



18EC71

**Seventh Semester B.E. Degree Examination, June/July 2025**  
**Computer Networks**

Max. Marks: 100

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

## Module-1

1. a. What are five components involved in data communication? Explain with a suitable diagram. (06 Marks)
- b. Explain briefly physical topologies of a network. (06 Marks)
- c. With a neat diagram, explain encapsulation and decapsulation protocol layering. (08 Marks)

OR

- 2 a. With a layer diagram, explain the responsibilities of each layer in TCPIP protocol suite. (06 Marks)
- b. Describe link layer addressing with suitable illustration. (06 Marks)
- c. Explain circuit-switched network and packet-switched network. (08 Marks)

## Module-2

- 3 a. Define framing. Explain role of bit stuffing in framing. (06 Marks)  
b. Explain the stop and wait protocol with neat diagram. (10 Marks)  
c. Explain the Ethernet frame format of standard Ethernet. (04 Marks)

OR

4. a. Explain 1-persistent, non-persistent and p-persistent methods of CSMA. (06 Marks)  
b. Explain working of (CSMA/CD) carrier sense multiple access/collision detection. (10 Marks)  
c. Discuss polling as a controlled access technique. (04 Marks)

## Module-3

- 5 a. Explain the classful addressing scheme. (06 Marks)  
b. Explain the IPV4 datagram format with a neat diagram. (10 Marks)  
c. A block of address is granted to an organization. If the IP address of one of the host is 205.16.37.39/28, find the first address and last address in the block. (04 Marks)

**OR**

- 6 a. What is distance vector routing? Explain the various drawbacks of distance vector routing and a few solutions to overcome the same. (10 Marks)
- b. List and explain three forwarding techniques. (06 Marks)
- c. Find the errors, if any, in the following IPV4 addresses:
- i) 111.56.045.78
- ii) 221.34.7.8.20
- iii) 75.45.301.14
- iv) 11100010.23.14.67 (04 Marks)

## Module-4

- 7 a. With a neat diagram, explain connection establishment, data transfer and connection termination in Transmission Control Protocol (TCP). (10 Marks)
- b. Explain with a neat diagram Go-Back-N protocol. (10 Marks)

OR

- 8 a. Briefly explain TCP segment format. (10 Marks)  
b. Write short notes on:  
i) User Datagram Packet format (UDP)  
ii) Features of TCP. (10 Marks)

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Module-5

## Module-5

- 9 a. Explain two connections in FTP. (10 Marks)  
b. With a general format, explain HTTP request and HTTP response messages. (10 Marks)

OR

- 10 a. Explain the persistent and non persistent connection of HTTP. (10 Marks)  
b. Write short notes on:  
i) DNS message format  
ii) Local versus remote logging in telnet. (10 Marks)

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**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.