RAT Test Run

Question 1: Who is responsible for triggering the end of a TCP connection?

A Either endpoint (client or server) can initiate connection termination.

B The **sender** is responsible for ending the connection as soon as all sent packets are acknowledged.

C The **receiver** is responsible for ending the connection because it should be the server side to handle TCP connections.

D The **server** is responsible for ending the connection as soon as an application request is answered.

Question 2: While establishing a new TCP connection (three-way handshake):

A The initial sequence number **starts at 0** for both client and server but is incremented with each SYN, SYNACK and ACK segment.

B An initial sequence number is set for client and **another** for the server.

C The **same randomised** initial sequence number is set for both the client and the server.

D The initial sequence number **is negotiated** between the client and the server until they agree on the same number.

Question 3: During TCP's three-way handshake as discussed in the readings:

A Data can be immediately transmitted in the first SYN segment.

B Data can be transmitted in any segment sent by the client.

C Data can only be transmitted in the final ACK sent by the client.

D Data cannot be transmitted in any segment.

Question 4: What are the main variables used in TCP Congestion & Flow Control at the sender?

A LastByteAcked, SenderWindow (swnd), ReceiverWindow (rwnd), LastByteSent .

B LastByteReceived, CongestionWindow (cwnd), ReceiverWindow (rwnd), LastByteSent.

C LastByteAcked, CongestionWindow (cwnd), ReceiverWindow (rwnd), LastByteSent.

D LastByteReceived, SenderWindow (swnd), ReceiverWindow (rwnd), LastByteSent.

Question 5: Select the correct sentence:

A The amount of unacknowledged data at the sender is limited by the **minimum** value between the **congestion window (cwnd)** and receiver window (rwnd).

B The amount of unacknowledged data at the sender is limited by the **maximum** value between the **sender window** (swnd) and receiver window (rwnd).

C The amount of unacknowledged data at the sender is limited by the **maximum** value between the **congestion window (cwnd)** and receiver window (rwnd).

D The amount of unacknowledged data at the sender is limited by the **minimum** value between the **sender window (swnd)** and receiver window (rwnd).

Question 6: In the slow-start state, TCP:

A starts with a small window and slowly increases it by a single MSS **per RTT**.

B starts with a small window and increases it **for each ACK segment**.

C starts with a small window and slowly increases it **for each sent segment**.

D does nothing because this state **does not** exist.

Question 7: In the **congestion-avoidance** state, TCP:

A starts with a variable window, roughly half its value when congestion was last encountered, and increases it by a single MSS **for each duplicate ACK**.

B starts with a variable window, roughly half its value when congestion was last encountered, and slowly increases it by a single MSS **per RTT**.

C does nothing because this state **does not** exist.

D starts with a small window and exponentially increases it **for each ACK segment**.

Question 8: Select the correct sentence:

A Two **TCP connections** sharing the same link will **always** be crowded out by UDP traffic on that same link.

B Two **applications** using either TCP or UDP sockets and sharing the same bottleneck link will always guarantee a fair link utilisation.

C Two **TCP connections** sharing the same bottleneck link will eventually converge to a fair link utilisation.

D Two **applications** using TCP sockets and sharing the same bottleneck link will always guarantee a fair link utilisation.

Question 9: Explicit Congestion Notification (ECN):

A depends entirely on the transport layer.

B is only managed by the end system (sender and receiver).

C is only available for TCP connections.

D depends not only on the transport layer but also on the network layer.

Question 10: TCP congestion control:

A is **loss-based** regardless of the TCP implementation in question.

B can be **loss-based** to detect congestion before a loss occurs.

C can be **delay-based** to detect congestion before a loss occurs.

D is **delay-based** regardless of the TCP implementation in question.