


## National University of Computer and Emerging Sciences, Lahore Campus

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

Student Name

Roll No.

Section:

**Q1. Encircle the correct option:**

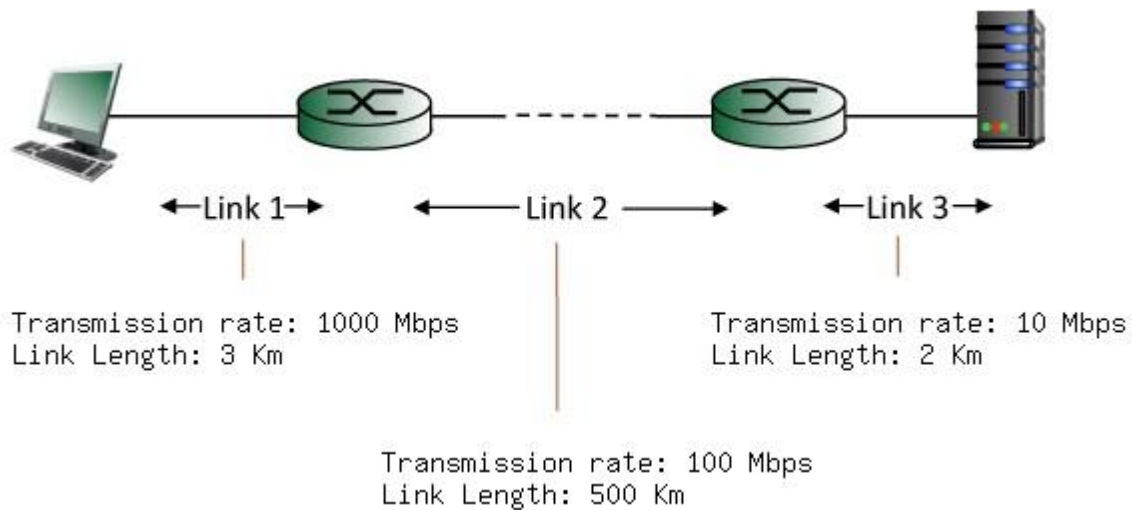
**[5 marks] [CLO 1]**

1. A network has a propagation speed of  $2.5 \times 10^8$  meters per second. The distance between two nodes is 500 kilometers. Calculate the propagation delay
  - a) 2 milliseconds
  - b) 4 milliseconds
  - c) 6 milliseconds
  - d) 8 milliseconds
2. If the size of packet is increased the traffic intensity \_\_\_\_\_ and if the bandwidth is increased traffic intensity \_\_\_\_
  - a) increases, decreases
  - b) increases, increases
  - c) decreases, increases
  - d) decreases, decreases
3. When using Time Division Multiplexing (TDM), what happens during the time slots allocated to different channels?
  - a) All channels transmit data simultaneously.
  - b) Each channel takes turns transmitting data.
  - c) Channels transmit data on separate frequencies.
  - d) Channels transmit data in parallel.

**True/False:**

- i. OSI/ISO and TCP/IP Service Model consists of 5 and 7 layers respectively. [T / F]
- ii. In a store-and-forward network, the entire message must be received and stored at an intermediate node before it is forwarded to the next destination. [T / F]

**Q2.** Consider the figure below, with three links, each with the specified transmission rate and link length. **[8+1+1=10 marks] [CLO 1]**



- i. Find the **end-to-end delay** (including the transmission delays and propagation delays on each of the three links, but ignoring queueing delays and processing delays) from when the left host begins transmitting the first bit of a packet to the time when the last bit of that packet is received at the server at the right. The speed of light propagation delay on each link is  $3 \times 10^8$  m/sec. Note that the **transmission rates are in Mbps** and the **link distances are in Km**. Assume a **packet length of 16000 bits**. Give your **answer in milliseconds**.
  
  
  
  
  
  
  
  
  
  
- ii. Also give the **throughput** between client and server.