



CBCS SCHEME

18EC71

Seventh Semester B.E. Degree Examination, Dec.2025/Jan.2026 Computer Networks

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With the help of block diagram, explain the components of data communication. (06 Marks)
- b. Describe the Topologies used in Data communication with the help of schematic diagrams. (09 Marks)
- c. Explain the Packet Switching network. (05 Marks)

OR

- 2 a. Explain the Encapsulation and Decapsulation in protocol layering. (10 Marks)
- b. Explain the OSI model and compare with TCP/IP Model. (10 Marks)

Module-2

- 3 a. List the services provided by a data link layer and explain it. (08 Marks)
- b. Explain the Address Resolution Protocol used in data Link layer. (08 Marks)
- c. Mention the functions of Data link control. (04 Marks)

OR

- 4 a. Explain the operation of a Data link layer protocol using finite state machine as an example. (08 Marks)
- b. A pure ALOHA network transmit 200 bit frames on a shared channel of 200 Kbps. What is the throughput if the system produces
(i) 1000 frames/sec (ii) 500 frames/sec (iii) 250 frames/sec (08 Marks)
- c. What are the fields of Ethernet frame? (04 Marks)

Module-3

- 5 a. Describe the various other services expected from the network layer. (08 Marks)
- b. Explain Datagram Approach to route the packets. (08 Marks)
- c. Mention the different notations in IPv₄ addressing with diagram. (04 Marks)

OR

- 6 a. Describe the various fields defined in IPv₄. (14 Marks)
- b. Write the Distance Vector Routing Algorithm for a node. (06 Marks)

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Module-4

- 7 a. Explain the following of a Transport Layer Services:
(i) Process-to-Process Communication
(ii) Addressing Port Numbers (14 Marks)
- b. Assume that in a stop and wait system the bandwidth of the line is 1 Mbps and 1 bit takes 20 msec to make a round trip. What is the bandwidth delay product? If the system data packets are 1000 bits in length, what is the utilization percentage of the link? (06 Marks)

OR

- 8 a. Explain the features of Transmission Control Protocol. (10 Marks)
- b. Mention the typical applications of User Datagram Protocol. (06 Marks)
- c. Mention the advantages of UDP. (04 Marks)

Module-5

- 9 a. Explain the three categories of web documents. (10 Marks)
 - b. Draw the basic model of FTP and explain it. (10 Marks)
- OR**
- 10 a. Explain the three attributes of communication over Data Connection. (10 Marks)
 - b. Explain the DNS messages format in detail. (10 Marks)

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