BCA - 5th

05/12/08

ENGINEERING & MANAGEMENT EXAMINATIONS, DECEMBER – 2008
DATA COMMUNICATION & COMPUTER NETWORKS
SEMESTER – 5

Time : 3 Hours] [Full Marks : 70

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 10 × 1 = 10

i) Protocols are

a) agreements on how communication components and DTEs are to communicate

b) logical communication channels used for transferring data

c) physical communication channels used for transferring data

d) none of these.

ii) The method of communication in which transmission takes place in both directions, but only in one direction at a time is called,

a) simplex b) full duplex

c) four-wire circuit d) half duplex.

iii) Baud means

a) the number of bits transmitted per unit time

b) the numbers of bytes transmitted per unit time

c) the rate at which the signal changes

d) none of these.

iv) Which of the following ISO levels is more closely related to the physical communication facilities ?

a) Application b) Session

c) Network d) Data link.

v) A high speed communication equipment typically would not be needed for

a) e-mail

b) transferring large volume of data

c) supporting communication between nodes in a LAN

d) all of these.

vi) In Ethernet CSMA/CD, the special bit sequence transmitted by media access management for collision handling is called a

a) preamble b) portamble

c) jam d) none of these.

vii) A cipher refers to

a) an encryption algorithm b) a decryption algorithm

c) a private key d) both (a) and (c).

viii) The maximum length of data in a token ring frame is

a) 1500 b) 4500

c) 3200 d) 6400.

ix) The number of time registers in FDDI is

a) 2 b) 3

c) 100 d) 500.

x) Which is not a basic multiplexing method ?

a) FDM b) TDM

c) WDM d) MDM.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is IP addressing ? What are the different classes of IP addressing ? What is the difference between static and dynamic IPs ? $1 + 2 + 2$

3. What is checksum ? What are the steps of checksum generation and checking ? Generate the checksum for the data bits 1100100100 1001000111. $1 + 2 + 2$

4. State the advantages of IPv6 over IPv4. 5

5. If you are ask to configure a LAN for an organization say the LAN will comprise of 50 devices, what type of transmission medium are you going to use ? What topology will you select ? Mention the IP addressing format. Justify your answer. 5

6. Differentiate between bit rate and baud rate with examples. 5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions. $3 \times 15 = 45$

7. Explain the operations of CSMA/CD bus and Token passing bus. Compare the advantages and disadvantages of each. Why is the latter favoured for real time application such as process control ?

8. a) Draw the digital signal encoding format for NRZI, NRZL, RZ, Manchester Code and Differential codings for the digital signal 01001100011 and also write down the procedure in brief. 10

   b) In QPSK modulation data rate is 9600 bps. Calculate baud rate. $2\frac{1}{2}$

   c) An analog signal carries 4 bits in each signal element. If 1000 signal elements are sent per second, find baud rate and bit rate. $2\frac{1}{2}$

9. a) Briefly discuss Token Bucket algorithm of congestion control. 5

b) Differentiate between repeater, bridge and router. 5

c) Differentiate between packet switching and circuit switching. 5

10. a) Why do we need use of layered protocol ? 5

b) Give *three* differences between OSI reference model and TCP/IP model. 5

c) The bit pattern 01011001 is to be transmitted using the following techniques :

i) ASK

ii) FSK

iii) PSK

Sketch the transmitted waveform for each technique. 5

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

i) BSC protocol

ii) 802·3 LAN

iii) Asynchronous and synchronous modes of data transfer

iv) ARP and RARP

v) X-25 protocol.

END