Candidate Seat No.....

CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY

Fourth Semester of B. Tech. (CE) Examination

April-May 2018

CE202.01/CE 202: DATA COMMUNICATION & NETWORKING

Date: 04/05/2018, Friday **Time: 10:00 am To 01:00 pm** **Maximum Marks: 70**

Instructions:

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

SECTION – I

Q – 1 Do as Directed. **[05]**

(a) What is mean by Data Communication? [01]

(b) What are the advantages of Distributed Processing? [01]

(c) Why are Standards needed? [01]

(d) For n devices in a network, what is the number of cable links required for a mesh and ring topology? [02]

Q - 2 Do as Directed (Any Three). **[15]**

(a) Discuss these topologies in details along with advantages and disadvantages: Ring Topology and Star Topology

(b) Explain Circuit-Switched Connection versus Packet-Switched Connection.

(c) What is the role of Transport Layer and Presentation Layer in OSI model? Explain services/functionalities of these two layers in detail.

(d) What are the applications of Computer Network?

(e) Calculate CRC and find out reminder by considering these data: frame 110101 and generator 101.

Q - 3 Do as Directed (Any Three). **[15]**

(a) What do you mean by ARPANET? Explain it in detail.

(b) Explain five principles that were applied to arrive at the seven layers of OSI layer.

(c) What are the basic components for working of a communication system?

(d) What do you mean by Virtual Circuit? What do you mean by SVC and PVC? Explain them in detail.

(e) What are the key functions of error control techniques?

SECTION – II

Q – 4 Do as Directed **[05]**

(a) What is Multiplexing? [01]

(b) Define Bandwidth and Latency in Computer Network. [02]

(c) How does NRZ-L differ from NRZ-I? [02]

[15]

Q - 5 Do as Directed (Any Three).

(a) Discuss advantages and disadvantages of Fiber Optic for network communication.

(b) Explain Serial Transmission and Parallel Transmission in detail.

(c) Draw pattern for 01001100011 according to following two methods:
Bipolar-AMI and Pseudoternary

(d) Explain Time and Frequency Domain Representation of signals

(e) Draw and Explain 802.3 frame format. [15]

Q - 6 Do as Directed (Any Three).

(a) Explain process of Cyclic Redundancy Check (CRC) both at Sender and Receiver side.

(b) What is Time-Division Multiplexing? Explain it in detail with example.

(c) What is Pulse Code Modulation (PCM)? Explain this in detail.

(d) Compare and Contrast Switch and Hub.

(e) Explain following propagation modes for Signal:

1. Sky-wave propagation
2. Line-of-sight propagation

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