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*

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.*

SECTION A

1. IEEE 802·4 standard defines a _____ network.

   (a) Star   (b) Bus
   (c) Ring   (d) DQDB

2. The *Preamble* field of the 802·3 frame contains :

   (a) seven bits
   (b) eight bits
   (c) seven bytes
   (d) eight bytes

3. The modulation technique used for the high speed data modem is

   (a) ASK
   (b) FSK
   (c) DPSK
   (d) QPSK

4. Television is an example of _____ transmission.

   (a) Half duplex   (b) Full duplex

   (c) Simplex   (d) Complex

5. Which of the following cabling schemes offers easy maintenance ?

   (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.

   (a) lower   (b) slower

   (c) half   (d) greater

7. In _____ network, if any node is down, the whole network fails.

   (a) star

   (b) ring

   (c) bus

   (d) mesh

8. Mapping from MAC address to IP address is done by

   (a) ARP

   (b) SMTP

   (c) SNMP

   (d) RARP

9. Which of the following is the first step in digitizing an analog signal ?.

   (a) Quantization

   (b) Sampling

   (c) Bit stuffing

   (d) Packetization

10. The maximum cable length supported by the 10 Base 5 Scheme is

    (a)   5 metres

    (b)   50 metres

    (c)   500 metres

    (d)   5 km

11. (a) Write any three differences between each of the following :

        (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.

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.

    (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.

13. Answer the following questions in brief :

    (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 ?

(b) What is the format of X.25 packet ? Also, explain how it will save bandwidth in comparison to circuit switching network.

15. Explain the following :

(a) Flow control mechanism in data link layer

(b) Congestion control

(c) 3-way handshake

(d) ISDN

(e) FDDI