Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/MCA/SEM-2/MCA-201/2010

2010

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) One important characteristic of the hub architecture of ARC-net is

a) directionalized transmission

b) access control and addressing

c) multiple virtual network

d) alternate routing.

ii) The geostationary satellite used for communication systems

a) rotates with the earth

b) remains stationary relative to the earth

c) is positioned over equator

d) all of these.

iii) FDDI is a

a) ring network b) star network

c) mesh network d) bus based network.

iv) Which organization draws up standards for modems ?

a) CCITT b) BELL

c) AT and T d) Hayes.

v) Which company developed the TCP/IP protocol for networking ?

a) IBM b) DEC

c) NOVELL d) DARPA.

vi) ALOHA

a) is used for channel allocation problem

b) is used for data transfer

c) is buffering

d) all of these.

vii) A terminal multiplexer has six 1200 bps terminals and n 300 bps terminals connected to it. The outgoing line is 9600 bps. The maximum value of n is

a) 4 b) 16

c) 8 d) 28.

viii) Routers function in which layers ?

a) Physical and data link

b) Physical, data link and network

c) Data link and network

d) Network and transport.

ix) Which of the following is an example of a bounded medium ?

a) Coaxial cable b) Waveguide

c) Fibre optic cable d) All of these.

x) Coaxial cable has conductors with

a) a common axis b) equal resistance

c) the same diameter d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Explain baseband transmission and broadband transmission.

3. Define Multiplexing. Explain Time-Division Multiplexing with proper diagram. 1 + 4

4. Write the differences between the following : $2\frac{1}{2} + 2\frac{1}{2}$

a) TDM and FDM

b) MAC-Addressing and IP-Addressing.

5. Explain DQDB in detail.

6. Explain Multipath Fading in Network.

GROUP – C

(Long Answer Type Questions)

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

7. a) How does FDDI differ from 802.5 Token Ring Network ?

   b) Television channels are 8 MHz wide. How many bits/sec can be sent if eight-level digital signals are used ? Assume signal-to-noise ratio channel as 30 dB.

   c) Explain the Frame format of 802.5 LAN. 5 + 5 + 5

8. a) Write the priority scheme of Token Bus LAN.

   b) Write the differences between Token Bus and Token Ring Network.

   c) Explain how Token Ring works. 5 + 5 + 5

9. a) What are bit rate and baud rate ?

   Establish the relationship between these two.

   b) Describe transmission modes. 5 + 10

10. a) What is HDLC ? Explain NRM and ABM.

    b) What is Byte stuffing ?

    c) Generate the CRC code for the data word of 1100 10101. The divisor is 10101. 5 + 3 + 7

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

    a) Flooding

    b) PCM

    c) X.21

    d) UDP

    e) Frame relay.