COMSATS University Islamabad, Lahore Campus
Midterm Examination– Semester Spring 2024

Course Title:	Computer Networks		Course Code: CSC340	Credit Hours:	3(2,1)
Course Instructor/s:	. Dr. Tariq Umer,		Program Name: BS Software Engineering		
Semester: 5th	Batch: FA22	Section:	All sections	Date:	26-04-2024
Time Allowed:	**90 Minutes**		**Maximum Marks:**		40

Question 1. *CLO:1; Summarize the fundamental concepts of computer networks. (10)*
Bloom Taxonomy Level:<Understanding>

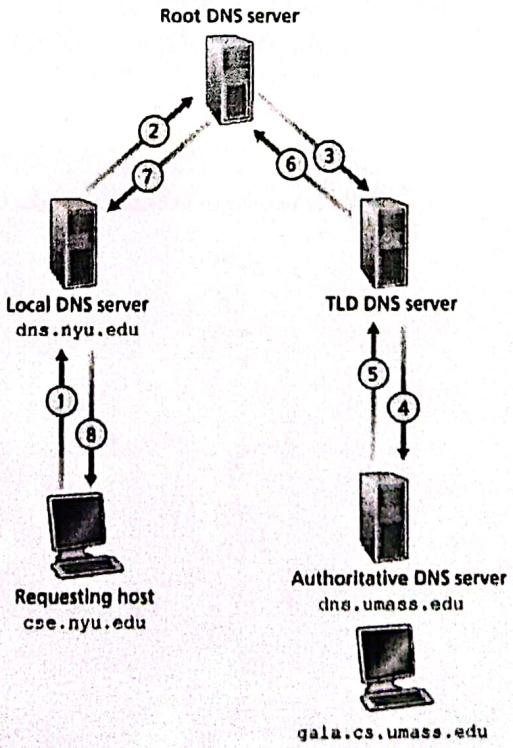
a. Describes different types of delays faced by the Packet during network communication. How it affects Network throughput. (5)

b. Identifies the steps, devices and processes with a labeled diagram that are performed during the network communication from a Node A to Node B that exists within a network and on two different networks. (5)

Question 2. *CLO: 2; Apply the concepts of computer networks to solve its related problems. (10)*
Bloom Taxonomy Level:< Applying>

a. Explain the behavior of cookies with the help of example in HTTP user server communication. Distinguish the cookies components with their tasks. (5)

b. Summarizes the role of different DNS servers in the given figure of Host to DNS operations. (5)



c.

Question 3. *CLO: 3; Analyze various protocols, algorithms, and their functions in a network. (10)*
Bloom Taxonomy Level:< Analyzing>

In class, we discussed several versions of Reliable Data Transfer (RDT) protocols, and the mechanisms used to Detect and recover from different types of errors that could occur in an unreliable network layer.

a. One type of error is a corrupted data segment. What mechanism or mechanisms are needed in an RDT protocol to detect and recover from this type of error? How do they work? (3)

b. A second type of error is a duplicate data segment. What mechanism or mechanisms are needed in an RDT protocol to detect this type of error? What state variables are needed, and where do they reside? (3)

c. A third type of error is a lost data segment. What mechanism or mechanisms are needed in an RDT protocol to detect and recover from this type of error? What additional state information is needed, and where does it reside? (4)

Question 4. *CLO:1; Summarize the fundamental concepts of computer networks. (10)*
Bloom Taxonomy Level:<Understanding>

a. Recall the generic segment structure used by the Transmission Control Protocol (TCP). Use your knowledge of TCP to answer the following questions. (5)
(i) Which field or fields are used in TCP's 3-way handshake to open a new connection? What information is conveyed during the handshake, and how?
(ii) What is the purpose of the Window field? How is it used?
(iii) Which header field is used by TCP's error control algorithms? How it is used.

b. Identify the key differences between these concepts. (5)
   a. Connection oriented & Connectionless communication
   b. HTTP 1.X & HTTP/2.0