CSCD 434
Lab 1

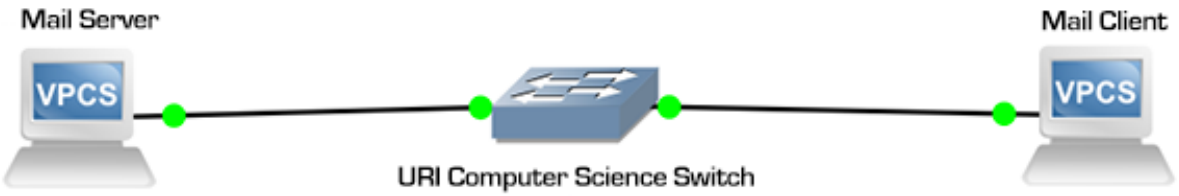
Please be sure to answer all questions in complete sentences and complete the assignment in its entirety. You will be submitting a PDF file called *lastname first letter of first name lab1*.pdf (Example: steinerslab1.pdf). Copy and paste the question and then provide your answer below the question.

Part 1: Identifying Layer Models

In the first half of this lab you will be asked questions designed to introduce you to the Open Systems Interconnection (OSI) 7-layer model and the Transmission Control Protocol/Internet Protocol (TCP/IP) model.

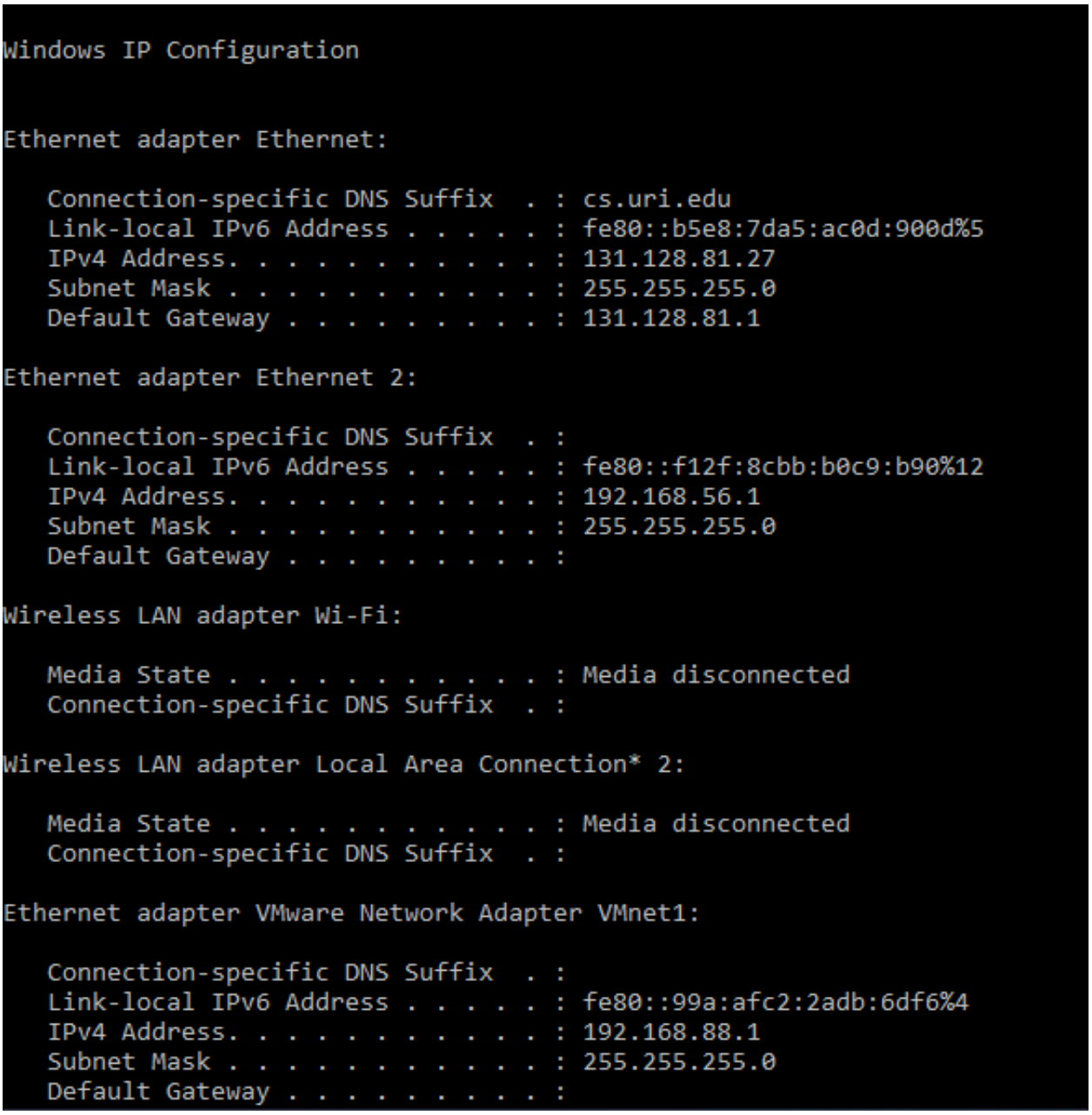
Each layer of the OSI seven-layer model defines an essential function in computer networking. Please determine which layer the images below belong to. For each question justify your answer.

1.1 Which of the Seven Layers in the OSI Model is the highest layer represented by the image below? Justify your answer.



1.2 Which of the Seven Layers in the OSI Model would you identify with the image below? Justify your answer.

1.3 Which of the Seven Layers in the OSI Model would you identify with the image below? Justify your answer.



1.4 Which of the Seven Layers in the OSI Model would you identify with the image below? Justify your answer.

Destination Port	Source Port	Sequence Number	Checksum	Flags	Acknowledgement	Data
80	443	12345	5	0	192.0.0.0	?

1.5 Given the table below. Please identify all seven layers, name and description. Fill in the blanks for the missing sections.

Layer	Name	Description
7	Application	
6	Presentation	
		Responsible for keeping different applications data separate.
5		The session layer also coordinates connection and interaction between applications, establishes connections and manages data flow
4		
3		Provides logical addressing, which routers use for path determination
2	Data Link	
1		Moves bits between devices. Specifies voltage, wire speed, and pinout of cables

1.6 The OSI model today is used as a reference model and is not implemented on the Internet today. What current model is used for the Internet in the 21st century?

Part 2: GNS3 Network Commands

You will be analyzing packets and frames for this section of the assignment. You will download and use the GNS3 file attached to this lab, to complete this section. We will be using GNS3 for some upcoming assignments. Using the GNS3 file you just downloaded answer the following questions:

*Note Please make sure you have fully downloaded GNS3. The file you are downloading for this section is a GNS3 shareable project file.

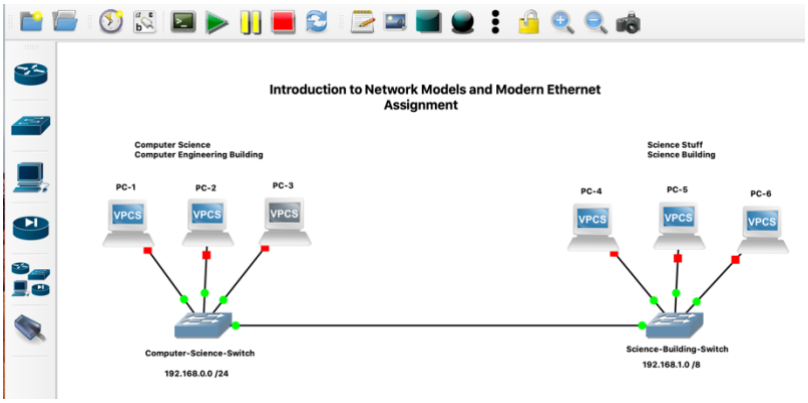
*Note: Once you open the file in your GNS3 instance use the show ip command to display the IP Address of your PC's in each PC console.

1. What is the IP Address for PC-1, PC-3, and PC-5?
2. What is the gateway for PC-2?

3. Now that you know how to display network pieces of information for your PC's, it's time to check network connectivity from one PC to the next. Using the ping command, from PC-2, Ping PC-1 and PC-3. Remember when Pinging you needed to use the PC's IP Address. Provide a screenshot of your results Pinging PC-1 and PC-3.
4. Now that you know how to use the ping command, use PC-2 to ping PC-1 and PC-5, and provide a screenshot of your results. Explain your screenshot results, and what you believed happened.

Part 3: GNS3 Packet Capture

Before you start this part, be sure WireShark installed with the installation of GNS3. GNS3 uses various built-in tools to allow Network Administrators and Engineers to test real-world networks. One of the many tools in GNS3 is the ability to capture packets. Using the packet capture tool, for this section of the assignment, we asked you to capture and analyze some packets from your GNS3 file.



*Note right click on your network link/RJ-45 connection to capture packets

1. Once you have successfully launched Wireshark to capture packets, use PC-2 to ping PC-1 and PC-3, and provide an explanation of what you are seeing in Wireshark.
2. List the protocols your PCs using to transmit data over the network?
3. How many frames were transmitted over the wire?
4. How many bytes were transmitted over the wire?
5. Ping PC-6 from PC-2, and provide a screenshot of your packet capture and explain what happened