MCSE/MCTA-301(B)/MCIT-301(C)/ MSE-301(A)

M.E./M.Tech., III Semester

Examination, June 2014

Web Engineering (Elective-I)

Time : Three Hours *Maximum Marks : 70*

Note: Attempt any five questions. All questions carry equal marks. Support your answer with neat and clear diagrams whenever necessary.

1. a) Discuss IPv6 datagram along with its format.
   b) When an IP datagram travels across the network, it is desirable to keep datagram size such that it fits in physical frame size of that network for efficient communication. But practically datagram travels across different types of networks which may have different physical frame sizes. How TCP/IP manages the issue to efficiently transmit the datagram? Explain with example.

2. a) Discuss different dynamic routing protocols in brief.
   b) What are the advantages of having the IP checksum cover only the datagram header and not the data? What are the disadvantage? Is it ever necessary to use an IP checksum when sending packets over an Ethernet? Why or why not?

3. a) Explain how DNS maps names to addresses? Also discuss how it is an efficient, reliable, general purpose and distributed system?
   b) Consider a machine with two physical network connections and two IP addresses I1 and I2. Is it possible for that machine to receive datagram destined for I2 over the network with address I1? Explain.

4. a) How testing of destination reachability and status is done in TCP/IP networks? Explain the working of program used for this purpose. Also give its request and reply message formats.
   b) Argue that fragments should have small non-standard headers.

5. a) What is the need of clock synchronization and transmit time estimation for communication on a Network? Name one of the protocols of TCP/IP suite which performs this function and How?
   b) How multiplexing and de-multiplexing performed in UDP? Also give a diagram explaining your answer.

6. a) Early TCP implementations exhibited a problem known as Silly Window Syndrome (SWS). Explain this problem and how it can be avoided?
   b) Assume TCP is sending segments using a window size of 64 K bytes on a channel that has infinite bandwidth and a average roundtrip time of 20 milliseconds. What is the maximum throughput? How does throughput change if the roundtrip time increases to 40 milliseconds?

7. a) Which ICMP messages does a router generates? Explain each in brief. How does a router know whether an incoming datagram carries a routing update message?
   b) Discuss RARP along with its drawbacks. What is the replacement of RARP to overcome these drawbacks? How this protocol overcomes these drawbacks of RARP?

8. a) Discuss FTP process model in detail. What is anonymous FTP?
   b) What do you understand by TELNET options? Are TELNET options negotiable? If yes, state how TELNET negotiates options.

******