DNS setting are correct and there are no routing issues.
- Fix wifi issues by moving access points or changing channels.
- Replace any faulty switches or routers and any faulty equipments.

Troubleshooting Steps

1) check the DHCP Pool - look for IP address conflicts and if DHCP pool is full.
2) check file server - ping the server for connection (ipconfig, ping
3) Test network speed - run a speed test on affected devices and use traceroute for finding connection.
4) check device Load - use task manager to see devices that uses too much bandwidth.
5) check switches and Wi-Fi - for connection drops, check if there are faulty or overloaded switches or Access points. Also check signal st

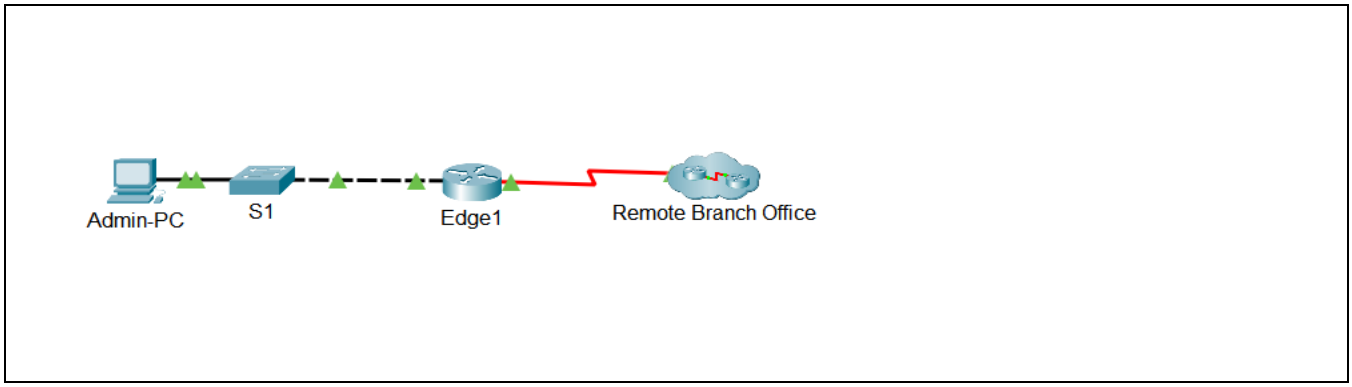
FINALS LABOLATORY:

LABOLATORY ACTIVITY 1:

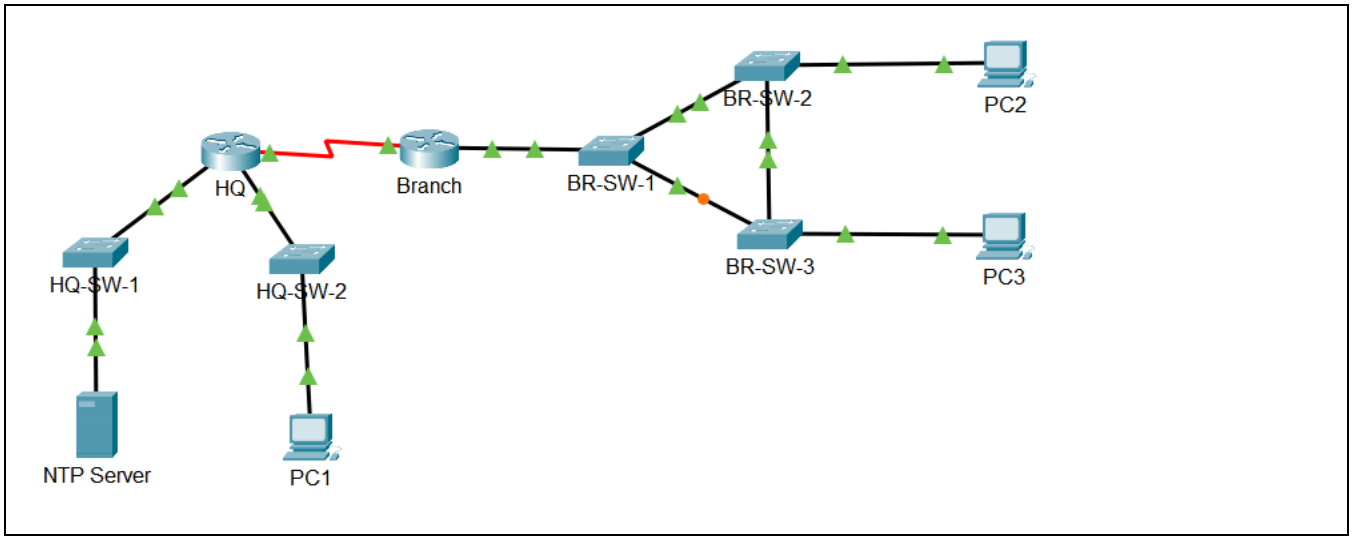


LABOLATORY ACTIVITY 2:

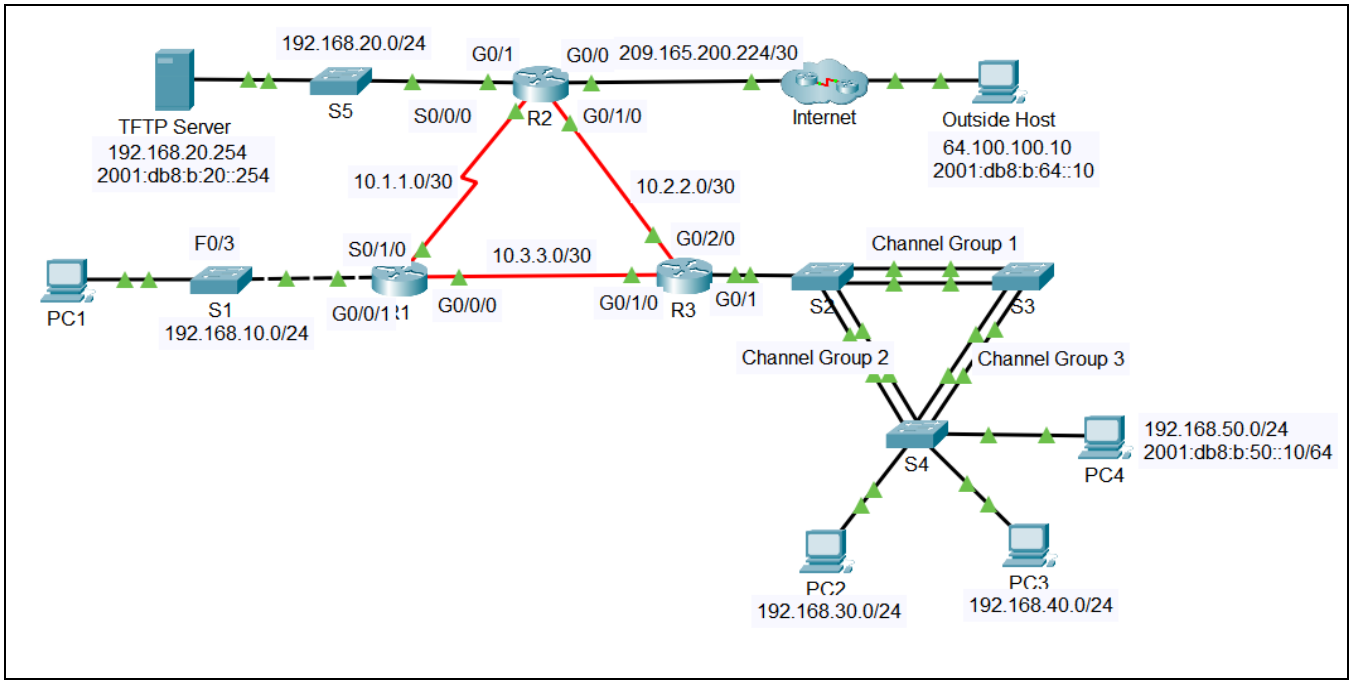
LABOLATORY ACTIVITY 3: USE CDP TO MAP A NETWORK



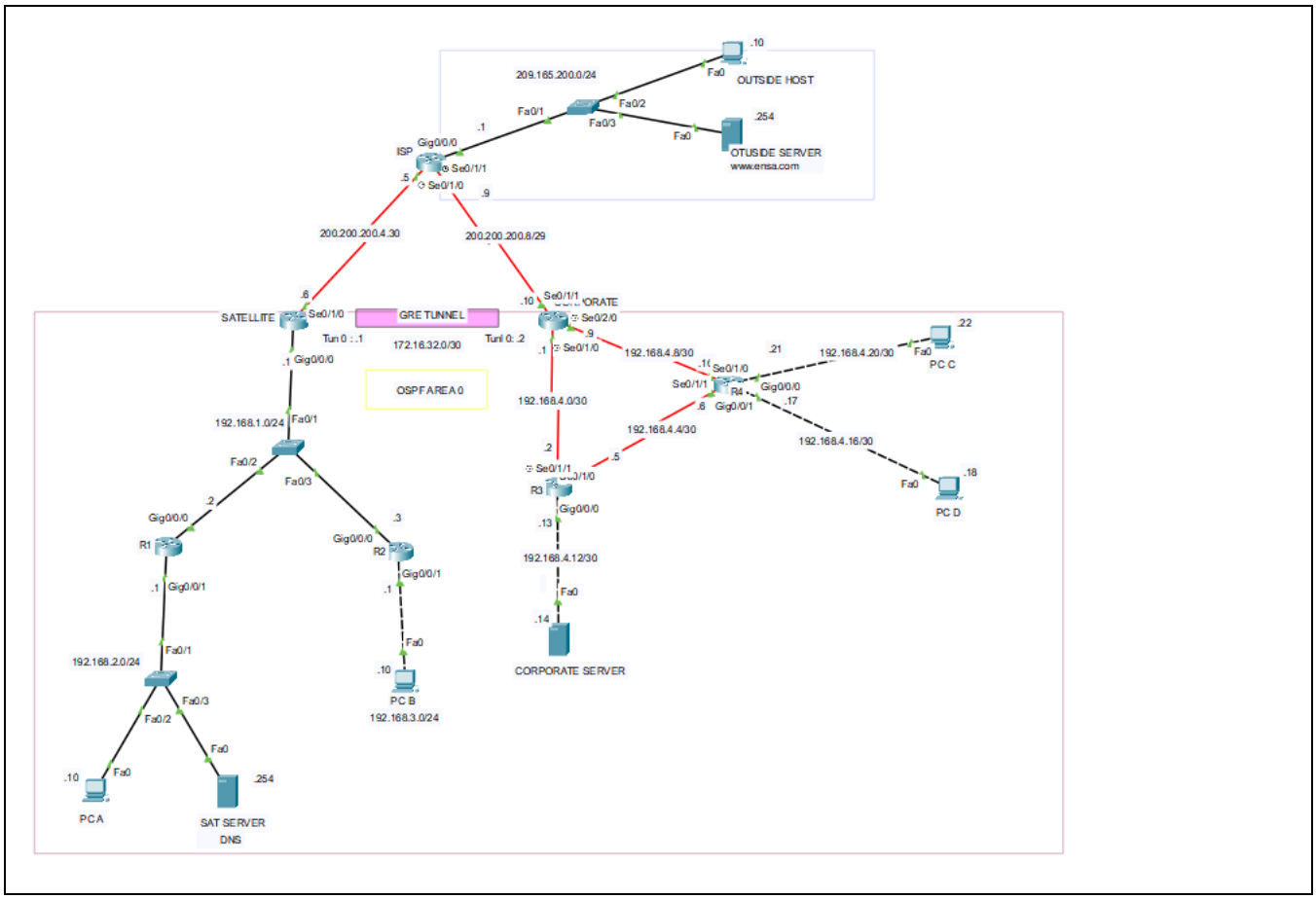
LABOLATORY ACTIVITY 4: CONFIGURE CDP, LLDP, AND NTP



LABOLATORY ACTIVITY 5: TROUBLESHOOT ENTERPRISE NETWORK



LABOLATORY ACTIVITY 6:



Course Reflection

What were your initial expectations for the course? Did the course meet, exceed, or fall short of these expectations?

My initial expectation for SITNET4 was to learn the fundamental concepts of networking, such as subnetting, configurations, and DHCPv4, and to gain hands-on experience in applying these concepts. The course met these expectations by providing both theoretical knowledge and practical activities.

What were the main topics or concepts covered in the course? How did these topics contribute to your understanding of the subject matter?

The course covered subnetting, VLANs, DHCPv4, router configurations, inter-VLAN routing, Layer 4 switching, OSPFv2, and network troubleshooting. These topics helped me understand how networks are designed, implemented, and maintained, which is essential for anyone pursuing a career in IT networking.

Reflecting on your learning process, what were the most effective strategies or techniques that helped you grasp and retain the course material?

The most effective strategies for me were reviewing class notes regularly, practicing configurations in a simulated environment, and participating in group discussions to clarify doubts. These techniques helped me retain the concepts better.

Were there any particular assignments, projects, or activities that significantly enhanced your learning experience? Why were they effective?

Laboratory activities like configuring VLANs, implementing DHCPv4, and troubleshooting networks were highly effective. These activities allowed me to apply what I learned in a real-world scenario, reinforcing my understanding and problem-solving skills.

Did you encounter any challenges or difficulties during the course? How did you overcome these obstacles, and what did you learn from them?

I struggled initially with subnetting and inter-VLAN routing because they require a strong grasp of IP addressing and logical thinking. I overcame these by watching tutorials, consulting my instructor, and practicing regularly. This experience taught me the importance of persistence and seeking help when needed.

Did the course encourage critical thinking and analysis? How did it promote higher-order thinking skills, such as problem-solving or decision-making?

The course encouraged critical thinking by presenting complex scenarios that required careful analysis and decision-making, such as troubleshooting and configuring networks for specific requirements. These activities improved my problem-solving abilities and technical reasoning.

Reflecting on your personal growth, what new knowledge, skills, or perspectives did you gain from this course?

From this course, I gained a deeper understanding of networking concepts, hands-on skills in configuring and troubleshooting networks, and a better appreciation of the importance of structured planning in IT.

How do you plan to apply what you have learned in this course to your future studies, career, or personal life?

I plan to apply these skills in my future studies by tackling more advanced networking subjects confidently. For my career, these skills are crucial for roles in network administration or IT support. Personally, they will help me understand and manage any network-related issues efficiently.