01520

B.TECH. IN ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

June, 2013

BIELE-016 : DATA COMMUNICATION AND NETWORK

Time : 3 hours   *Maximum Marks : 70*

Note : Attempt **any seven** questions. All questions carry **equal** marks. Assume missing data suitably.

1. (a) With the help of neat diagram explain the   5
        interaction between layers in OSI Model.
    (b) What are some of the factors that determine   5
        whether a communication system is a LAN
        or WAN ?

2. (a) Enlist the difference between message   2
        switching and packet switching.
    (b) We have four sources each creating 250
        characters/sec. If the inter leaved unit is
        one character and 1 synchronous bit is
        added to each frame (Given one character
        =8 bits) Find :   2x4=8
        (i)   The data rate of each source
        (ii) The frame rate
        (iii) The duration of each frame
        (iv) The data rate of the line

3. Derive an expression for throughput of pure **10** ALOHA and slotted ALOHA. Why the value of throughput less for pure ALOHA and how is it improved in slotted ALOHA ?

4. (a) What is the difference between PPP and **5** HDLC ? With a help of neat diagram explain the transition phases in PPP connection.

   (b) Draw a neat diagram of TCP segment. **5** Explain sequence number and acknowledgement numbers.

5. Consider two computers in a LAN with IP **10** addresses 4.46.154.132 and 4.46.154.107. Now consider the following subnet marks.
   (a) 255.255.255.128
   (b) 255.255.255.224
   Determine the maximum number of computers that can be accommodated in each subnet. Also find out in each case. If the above two computers are in the same subnet or not.

6. What are the different elements of transport **10** protocols ? And also explain how do we establish a connection.

7. What is congestion ? Name the techniques that **10** prevent congestion. Discuss any two techniques in brief.

8. Describe the Specification, characteristics and application of the following devices : **10**

(a) Routers

(b) Bridge

(c) Repeaters

(d) Switches

Also show diagrammatically where all the devices are placed in network setup.

9. Write short notes on the following : **10**

(a) Importance of firewall in a n/w

(b) ATM Architecture

10. (a) Explain the difference between : **5**

(i) Guided Vs Unguided Media

(ii) UDP Vs TCP

(b) Describe the stop and wait flow control **5** technique.

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