

CBCS SCHEME

21EC53



Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026 Computer Communication Networks

Max. Marks: 100

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

Module-1

- 1 a. With a block diagram, explain components of Data Communication. (08 Marks)
- b. Explain different physical structures and network topologies with the help of diagram. (12 Marks)

OR

- 2 a. With a block diagram explain layers in the OSI model. (08 Marks)
- b. Explain different types of addresses used in TCP/IP. (08 Marks)
- c. List different performance criteria of a network. (04 Marks)

Module-2

- 3 a. Define Framing? Explain different types of framing with a neat diagram, explain Bit/Byte stuffing and un-stuffing with an example. (10 Marks)
- b. Explain CSMA/CD working with the help of flow chart. (10 Marks)

OR

- 4 a. A pure ALOHA network transmit 200 bit frames on a shared channel of 200 Kbps bandwidth. What is the throughput if the system produces?
 - i. 1000 frames per second
 - ii. 500 frames per second
 - iii. 250 frames per second. (06 Marks)
- b. Describe the frame format of IEEE 802.3 Ethernet. Determine minimum and maximum length of frame. (08 Marks)
- c. Identify the types of following destination addresses.
 - i. 4A : 30 : 10 : 21 : 10 : 1A
 - ii. 47 : 20 : 1B : 2E : 08 : EE
 - iii. FF : FF : FF : FF : FF. (06 Marks)

Module-3

- 5 a. Write the different services provided by network layer. (10 Marks)
- b. With a neat diagram explain Datagram format of Internet protocol. (10 Marks)

OR

- 6 a. Explain distance vector routing algorithm using Bellman Ford equations. (10 Marks)
- b. Explain fields of DHCP message format and write operation of DHCP. (10 Marks)

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-4

- 7 a. Explain working of GO-back-N protocol. (10 Marks)
b. Describe connectionless and connection oriented services provided by transport layer. (10 Marks)

OR

- 8 a. Describe user Datagram protocol services and applications. (10 Marks)
b. Describe a TCP connection establishment using three way hand shaking. (10 Marks)

Module-5

- 9 a. With a neat diagram explain client-server paradigm and peer-to-peer paradigm. (10 Marks)
b. Explain persistent and non-persistent connection in HTTP. (10 Marks)

OR

- 10 a. Explain the architecture format of electronic mail. (10 Marks)
b. Summarize DNS recursive and iterative resolutions with relevant diagrams. (10 Marks)
