Candidate Seat no.....

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Third Semester of B. Tech. (CE) Examination

November-December 2017

CE243 Data Communication and Networking

Date: 27.11.2017, Monday **Time: 10.00 am to 01.00 pm** **Maximum Marks: 70**

Instructions:

1. The question paper comprises two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1 **Answer the question below.** [11]

[A] With respect to data transmission, explain following concepts. [1]
1. Packet Loss 2.Delay

[B] Which layer of OSI model is responsible for best effort delivery? [1]

[C] Sate True/False: Response time is the elapsed time between an inquiry and a response. [1]

[D] What are the differences between a port address, a logical address, and a physical address? [2]

[E] Write down the responsibilities of transport layer of OSI model. [2]

[F] An analog signal has a bit rate of 8000 bps and a baud rate of 1000 baud. How many data elements are carried by each signal element? How many different signal elements do we need? [2]

[G] In terms of data transmission, what is Broadcast, Multicast, unicast and Peer-to-Peer communication? [2]

Q - 2 **Answer any THREE.** [12]

[A] What is Simplex, Half-duplex and Full duplex communication? Give examples of each.

[B] Explain 10Base5, 10Base2, 10BaseT and 10BaseF.

[C] List several transmission media for networking. Explain any two media in Brief

[D] Explain following terms with respect to data communication.
(1) Throughput (2) Attenuation

[E] Differentiate LAN, MAN and WAN.

Q - 3 **Answer any TWO.** [12]

[A] Write a short note on PCM (Pulse code modulation).

[B] By taking suitable example, explain Bipolar Encoding method.

[C] Explain guided media and unguided media with example.

[D] What is Multiplexing? Explain Time division multiplexing and Frequency division multiplexing.

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SECTION – II

[11]

Q - 4 Answer the question below.

[A] _____ metric parameter is used in distance vector algorithm. [1]
1) bandwidth 2) link cost 3) distance 4) current traffic

[B] State any limitation of parity check method for error detection. [1]

[C] What is hamming distance used for error correction? [2]

[D] Write down classification of various flow control protocols. [2]

[E] Give your critiques between error detection versus error correction. [2]

[F] Differentiate between circuit switching and packet switching. [2]

[G] What do you mean by access control of medium? [2]

[12]

Q - 5 Answer any THREE.

[A] What is network topology? Explain star topology, bus topology and ring topology with example

[B] Explain CRC with example.

[C] Explain the functions of physical layer and data link layer in brief

[D] Write down the difference between distance vector and link state algorithm.

[E] Draw and explain architecture of Asynchronous Transmission Mode?

[12]

Q - 6 Answer any TWO.

[A] Draw and explain Ethernet 802.3 frame format.

[B] What is routing algorithm? List different types of routing algorithm. Explain distance vector routing algorithm with example.

[C] Explain Hamming code method. The code 11110101101 is received using the hamming encoding algorithm, what should be the original code? How the redundant bits are computed for a data unit of above bits?

[D] Write down disadvantages of token bus and token ring media access methods.

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