Please check that this question paper contains_9_ questions and _2_ printed pages within first ten minutes.

[Total No. of Questions: 09] [Total No. of Pages: 2]

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EVENING

0 6 JAN 2023

Program: B.Tech. ECE (Batch 2018 onward)
Semester: 5
Name of Subject: Computer Networks
Subject Code: PCEC- 114
Paper ID: 16421

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A [Marks: 02 each]

Q1. (a) Draw the diagram of mesh topology. Also write its advantages.
(b) Cite the need of OSI model in computer networks.
(c) Describe two framing methods used in data link layer.
(d) Mention two causes of congestion in computer networks.
(e) Illustrate the process of sink tree formation with help of a diagram.
(f) Explain how the virtual private networks provide security to any online activities.

Part – B [Marks: 04 each]

Q2. Mention the principles of congestion Control and explain in detail choke packet technique for congestion control.

Q3. A message is broken into 6 different packets. Discuss the transmission of the Packets between transmitter and receiver using packet switching technique.

Q4. Design a star and ring topology by taking 5 devices in star and 8 devices in ring topology. Also explain the process of data communication in each.

Q5. Explain High Level Data Link Control (HDLC) protocol by mentioning the function of each field used in it.

Q6. Convert the following into abbreviated IPv6 addressing scheme

I. 0000:0001:12AB:0000:0000:0000:0000:00B9

II. 054C:0000:0000:56DA: 0000:0000:0000:0000

Q7. Explain briefly about one-bit sliding window protocol. Also write its disadvantages.

P.T.O.

Part – C [Marks: 12 each]

Q8. Explain with a neat sketch, the functions of each layer of the OSI model and Illustrate how communication is taking place between two end systems.

OR

Illustrate the role of Carrier sense multiple access protocol (CSMA) and Digital signature.

Q9. Design an algorithm by taking a network which will find the shortest path in a computer network using Dijkstra's protocol.

OR

With a suitable example, explain Distance Vector Routing algorithm. Also, discuss the drawback of Distance Vector Routing algorithm.

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