NATIONAL UNIVERSITY OF MODERN LANGUAGES
DEPARTMENT OF SOFTWARE ENGINEERING

SEMESTER 5
SESSION Spring 2023

Assignment No. 1. CLO1

Marks 10

Computer Communication and Networks

1. Discuss, How communication over the internet is done using TCP/IP second layer's MAC addresses and the third layer's IP addresses.

2. If communication over a LAN uses MAC addresses to communicate with each other. Explain, what is the purpose of assigning terminal IP addresses. Similarly, in the above context, discuss the role of Address resolution protocol in 2nd layer of TCP/IP.

3. Mostly during download from the internet, a variable download speed is observed to discuss the phenomena considering delays.

4. Discuss the reason, why internet society wants to deploy virtual circuits to communicate over the internet.

5. Considering the values 1 and 2 from Figure 1.1, calculate the Bandwidth available using Shannon's theorem.

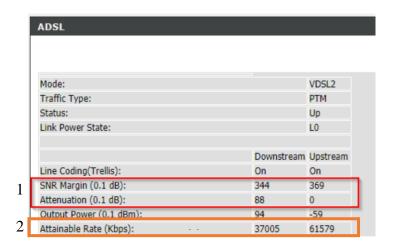| ADSL		
Mode:		VDSL2
Traffic Type:		PTM
Status:		Up
Link Power State:		L0
	Downstream	Upstream
Line Coding(Trellis):	On	On
SNR Margin (0.1 dB):	344	369
Attenuation (0.1 dB):	88	0
Output Power (0.1 dBm):	94	-59
Attainable Rate (Kbps):	37005	61579

Figure 1.1 a typical DSL coverage in a home

Note:
The submission date is 22 March 2023, submit within the due date as told by the teacher else no work will be accepted after that due date.
All submissions shall be made to the CR who will submit them to the class teacher.

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SEMESTER 5
SESSION Spring 2023

Assignment No. 2. CLO2

Marks 10

Computer Communication and Networks

1. Define *framing* and give the reason it is needed.
2. Explain why flags are needed when we use variable-size frames.
3. Compare and contrast byte-oriented and bit-oriented protocols.
4. In a bit-oriented protocol, should we first unstuff the extra bits and then remove the flags or reverse the process?
5. Compare and contrast flow control and error control.
6. In the Stop-and-Wait Protocol, assume that the sender has only one slot in which to keep the frame to send or the copy of the sent frame. What happens if the network layer delivers a packet to the data-link layer at this moment?
7. In the traditional Ethernet protocol (Chapter 13), the frames are sent with the CRC. If the frame is corrupted, the receiving node just discards it. Is this an example of a Simple Protocol or the Stop-and-Wait Protocol? Explain.
8. Explain why there is no need for CRC in the Simple Protocol.
9. In Figure 11.12, explain why we need a timer at the sending site, but none at the receiving site.
10. Define *piggybacking* and its benefit.

Note:
The submission date is 12 May 2023, submit within the due date as told by the teacher else no work will be accepted after that due date.
All submissions shall be made to the CR who will submit them to the class teacher.