	Course Name:	Computer Networks	Course Code:	CS 3001
	Program:	BS (Computer Science)	Semester:	Fall 2023
	Duration:	15 minutes	Total Marks:	15
	Paper Date:	21-September-2023	Section	5K
	Exam Type:	Quiz 2 - Chapter 2	Page(s):	2

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

Q1. Encircle the correct option: **[5 marks] [CLO 2]**

1. When displaying webpage, the application layer uses the _____ protocol.
   a) FTP
   b) HTTP
   c) TCP
   d) POP3

2. Multiple objects can be sent over a same TCP connection between client and server in:
   a) Non-Persistent HTTP
   b) Persistent HTTP
   c) None
   d) Both (a) & (b)

3. The underlying transport layer protocol used by SMTP is:
   a) POP3
   b) UDP
   c) TCP
   d) IMAP

True/False:

1. Socket is only a combination of port number. [T / F]
2. IMAP maintains state across sessions. [T / F]

Q2. Suppose you are running a webserver on your home machine that connects to the network service provider through a DSL link with 100 Kbps (1K bits = 10^3 bits) connection speed. You come to the University and try to access a web page on the webserver running on your home machine. The campus LAN in the University runs at 100 Mbps with an access link of 8 Mbps (1M bits = 10^6 bits). Further assume that the RTT from your University campus to your home is 150 ms. The base html file size you request is 10 KB (10 kilo bytes). This base file also includes 3 referenced files (3 small images.) The first image that appears on the page is 20 KB (20 kilo bytes, the second which appears somewhere in the middle of the pages is 30 KB (30 kilo bytes) and the third image, towards the end of the page, is 15 KB (15 kilo bytes.) Requests for these images are sent by your browser in that order, without using any Parallel TCP connections. (Neglect the time spent in processing of html files, i.e., processing and queuing delays.) **[10 Marks] [CLO 2]**

(a) What is the total number of HTTP requests generated from the browser on campus computer?

(b) How long would it take your browser from sending the first HTTP request to receiving the base html file?

(c) Assume http/1.0 (non-persistent). How long would it take your browser from sending the request to displaying the complete web page?