


**National University of Computer and Emerging Sciences, Lahore Campus**

	<b>Course Name:</b>	<b>Computer Networks</b>	<b>Course Code:</b>	<b>CS 3001</b>
	<b>Program:</b>	<b>BS (Computer Science)</b>	<b>Semester:</b>	<b>Fall 2023</b>
	<b>Duration:</b>	<b>15 minutes</b>	<b>Total Marks:</b>	<b>15</b>
	<b>Paper Date:</b>	<b>19-October-2023</b>	<b>Section</b>	<b>5K</b>
	<b>Exam Type:</b>	<b>Quiz 3 - Chapter 3</b>	<b>Page(s):</b>	<b>2</b>

**Student Name**

**Roll No.**

**Section:**

**Q1. Encircle the correct option:**

**[5 marks] [CLO 3]**

1. When out-of-order segment arrives, TCP receiver immediately -----.
  - a) Discards it
  - b) Sends an ACK
  - c) sends duplicate ACK
  - d) None of the above
  
2. User datagram protocol is called connectionless because:
  - a) All UDP packets are treated independently by transport layer.
  - b) No connection is made before the transfer of actual data
  - c) a & b
  - d) None
  
3. Transport layer aggregates data from different applications into a single stream before passing it to
  - a) Network layer
  - b) Transport layer
  - c) Data link layer
  - d) Application layer

**True/False:**

1. TCP performs a fast retransmit upon receiving a total of three (3) same ACKs. [ T / F ]
2. Multi-casting is not possible in UDP. [ T / F ]

**Q2.** Fill in the incomplete:

**[4 ] [CLO 3]**

<b><i>Properties</i></b>	<b><i>Stop and Wait</i></b>	<b><i>GO BACK N</i></b>	<b><i>SELECTIVE REPEAT</i></b>
Sender Window Size	1		
Receiver Window Size			N

**Q3.** Host A and B are communicating over a TCP connection, and Host B has already received from A all bytes up through byte 126. Suppose Host A then sends two segments to Host B back-to-back. The first and second segments contain 80 and 40 bytes of data, respectively. In the first segment, the sequence number is 127, the source port number is 302, and the destination port number is 80. Host B sends an acknowledgment whenever it receives a segment from Host A.  
**[3 + 3 = 6 Marks] [CLO 3]**

- (a) What is the sequence number and destination port number in the second segment sent from Host A to B?
- (b) If the first segment arrives before the second segment, then, in the acknowledgment of the first arriving segment by host B to A, what will be the acknowledgment number and the destination port number?