National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Computer Networks	Course Code:	CS 3001
	Program:	BS (Computer Science)	Semester:	Spring 2024
	Duration:	15 minutes	Total Marks:	15
	Paper Date:	13-Feb-2024	Section	6A
	Exam Type:	Quiz 1 - Chapter 1	Page(s):	2

Student Name **Roll No.** **Section:**

Q1. Encircle the correct option: **[5 marks] [CLO 1]**

1. If the size of packet is increased the transmission delay _____ and if the bandwidth is increased transmission delay _____
   a) increases, decreases
   b) increases, increases
   c) decreases, increases
   d) decreases, decreases

2. Server is a part of
   a) Network edge
   b) Core network
   c) both
   d) none

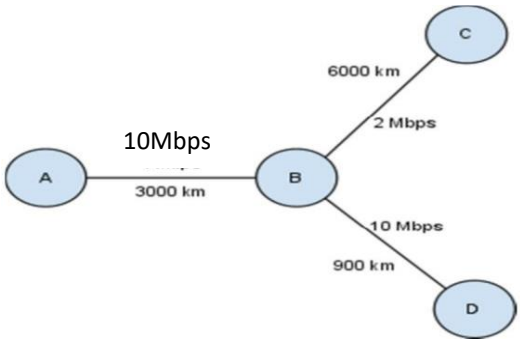
3. Calculate the Bandwidth-Delay Product if the data rate is 100 Mbps and the round trip delay time is 10 milliseconds.

   a) 100 Mbit
   b) 1 Gbit
   c) 1 Mbit
   d) 10 Gbit

True/False:

1. OSI/ISO and TCP/IP Service Model consists of 5 and 7 layers respectively. [T / F]
2. If the traffic intensity is greater than 1 it means the average rate at which bits arrive at the queue exceeds the rate at which the bits can be transmitted from the queue. [T / F]

Question 2: Figure illustrates the end-to-end transport of a message with and without message segmentation. *Ignore propagation, queuing, and processing delays.* **[10] [CLO 1]**



(a) What is the transmission delay if A sends a 500 byte packet to B **[3 Marks]**

(b) Now suppose that the message is segmented into 2 packets, with each packet being 250-byte long. **A** wants to send message to **D** through **B**. **B** is supposed to follow the store-and forward model, that is, B will receive the whole packet from A and then start transmitting the packet to **D**.

i. How long does it take to move the first packet from source host to the first switch? When the first packet is being sent from the first switch to the second switch, the second packet is being sent from the source host to the first switch. After how long is the 2nd packet received at the destination? **[5 Marks]**

ii. What will be the throughput from A to C? **[2 Marks]**