

School of Computers and Information Engineering Spring semester 2020

Assignment-5

# Computer Networks

**Submission Date: 13 April 2020**

**NOTE:**

1. Copying of solutions is strictly prohibited. In case it is found, then zero marks will be awarded.
2. This assignment to be submitted on eclass before due date.
3. Late submissions not accepted

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Q1. In TCP/IP layering architecture, explain the message life cycle for a message originating from an application on Host A to an application on Host B. Are the frames and datagrams identical on both sides of Router R? Explain

Q2 .Explain the use of the pseudo-header for a UDP datagram and TCP segment. When is it used? Is it transmitted with the datagram? How does the ultimate destination obtain the contents of the pseudo-header?

Q3. Draw the format of the following

1. UDP
2. TCP

Q4. A sender sends a series of TCP packets each containing 200 bytes to the same destination. If the sequence number starts with 0, what is the sequence number of the 10th packet?

Q5. Show by drawing a clear figure for the following scenario using a TCP acknowledgement policy.

a. The sender sends three packets. The first and second packets arrived and acknowledged. The third packet is delayed and resent. The duplicate packet is received after the acknowledgment for the original is sent.

b. The sender sends two packets. The first packet is received and acknowledged, but the

acknowledgement is lost. The sender resends the packet after time-out. The second packet is lost and resent.

c. The sender sends 5 packets (0, 1, 2, 3, and 4). Packets 0, 1, and 2 are received in order and acknowledged, one by one. Packet 3 is delayed and received after packet 4.

Q6. Show the entries for the header of a UDP user datagram that carries a message from a

TFTP client to a TFTP server. Fill the checksum field with 0s. Choose an appropriate ephemeral port number and the correct well-known port number. The length of data is 40 bytes. Show the UDP packet using the packet format.