

**Advanced Diploma in Information Technology (ADIT) /  
Bachelor in Information Technology (BIT)**

**Term-End Examination**

**June, 2007**

**CST-202 : DATA COMMUNICATION AND COMPUTER  
NETWORKING**

*Time : 3 Hours*

*Maximum Marks : 75*

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**Note :** *There are two Sections in this paper. All questions from Section A are compulsory. Answer any three questions from Section B. All multiple choice questions carry one mark each.*

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**SECTION A**

1. IEEE 802.4 standard defines a \_\_\_\_\_ network. 1  
(a) Star (b) Bus  
(c) Ring (d) DQDB
  
2. The Preamble field of the 802.3 frame contains : 1  
(a) seven bits  
(b) eight bits  
(c) seven bytes  
(d) eight bytes
  
3. The modulation technique used for the high speed data modem is 1  
(a) ASK  
(b) FSK  
(c) DPSK  
(d) QPSK
  
4. Television is an example of \_\_\_\_\_ transmission. 1  
(a) Half duplex (b) Full duplex  
(c) Simplex (d) Complex

5. Which of the following cabling schemes offers easy maintenance ? 1
- (a) 10 Base 5
  - (b) 10 Base 2
  - (c) 10 Base T
  - (d) None of the above
6. Higher the data rate of signal, the \_\_\_\_\_ its bandwidth. 1
- (a) lower
  - (b) slower
  - (c) half
  - (d) greater
7. In \_\_\_\_\_ network, if any node is down, the whole network fails. 1
- (a) star
  - (b) ring
  - (c) bus
  - (d) mesh
8. Mapping from MAC address to IP address is done by 1
- (a) ARP
  - (b) SMTP
  - (c) SNMP
  - (d) RARP
9. Which of the following is the first step in digitizing an analog signal ? 1
- (a) Quantization
  - (b) Sampling
  - (c) Bit stuffing
  - (d) Packetization
10. The maximum cable length supported by the 10 Base 5 Scheme is 1
- (a) 5 metres
  - (b) 50 metres
  - (c) 500 metres
  - (d) 5 km
11. (a) Write any three differences between each of the following : 15
- (i) ASK and PSK
  - (ii) Upward and Downward multiplexing
  - (iii) DQDB and X.25
  - (iv) Fiber optics and UTP
  - (v) Star and Mesh topology
- (b) What is the need of IP addressing ? List all the classes of IP addresses with range of host addresses. 5

## SECTION B

*Answer any three questions from this section.*

- 12.** (a) What is multiplexer ? What are the different types of multiplexing techniques possible for analog signals ? Explain. 8
- (b) How many layers are used in the OSI reference model ? Which principles were applied to arrive at this model ? Explain any three functions of data link layer. 7
- 13.** Answer the following questions in brief : 15
- (a) What is channel capacity ? How is it related to bandwidth ?
- (b) What is the difference between simplex, half duplex and full duplex transmissions ?
- (c) What is the reason of making twists in a pair of wires used as transmission medium ?
- (d) What is PCM ? Explain it with an example.
- (e) What are bridges and routers ? Why do we use separate LANs connected by bridges and routers rather than one large network ?
- 14.** (a) Explain the principle of CSMA/CD method. Why is it called non-deterministic protocol ? How is a collision possible in a CSMA/CD network ? What is meant by the term Slot time in these networks ? 10
- (b) What is the format of X.25 packet ? Also, explain how it will save bandwidth in comparison to circuit switching network. 5
- 15.** Explain the following : 15
- (a) Flow control mechanism in data link layer
- (b) Congestion control
- (c) 3-way handshake
- (d) ISDN
- (e) FDDI

