Electrical and Computer Engineering Dept

COE 431
Computer Networks

Spring 2013

Quiz II

1. Host A sends a TCP segment (Seq=43, ACK = 103), to which host B replies with a TCP segment (Seq=103, ACK=60). The payload of the first TCP segment is:
   - a. 14 bytes
   - b. 43 bytes
   - c. 60 bytes
   - **d. None of the above**

2. Host A sends two TCP segments to Host B. The first contains 10 bytes and is sent with a **Seq=100** while the second has a **Seq=110** and a payload size of 8 bytes. Host B replies with two separate ACK messages with acknowledgment numbers of **110** and **118** respectively. If the first ACK message gets lost while the second arrives before the timeout event occurs at A, how many segment does host A retransmit?
   - **a. 0**
   - b. 1
   - c. 2
   - d. None of the above

3. Which of the following eliminates the possibility that the receiver's buffer becomes full?
   - a. Congestion control
   - **b. Flow control**
   - c. Fast retransmit
   - d. None of the above

4. Which of the following is always true about packet switching?
   - a. It introduces packet loss and queueing delay.
   - **b. Forwarding decisions are made on a per packet basis**.
   - c. All of the above
   - d. None of the above

5. Both of the Go-Back-N and Selective-Repeat error recovery mechanisms require that
   - a. The packets arriving at the receiver be delivered in order to the upper layer
   - **b. The sender employ a buffer**
   - c. All of the above
   - d. None of the above

6. Which of the following can be used by the receiver to detect packet loss?
   - a. Timer
   - **b. Sequence number**
   - c. Checksum
   - d. Negative Acknowledgment

7. In TCP, the timeout interval is a function of:
   - **a. Estimated RTT at the transmitter**
   - b. Maximum segment size and the overhead of a datagram
   - c. The size of the buffer at the receiver
   - d. Both (b) and (c)

8. Which of the following is correct about flow control service in TCP?
   - a. The sender selects the maximum segment size
   - b. The receiver increases its application data rate
   - c. The receiver increases its buffer size
   - **d. None of the above**

9. A TCP transmitter has received an acknowledgment with a acknowledgment number equal to 80. This means that:
    a. The receiver has received the byte with sequence number equal to 80
    b. **The receiver has received all the bytes preceding the one with seq. num. equal to 80**
    c. The receiver can accept 80 bytes without overflow in its buffer
    d. The transmitter should send 80 bytes in the next segment

10. In a Go-Back-10 protocol, the oldest transmitted segment without acknowledgment has a sequence number of 100. The sender has already sent 5 packets from its transmission window. If the timeout expires for packet 100, the sender should retransmit:
    a. Packets 96 to 100
    b. Packets 91 to 100
    c. Packets 100 to 1009
    d. **Packets 100 to 104**

11. Which one is UDP checksum of the following 16-bit code words? W1=0110011001100000, w2=0101010101010101, w3=1000111100001100.
    a. 0100101011000010
    b. 0100101011000001
    c. **1011010100111101**
    d. None of the above

12. MSS defines the maximum size of
    a. The entire TCP segment
    b. **The payload of a TCP segment**
    c. The payload of an Ethernet frame
    d. None of the above

13. What is the main difference between a stop-and-wait and a pipelined reliable data transfer protocol?
    a. The pipelined protocol uses the NAK packets, whereas in the stop-and-wait protocol senders always wait for ACK packets.
    b. **With the pipelined protocol, the sender can send several packets in row, whereas in the stop-and-wait protocol the sender cannot send several packets in row.**
    c. With the pipelined protocol, the receiver must send one ACK for several packets (cumulative ACK), whereas in the stop-and-wait protocol the receiver cannot send the cumulative ACK.
    d. The pipelined protocol uses timeouts, whereas the stop-and-wait protocol does not use the timeout.

14. Which is following is false about UDP?
    a. UDP serves as a transport layer protocol for SNMP
    b. **UDP protects its header against errors**
    c. It is possible to achieve reliable data transfer with UDP
    d. All of the above

15. Suppose that you want to do a transaction from a remote host to a server as fast as possible. Which transport layer protocol would you use?
    a. FTP
    b. TCP
    c. **UDP**
    d. HTTP

16. With the selective repeat protocol
    a. The receiver sends cumulative ACK packets
    b. The sender buffers out-of-order packets
    c. The channel bandwidth is wasted
    d. **None of the above**

17. How many duplicate ACKs should a TCP sender receive before performing a fast retransmission?
    a. 2
    b. 1
    c. **3**
    d. None of the above

18. To create a NACK-free protocol,
    a. The sender must indicate the sequence number of a transmitted packet

b. The ACK message must indicate the sequence number of an ACKed segment
c.   Both of the above
d. None of the above