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CBCS SCHEME

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21EC53

Fifth Semester B.E./B.Tech. Degree Examination, June / July 2026
Computer Communication Networks

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. What is physical topology? With a neat diagram explain the various types of physical topologies available in computer networks. **(12 Marks)**

b. With neat diagram explain the significances of layers in TCP / IP protocol suite. **(08 Marks)**

OR

2 a. With a neat diagram explain the five components of data communication. **(05 Marks)**

b. What is an ARP? Explain the operation of ARP and its packet format with suitable diagram. **(10 Marks)**

c. Explain different data flow techniques used for communication between two devices. **(05 Marks)**

Module-2

3 a. Explain CSMA/CD working with the help of flow chart. **(08 Marks)**

b. A slotted ALOHA network transmits 200 bit frames using shared channel with 200 kbps bandwidth. Find the throughput if the system produces
i) 1000 frames/second
ii) 500 frames/second
iii) 250 frames/second **(06 Marks)**

c. Explain Ethernet frame format. **(06 Marks)**

OR

4 a. Describe the concept of bit stuffing and byte stuffing. **(10 Marks)**

b. Explain CSMA and show the behavior of 3 persistence methods of CSMA. **(06 Marks)**

c. Inspect the following MAC addresses as unicast, multicast and broadcast
i) 4A:30:10:21:10:1A
ii) 47:20:1B:2E:08:EE
iii) EF:FF:10:01:11:00
iv) FF:FF:FF:FF:FF:FF **(04 Marks)**

Module-3

5 a. Explain with a neat diagram the virtual circuit packet switched network and its various phases of operation. **(12 Marks)**

b. Explain different classless IP addresses. **(08 Marks)**

OR

6 a. With suitable diagram explain distance vector routing. **(10 Marks)**

b. With neat diagram explain IPV4 datagram format. **(10 Marks)**

Module-4

7 a. Describe connectionless and connection oriented services provided by transport layer. **(12 Marks)**

b. Explain the working of Go back N protocol. **(08 Marks)**

OR

8 a. List the features of TCP. Explain TCP segment format with datagram. **(10 Marks)**

b. Explain UDP datagram format with services provided by UDP. **(10 Marks)**

Module-5

9 a. Explain persistent and non-persistent connections in HTTP. **(10 Marks)**

b. Explain the architecture of electronic mail with neat diagram. **(10 Marks)**

OR

10 a. Write a note on DNS recursive and iterative resolution. **(10 Marks)**

b. Explain security goals and types of attacks in network security. **(10 Marks)**

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