ENGINEERING & MANAGEMENT EXAMINATIONS, JUNE – 2009
COMPUTER COMMUNICATION & NETWORKING
SEMESTER – 6

Time : 3 Hours] [Full Marks : 70

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) When data moves from one hop to other hop then

a) physical address will change

b) logical address will change

c) port address will change. ☐

ii) What is the transmission time for a 2·5 Kbyte (email) if bandwidth of the network is 1 Gbps ?

a) 0·010 ms

b) 0·020 ms

c) 0·15 ms. ☐

iii) Line coding in T-ethernet (IEEE 802.3) is used

a) Bipolar coding

b) Manchester coding

c) Unipolar coding. ☐

iv) For noiseless channel, the Nyquist bit rate formula defines the

a) practical maximum bit rate

b) theoretical maximum bit rate

c) practical minimum bit rate. ☐

v) In asynchronous serial transmission, we send

a) one start bit 0 and one or more stop bit 1 at the end of each byte

b) one start bit 1 and one or more stop bit 0 at the end of each byte

c) one start bit 1 and one or more stop bit 1 at the end of each byte. ☐

vi) In synchronous TDM, the data rate of link is

a) *n* times faster (where *n* denotes no. of connection of the link)

b) *n* times slower

c) 2 times faster. ☐

vii) The physical layer devices are

a) Hub and Switch

b) Hub and Multiplexer

c) ATM switch and MUX. ☐

viii) ADSL modem (broadband modem) data rates is higher because it uses

a) 256 channel each of 4·312 kHz

b) 250 channel each of 5·312 kHz

c) 25 channel each of 4·312 kHz. ☐

ix) Vulnerable time for CSMA protocol is

a) twice of average frame transmission time

b) average frame transmission time

c) propagation time. ☐

x) The example of controlled access protocol is

a) Aloha protocol

b) Polling

c) CSMA/CD. ☐

xi) A network has IP address 129.34.234.12,

a) the address is class *A* address

b) the address is class *B* address

c) the address is class *C* address. ☐

xii) In Ethernet MAC frame consists of destination address 4A.3B.45.78.C5.67 which is

a) broadcast address

b) unicast address

c) multicast address. ☐

xiii) The layer which responsible for encryption technique in data communication is

a) network layer

b) presentation layer

c) data link layer. ☐

xiv) Advantage of layering includes

a) multi-vender integration b) data hiding and encapsulation

c) easy testing d) all of these. ☐

GROUP – B

(Short Answer Type Questions)

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

2. Explain the difference between point-to-point and multi-point connection.

3. Explain the link state routing.

4. Derive the expression of the efficiency of pure ALOHA. Compare it with slotted ALOHA.

5. Explain CDMA technique with a suitable example.

6. Briefly explain leaky bucket algorithm for congestion control.

GROUP – C

(Long Answer Type Questions)

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

7. a) What are the differences between packet switching and circuit switching ?

   b) Explain with the diagram, how the lost frame, delayed and lost acknowledgements are handled in Go-Back – N ARQ.

   c) What do you understand by data privacy ? How can authentication, integrity and non-repudiation be implemented by the digital signature technique ? 4 + 5 + 6

8. a) If the received string is 110110111011, then calculate the actual data string. The data is encoded by 1 bit error correcting code (Hamming code).

   b) Briefly explain the selective flooding routing algorithm. Why does it differ from flooding routing algorithm ? Why does it differ from flooding technique ?

   c) Describe 802.3 header format. Why padding is required ?

   d) What are the differences between TCP & UDP ? 3 + 5 + 3 + 4

9. Explain CRC code with an example. Derive the poll scan time for serial and hub polling. What is the difference between bit oriented and byte oriented protocol ? 9 + 4 + 2

10. a) What is the default mask and broadcast address for class *B* ? Specify the private IP range for class *A* address.

    b) Why is dynamic routing preferred over static routing algorithm in a network, which changes continuously ?

    c) What is digital signature ? Explain in brief RSA algorithm.

    d) Describe any one guided and one unguided media with diagram. 2 + 2 + 8 + 3

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

i) ISDN

ii) IEEE 802.11

iii) TELNET

iv) VLAN

v) FTP

vi) SNMP.

END