Registration No. :

Total number of printed pages – 2

Sixth Semester (Special) Examination – 2013

COMPUTER NETWORKS

BRANCH(S) : CSE, IT

QUESTION CODE : E 321

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions :   2×10

    (a)   What are the various components of a data communication system ?

    (b)   Distinguish between an analog signal and a digital signal with suitable example.

    (c)   What is Nyquist theorem for sampling ?

    (d)   We have an Audio signal with a bandwidth of 10 MHz. What is the bandwidth needed if we modulate the signal using FM ignoring FCC regulations ?

    (e)   How does a single bit error differ from a Burst error ? Explain with a suitable example.

    (f)   How does CHAP work ? How is it superior to PAP ?

    (g)   Distinguish between Unicast, Multicast and Broadcast address.

    (h)   What is Piggybacking ?

    (i)   What is the role of Dijkstra algorithm in Unicast routing ?

    (j)   Name two mail access protocols.

2. (a)   What is Line Coding ? Discuss various types of Line coding schemes with suitable examples.   5

    (b)   Construct the Hamming code for the bit sequence 10011101.   5

3.   (a)   What do you mean by topology ? Discuss various types of topologies with their advantages and disadvantages.   5

     (b)   What is Multiplexing ? Discuss the Frequency division multiplexing technique.   5

4.   Draw the architecture of an OSI reference model. Describe the functions of each layer and show how the layers of OSI correlate to that of the layers of TCP/IP model ?   10

5.   (a)   Explain CSMA/CD procedure with a suitable flow diagram. How does it differ from CSMA/CA ?   5

     (b)   Explain the RSA encryption algorithm with suitable example.   5

6.   (a)   What do you mean by Quality of service ? What are the techniques used to improve QOS ? Explain any one.   5

     (b)   Enumerate the fields of a U-Frame of HDLC protocol and discuss the function of each field.   5

7.   (a)   Discuss the operation mechanism of Stop-and-Wait ARQ and explain how it differs from Go-back-N ARQ.   5

     (b)   Discuss various IP address classes according to classful addressing ? Which classes are used for Unicast Communication ?   5

8.   Write short notes on any **Two** :   5 × 2

     (a)   Bluetooth

     (b)   Domain Name System

     (c)   Transmission Modes

     (d)   Digital Signature.