**Assignment III**

25/10/2013

**Class: T.E. (CSE) I&II Subject: Computer Network**

1. In a TCP connection the initial sequence number at client site is 3127. The client opens the connection, sends only one segment carrying 1000 bytes of data, and closes the connection. What is the value of the sequence number in each of the following segments sent by the client?
   1. The SYN segment?
   2. The data segment?
   3. The FIN segment?
2. Draw TCP state transition diagram and trace the TCP finite state machine transitions for three-way handshake.
3. A TCP connection is using a window size of 10000 bytes and the previous acknowledgment number was 22,001. It receives a segment with acknowledgment number 24001 and the window size advertisement of 12000. Draw the diagram to show situation of window before and after.
4. How the TCP window size is determined? Explain in brief.
5. What is sliding window protocol?
6. a host sends five packets and receives three acknowledgements as follows
   1. Segment 1 was sent at 0:0:00
   2. Segment 2 was sent at 0:0:05
   3. ACK for segment 1 and 2 received at 0:0:07
   4. Segments 3,4 and 5 was sent at 0:0:20,0:0:22, and 0:0:27 respectively.
   5. ACK for 1 and 2 was received at 0:0:45
   6. ACK for segment 3 was received at 0:0:65
7. Calculate the values of RTTM, RTTS, RTTD ,and RTO if the original RTO is 6 sec. Did the sender miss the retransmission of any segment? Draw the sequence diagram showing the event after retransmission if any, and the retransmission time.
8. Explain the purpose and working of various TCP timers.
9. Explain the TCP congestion policies (Slow start, Additive Increase ).
10. What is DNS? Explain the DNS message format.
11. What is maximum segment size option in TCP? Explain option format and purpose of this option.
12. Explain DNS query and response message in detail.
13. Explain FTP command processing.
14. Explain the communication using FTP over its control and data connections.
15. What is remote login? Draw TELNET architecture and explain its operations and modes.
16. What is SMTP? State all SMTP commands and responses .
17. Explain following terms in SMTP; i)User Agent ,ii) Message transfer agent, iii) Message access agent.
18. What is MIME? Explain its Header.

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