Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/BCA/SEM-5/BCA-501/2012-13

2012

DATA COMMUNICATION AND COMPUTER NETWORK

Time Allotted : 3 Hours   *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

    i)   The slowest transmission speeds are those of

        a)   Twisted pair wire   b)   Coaxial cable

        c)   Twisted pair cable   d)   Microwaves.

    ii) HDLC protocol works in

        a)   Application Layer   b)   Presentation Layer

        c)   Session Layer   d)   Data Link Layer.

    iii) The number of outgoing lines in a hub is

        a)   1   b) n

        c) $n – 1$ d) $n + 1$.

iv) Baseband is

    a) digital signal   b) analog signal

    c) none of these   d) all of these.

v) Encryption is performed in

    a) Network Layer

    b) Transport Layer

    c) Session Layer

    d) Data Link Layer.

vi) What is the network address for 198.76.9.23 ?

    a) 198.0.0.0   b) 198.76.0.0

    c) 198.76.9.0   d) None of these.

vii) Keyboard is an example of which of the following ?

    a) Simplex   b) Half Duplex

    c) Full Duplex   d) None of these.

viii) Subnet mask of default route in

    a) 0.0.0.0   b) 255.255.255.255

    c) Both (a) and (b)   d) None of these.

ix) Fragmentation is applicable for

    a) IP Header   b) IP Data

    c) TCP Header   d) TCP Data.

x) In sliding window protocol if the window size is 64, what is the range of number ?

a) 0 to 63   b) 0 to 64

c) 1 to 63   d) None of these.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following. $3 \times 5 = 15$

2. Explain delta modulation with proper example. Mention its limitations.

3. What is IP addressing ? What are the classes of IP addressing ? What is the difference between static and dynamic IPs ?

4. Explain Leaky Bucket Algorithm.

5. Briefly explain IPv4 datagram.

6. Briefly explain FDM process.

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following. $3 \times 15 = 45$

7. a) Compare between Asynchronous TDM and Synchronous TDM with proper diagram.

   b) Briefly explain Virtual Packet switching network.

   c) Briefly define Repeater, Bridge and Router.   5 + 4 + 6

8. a) What is MAC address ?

b) Briefly describe the TCP connection establishment and termination. What are the basic differences between TCP/IP and OSI reference mode ?

c) Discuss the tasks of transport layer.

d) Briefly discuss Token Bucket Algorithm of Congestion control.   1 + 4 + 3 + 2 + 5

9. a) What do you mean by Classless Addressing ?

b) What is the first address in the block if one of the addresses is 167.199.170.82/27 ? If a network on the Internet has a subnet mask of 255.255.240.0 and then what is the maximum number of hosts that it can handle ?

c) What is the need of subnet masking ?

d) How can you compare Pure ALOHA and slotted ALOHA ?   2 + 3 + 3 + 2 + 5

10. Write short notes on any *three* of the following :   3 × 5

a) Public key Cryptography

b) BSC protocol

c) Sliding Window Protocol

d) Congestion Control

e) OSI/ISO reference model.