National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Computer Networks	Course Code:	CS 3001
	Program:	BS (Computer Science)	Semester:	Spring 2022
	Duration:	15 Minutes	Total Marks:	15
	Paper Date:	21-April-2022	Section:	6A
	Exam Type:	Quiz 3 - Chapter 3	Page(s):	2

Student Name: _____   Roll No. _____   Section: _____

Q1. Encircle the correct option: (5 marks)

1. Which of the following are transport layer protocols used in networking?
   a) TCP & FTP
   b) UDP & HTTP
   c) TCP & UDP
   d) HTTP & FTP

2. An endpoint of an inter-process communication flow across a computer network is called ………………..
   a) Socket
   b) Port
   c) Pipe
   d) None of the above

3. Typical TCP header size (i.e. without options) is
   a) 8 bytes
   b) 16 bytes
   c) 20 bytes
   d) 24 bytes

True/False:

1. Go back N supports receiving out of order packets.   [T/F]

2. The typical value of α in Estimated-RTT is 0.0125.   [T/F]

Q2. Consider the TCP's reliable data transfer protocol. The starting byte number in the data stream is 0. Five segments are sent with the respective lengths of 10, 20, 5, 10 and 30 bytes. (5 + 5 Marks)

a. What are the sequence numbers for each of these five segments?

Segment #	Sequence Number
Segment 1	
Segment 2	
Segment 3	
Segment 4	
Segment 5	

b. Assume that the underlying networks delivers the segments out of order, and the receiver (which uses buffering to store out of sequence segments) receives the segments in the following order: Segment 1, Segment 3, Segment 5, Segment 2 and Segment 4. What is the acknowledgement number generated for each of the received segments?

Segment #	Acknowledgement Number Generated
Segment 1	
Segment 3	
Segment 5	
Segment 2	
Segment 4	