Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 1114 Roll No. | | | | | | | | | |

BCA Examination 2018-2019

(Third Semester)

COMPUTER COMMUNICATION AND COMPUTER NETWORKS

Time : Three Hours]   *[Maximum Marks : 100*

Note :– Attempt all questions.

1. Attempt any four parts of the following : $4 \times 5 = 20$

    (a) Explain functional blocks of a digital comunication system with a diagram.

    (b) Discuss role of repeater in communication system. Is there any difference between repeater and amplifier?

    (c) Discuss Shannon-Hartley theorem for the channels having Gaussian noise.

    (d) Define signal to noise ratio. If signal to noise ratio is 7 and bandwidth is 4KHz, Find the capacity of channel.

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(e)   Differentiate among amplitude modulation frequency modulation and phase modulation.

(f)   Encode the bit stream '11011011' using NRZ-I and differential Manchester scheme, assume line is initially at low state, wherever required.

2. Attempt any two parts of the following : $2 \times 10=20$

(a)   Differentiate between guided and unguided media. Explain various media in detail and compare their performance.

(b)   Why do we need switching in communication system? Compare circuit switching, message switching and packet switching with timing diagram. Discuss cross bar and multistage switches.

(c)   Define following terms :

(i)   Frame relay

(ii)   Multiplexing

3. Attempt any two parts of the following : $2 \times 10=20$

(a)   Discuss TCP/IP protocol suite along with the function of its protocols. Explain in detail the header of IP version 4.

(b) Discuss in detail the ways by which the devices in a network are physically arranged. Give merits and demerits of all such arrangements.

(c) Explain following :

   (i) Connection Oriented and connection less services.

   (ii) Network classification on the basis of size.

4. Attempt any four parts of the following :   20

   (a) In selective-reject ARQ if 5 bits are used to represent sequence numbers, find out the range of sequence numbers, size of sender's window and size of receiver's window.

   (b) Discuss IEEE802.3 standard and explain its frame format.

   (c) Differentiate between open loop and closed loop congestion control methods.

(d)   Two stations A and B are 5000 Km apart, and propagation speed of signal is twenty thousand kilometer per second. If packet size is 1000 bit and stop and wait flow control is used, calculate the time required to transmit one million bits.

(e)   The frame '100100' is to be transmitted using standard CRC method. If the generator is '$X^3 + X^2 + 1$' then find out transmittable frame.

(f)   Explain the features of Routing Information protocol.

5. Attempt any two parts of the following : $2 \times 10 = 20$

(a)   Discuss header of TCP segment. Consider following TCP header in hexadecimal format :

'05320017 00000001   00000000 500207 FF 00000000' findout :

(i)   Sequence number

(ii)   Type of segment

(iii) Window size

(iv) Source port number

(b) Discuss various services provided by presentation layer in detail.

(c) Explain following application layer protocols:

(i) DNS

(ii) IMAP

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