TCP Quiz

1. Consider an instance of TCP’s Additive Increase Multiplicative Decrease (AIMD) algorithm where the window size at the start of the slow start phase is 2 MSS and the threshold at the start of the first transmission is 8 MSS. Assume that a timeout occurs during the fifth transmission. Find the congestion window size at the end of the tenth transmission.
   1. 8MSS
   2. 14MSS
   3. 7MSS
   4. 12MSS
2. Let the size of congestion window of a TCP connection be 32 KB when a timeout occurs. The round trip time of the connection is 100 msec and the maximum segment size used is 2 KB. The time taken (in msec) by the TCP connection to get back to 32 KB congestion window is
   1. 1100-1300
   2. 800-1000
   3. 1400-1600
   4. 1500-1700
3. Consider a network connecting two systems located 8000 kilometers apart. The bandwidth of the network is 500 × 106 bits per second. The propagation speed of the media is 4 × 106 meters per second. It is needed to design a Go-Back-N sliding window protocol for this network. The average packet size is 107 bits. The network is to be used to its full capacity. Assume that processing delays at nodes are negligible. Then, the minimum size in bits of the sequence number field has to be \_\_\_\_\_\_\_\_.
   1. 2
   2. 4
   3. 8
   4. 16
4. Consider a TCP connection in a state where there are no outstanding ACKs. The sender sends two segments back to back. The sequence numbers of the first and second segments are 230 and 290 respectively. The first segment was lost, but the second segment was received correctly by the receiver. Let X be the amount of data carried in the first segment (in bytes), and Y be the ACK number sent by the receiver. The values of X and Y (in that order) are
   1. 60 & 290
   2. 230 & 291
   3. 60 & 231
   4. 60 & 230
5. Which of the following control fields in TCP header is used to specify whether the sender has no more data to transmit?
   1. FIN
   2. SYN
   3. RST
   4. PSH
6. Silly Window Syndrome is related to
   1. Error during transmission
   2. File Transfer Protocol
   3. Degrade in TCP Performance
   4. Interface Problem
7. Which of the following is not a field in TCP header?
   1. Sequence number
   2. Fragment offset
   3. Checksum
   4. Window size
8. Using stop and wait protocol, sender wants to transmit 10 data packets to the receiver. Out of these 10 data packets, every 4th data packet is lost. How many packets sender will have to send in total?
9. On a wireless link, the probability of packet error is 0.2. A stop and wait protocol is used to transfer data across the link. The channel condition is assumed to be independent from transmission to transmission. What is the average number of transmission attempts required to transfer 100 packets?
   1. 100
   2. 125
   3. 150
   4. 200
10. In the slow start phase of the TCP congestion control algorithm, the size of the congestion window
    1. Does not Increase
    2. Increases Linearly
    3. Increases Quadratically
    4. Increases Exponentially