USN ☐☐☐☐☐☐☐☐☐☐

12SCN12

First Semester M.Tech. Degree Examination, February 2013
Computer Networks

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. What are the factors to be considered to measure the performance of a network? Explain.
                                                                        (10 Marks)
   b. Suppose a 128 Kbps point-to-point link is set up between Earth and a rover on Mars. The distance form Earth to Mars is approximately 55 Gm and data travels over the link at the speed of light 3×10^8 m/sec.
      i)   Calculate the minimum RTT for the link.
      ii) Calculate the delay × bandwidth product for the link.
      iii) A camera on the rover takes pictures of its surroundings and sends these to earth. How quickly after a picture is taken can it reach mission control on earth? Assume that each image is 5 MB in size.   **(10 Marks)**

2 a. Explain the high level data link control protocol with the frame format.   **(06 Marks)**
   b. Explain the stop and wait protocol.   **(06 Marks)**
   c. Explain in detail the working of 802.5 token ring.   **(08 Marks)**

3 a. Explain virtual circuit switching with an example.   **(10 Marks)**
   b. Explain the ATM adaption layer 3/4 along with the packet format.   **(10 Marks)**

4 a. What is the need for DHCP? Explain the working of DHCP.   **(08 Marks)**
   b. For the network given below give global distance vector tables when:
      i)   Each node knows only the distances to its immediate neighbors.
      ii) Each node has reported the information it had in the preceding step to its immediate neighbors.
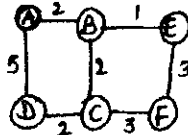   iii) Step (ii) happens a second time.

Fig.Q4(b)
                                                                        (06 Marks)
   c. Explain the IPV4 header format.   **(06 Marks)**

5 a. Explain the connection establishment phase in TCP.   **(06 Marks)**
   b. What is Silly window syndrome? Explain Nagle's algorithm to handle Silly window syndrome.   **(08 Marks)**
   c. Explain RPC mechanism with a diagram.   **(06 Marks)**

6 a. List the methods used by TCP to handle congestion in TCP. Explain any one method in detail.   **(10 Marks)**
   b. Explain the three dimensions along which resource allocation mechanisms can be characterized.   **(06 Marks)**
   c. Explain how fair queuing method is used to buffer packets in a network.   **(04 Marks)**

7 a. Explain the different types of HTTP messages.   **(06 Marks)**
   b. Explain with an example how names are translated into addresses by DNS.   **(06 Marks)**
   c. Explain the working of simple mail transfer protocol.   **(08 Marks)**

8 Write short notes on: a) User datagram protocol, b) Ethernet.   **(20 Marks)**

* * * * *

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.