

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.

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

- 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.                   $3 \times 5 = 15$

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.  $3 \times 15 = 45$

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 :  $3 \times 5$
- a) Flooding
  - b) PCM
  - c) X.21
  - d) UDP
  - e) Frame relay.