

# CSE320 – Home Assignment 1

BRAC UNIVERSITY | SUMMER 2023

**Deadline: 25-Jun-2023 (Sunday) 11:59 PM | (No Late Submission Accepted) Total**

**Mark: 15 (5 questions\* 3 marks each)**

1. Write the functionalities of the upper 4 layers in the TCP/IP model. Include their protocols, PDUs, special tasks, etc.
2. Suppose a computer sends a frame to another computer on a bus topology LAN. The physical destination address of the frame is corrupted during the transmission. What happens to the frame? How can the sender be informed about the situation?

3. Imagine the following scenario:

Tom and Jerry run a successful e-commerce business and are looking to upgrade their website's data transfer system. They have been presented with two TCP/IP protocols: a reliable protocol that guarantees delivery of data but may be slower, and a fast protocol that prioritizes speed over reliability.

Can you help them understand the key differences between the two protocols, write their name, and explain the pros and cons of each, so they can make an informed decision about which one would be the best fit for their business needs?

4. Imagine the following scenario:

You are playing a video game with a friend, and you both have reached a crucial level where you need to work together to defeat a powerful boss. You decide to save the game at regular intervals to make sure that neither of you loses progress in the game. If one of you loses, you can quickly return to the last saved point and continue playing from there.

Can you identify which layer of OSI Model resembles such a procedure? What is the purpose of this mechanism? Briefly explain with any relevant example

5. Match the following to one or more layers of the OSI Model:
  - a. Communicates directly with the user's application program
  - b. Error correction and retransmission
  - c. Mechanical, electrical, and functional interface

