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:	22-Feb-2024	Section	6A
	Exam Type:	Quiz 2 - Chapter 2	Page(s):	2

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

Q1. <u>Encircle the correct option:</u>   [5 marks] [CLO 2]

1. Which HTTP header is commonly used in Conditional GET requests to check if a resource has been modified since a certain date?

    a) Cache-Control

    b) Last-Modified

    c) If-Modified-Since

    d) Expires

2. What is the primary purpose of an MX record in DNS?

    a) used to map an alias to a canonical domain name

    b) specifies which DNS server is authoritative for this domain

    c) used to map (point) a domain name to an lP - address

    d) mail server aliasing

3. In the context of email communication, which protocol is commonly used for sending emails between servers?

    a. SMTP

    b. DNS

    c. IMAP

    d. HTTP

True/False:

1. DNS uses TCP as a transport layer protocol [T / F]
2. Persistent with Pipelining HTTP connections require a new connection to be established for each resource request [T / F]

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Question 2:   [Marks 10]
Alice is shopping online via internet with a connection of **0.5 Mbps.** The web page of size **20 Kbytes** contains **20 images of 15 Kbytes** each. Assume that the **one way propagation delay** is **2.5 ms**.   **[3 + 3 + 4 Marks] [CLO 2]**

  a) How long does it take for the page (including images) to appear on Alice's screen, assuming **non-persistent HTTP** using a single connection at a time? Show your calculation in details.

  b) What would become the time for the page including images) to appear on Alice's screen if she used **persistent HTTP without pipelining** instead of non-persistent HTTP? Show your calculation in details.

  c) Repeat part b) **if persistent HTTP with pipelining** is used. Again, show your calculation in details.