



**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.

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- 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.

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- vii) The physical layer devices are
- a) Hub and Switch
  - b) Hub and Multiplexer
  - c) ATM switch and MUX.

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- 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.

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- ix) Vulnerable time for CSMA protocol is
- a) twice of average frame transmission time
  - b) average frame transmission time
  - c) propagation time.

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- 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



3 × 5

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

- i) ISDN
- ii) IEEE 802.11
- iii) TELNET
- iv) VLAN
- v) FTP
- vi) SNMP.

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END