Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/BCA/SEM-5/BCA-501/2010-11

2010-11
DATA COMMUNICATION AND
COMPUTER NETWORKS

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)   TCP and UDP are the part of .... layer.

        a)   data link   b)   transport

        c)   network   d)   presentation.

    ii)   HDLC is a .... protocol.

        a)   bit oriented   b)   character oriented

        c)   transport layer   d)   none of these.

    iii)   In FDDI, data normally travels on

        a)   primary ring   b)   secondary ring

        c)   both rings   d)   neither ring.

iv) A network that provides a constant bandwidth for the complete duration of a message transfer is a

   a) circuit switched network

   b) cell switched network

   c) packet switched network

   d) none of these.

v) Microwave link repeaters are typically 50 km apart because of

   a) cost

   b) atmospheric attenuation

   c) earth's curvature

   d) output power limitations.

vi) Network topology, consisting of nodes attached in a ring, without a host computer is known as

   a) BUS   b) RING

   c) STAR   d) none of these.

vii) What layer of the OSI model does 'framing' ?

   a) Network   b) Presentation

   c) Data link   d) Physical.

viii) BSC protocol uses

   a) simplex   b) full duplex

   c) half duplex   d) none of these.

ix) A balanced modulator can be used to generate

   a) ASK   b) FSK

   c) DPSK   d) none of these.

x) In digital transmission

   a) baud rate is equal to bit rate

   b) baud rate is smaller than bit rate

   c) baud rate is higher than the bit rate

   d) both (a) & (b).

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following.   3 × 5 = 15

2. What is UDP ? Write the datagram format of the UDP with suitable diagram.   2 + 3

3. Compare between the TCP/IP and OSI reference model.

4. What are bit rate and baud rate ? Describe the Go back *n* Protocol.   2 + 3

5. Write a short note on pure and slotted ALOHA.

6. a) Find the maximum bit rates for an FSK signal if the bandwidth of the medium is 12000 Hz and the difference between the two carriers must be at least 2000 Hz. (Transmission is in duplex mode)

   b) What are the functions of DTE ? Give example.   3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. a) Explain OSI reference model.   7

   b) Describe the functions of router and bridge with suitable diagram.   5

   c) What do you mean by Piggy backing ?   3

8. a) Write the functions of preamble field of 802·3 frame.   2

   b) Describe the priority scheme of Token Ring LAN.   2

5019   3   [Turn over

c) What do you mean by congestion ? Why does congestion occur in the network layer ? 5

d) Token bus LAN is implemented using the technology of Ethernet and Token Ring LAN. Explain. 4

e) Compare virtual circuit and datagram. 2

9. a) What are the needs of modulation ? 3

b) Compare among ASK, FSK & PSK with the help of the sketch. 6

c) For 1001101101, draw the line codes in PRZ, BPRZ & Manchester code. 6

10. a) Describe the structure of HDLC frame in detail. 6

b) Compare between BSC protocol and HDLC protocol. 5

c) Briefly explain IPV4 datagram. 4

11. a) What is network topology ? Write the advantages of ring topology over star topology. 5

b) Explain the transmission characteristics of optical fibre. 4

c) What is multiplexing ? Why is it necessary in data communication ? 4

d) What is bit stuffing ? 2