CST 428/528

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Quiz 3

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1. The transport layer provides only reliable data transfer. **(1 point)**

a) True **b) False**

Reasoning: Transport layer can use TCP (reliable data transfer) or UDP (unreliable data transfer)

2. Write two main differences between Go-back-N protocol and selective repeat protocol. **(2 points)**

Answer)

1. In Go-back N receiver sends cumulative ack whereas in selective repeat, the receiver sends individual acks.

2. In Go-back N sender maintains one timer for the oldest unacked packet whereas in selective repeat the sender maintains a timer for all unacked packets

3. TCP socket is defined by the following 4 tuple

1) source IP address, 2) source MAC address, 3) destination IP address, 4) destination MAC address

(1 point)

a) True **b) False**

Reasoning: TCP socket is defined by 1) source IP address, 2) source port, 3) destination IP address, 4) destination port

4. What are the three major components of the TCP congestion-control algorithm? **(2 points)**

Answer)

1. slow start

2. congestion avoidance

3. fast recovery

5. Host A is sending Host B a large file over a TCP connection. Assume Host B has no data to send Host A. Host B will not send acknowledgments to Host A because Host B cannot piggyback these acknowledgements on data. (**1 point)**

a) True **b) False**

Reasoning: The large file being sent will be split into several smaller TCP segments and sent to Host B. For each segment received from Host A, Host B will send an acknowledgement regardless of whether Host B has any data to send.

6. Suppose Host A sends two TCP segments back to back to Host B over a TCP connection. The first segment has sequence number 90; the second has sequence number 110. (**2 points)**

a) How much data is in the first segment?

Answer)

Data size = sequence number2 – sequence number1 = 110 - 90

➔ 20 bytes

b) Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgment that Host B sends to Host A, what will be the acknowledgment number?

Answer)

Host B will send an acknowledgement number that indicates the sequence number that it is expecting which is the oldest packet that has not arrived

➔ 90

7. In the slow start phase the window size increases by 1 MSS for each acknowledgement that is received. (**1 point)**

a) True **b) False**

Reasoning: In the slow start phase the window size increases exponentially until it reaches the congestion avoidance phase where it grows linearly by 1 MSS