Seventh Semester B.E. Degree Examination, Dec.2014/Jan.2015
Computer Communication Networks

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. Discuss the TCP/IP model with functionalities of each layer. Consider source destination and intermediate modes for discussion. **(10 Marks)**
    b. Explain the different services provided by telephone networks. **(04 Marks)**
    c. Describe four levels of addressing used in internet (TCP/IP) with examples. **(06 Marks)**

2 a. What is HDLC? Explain different frame formats with control field used by HDLC. **(10 Marks)**
    b. A system uses stop-and-wait ARQ protocol. If each packet carries 2000bits of data, how long does it take to send 1 million bits of data if the speed is 2×10^8 m/sec? Ignore transmission, waiting and processing delays. We assume no data or control frame is lost or damaged. Repeat for go-back-n with window) size = 7. **(10 Marks)**

3 a. What is channelization in the context of multiple access? What are various channelization techniques? Explain CDMA technique. **(10 Marks)**
    b. Two stations A and C are connected to a shared channel with data rate 10Mbps. The distance between A and C is 2500m and the propogation speed is 2×10^8 m/s. Station A starts sending a long frame at time $t_1 = 0$; station C starts sending a long frame at time $t_2 = 3\mu sec$. The size of the frame is long enough to guarantee the detection of collision by both stations. Find: i) The time when station C hears the collision (t_3); ii) Time when station A hears the collision (t_4); iii) The number of bits A has sent before detecting the collision; iv) The number of bits C has sent before detecting the collision. **(10 Marks)**

4 a. Explain the MAC frame format of IEEE802.3. Write a note on frame length. **(10 Marks)**
    b. Explain the features of MAC sublayer and physical layer of Gigabit Ethernet. **(10 Marks)**

PART – B

5 a. Briefly explain the three criteria's of a transparent bridge with example. **(10 Marks)**
    b. Explain the following connecting devices: i) Passive hub; ii) Repeater; iii) Bridge; iv) Router; v) Gateway. **(10 Marks)**

6 a. What is NAT? Explain how address translation is done in NAT. **(09 Marks)**
    b. Why IPV4 to IPV6 transition is required? What are various techniques used in transition? Explain them. **(08 Marks)**
    c. Bring out any 3 differences between IPV4 and IPV6 addressing schemes. **(03 Marks)**

7 a. Explain distance vector routing with an example. **(10 Marks)**
   b. With a neat flow chart explain Dijkstra algorithm for the network shown in Fig.Q.7(b). Assume 'A' as root node. Mention the routing table for root A. Refer Fig.Q.7(b). **(10 Marks)**
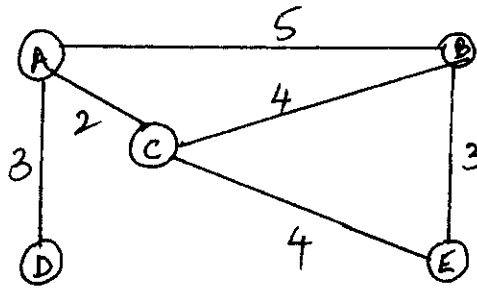

Fig.Q.7(b)

8 a. How is TCP better than UDP? Explain services offered by TCP. **(10 Marks)**
   b. What is Name Space? How is it classified? What is DNS? **(10 Marks)**

* * * * *