05-2023

Paper / Subject Code: 89323 / Computer Networks

T.E. Sem VI (Cscheme, R-2023) CCS May 2023.

Duration: 3hrs **[Max Marks: 80]**

N.B. : (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.

1 Attempt any **FOUR.** 5 marks each. [20]

a Discuss various functions of Sessions layer and Presentation layer of OSI.

b With a diagram explain the frame format of Ethernet.

c You have an IP address of 172.16.15.5 with a subnet mask 255.255.255.128. What is your class of address, subnet address and broad cast address.

d Mention the primitives used in Berkeley sockets API.

e What is Congestion? What design principles must be applied in the network design to prevent congestion from occurring?

2 a What is the need of MAC sublayer. Compare the performances of different CSMA protocols with proper diagrams. [10]

b With neat diagrams explain the issues and steps in Connection Release in the transport layer. [10]

3 a A CRC is constructed to generate a 4-bit FCS for an 11-bit message. The generator polynomial is $x^4 + x^3 + 1$.
a. Encode the data bit sequence 10011011100 using the generator polynomial [05]
b. Now assume that bit 7 in the codeword is in error and show that the detection algorithm detects the error. [05]

b What are the steps of Link State routing protocol? [05]
What is the format of an LS Packet? How does a router obtain these values? [05]

4 a Compare Leaky bucket and Token bucket algorithms. [10]

b Compare Selective Repeat and Go Back N protocols. Draw diagrams with suitable examples [10]

5 a What are the different components of an e-mail system. What are the features of SMTP protocol. [10]

b Compare IPv4 and IPv6. State the rules for transforming IPv6 packet header to IPv4 packet header. [10]

6 a Explain various guided and unguided transmission media in computer networks. [10]

b Write short note on: Name spaces and DNS protocol [10]
