

# CBCS SCHEME

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18EC71

## Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 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. What is Physical Topology? With a neat diagram, explain the various types of physical topologies available in computer networks. (10 Marks)
- b. With a neat diagram, explain the significance of layers in TCP/IP protocol suite. (10 Marks)

OR

- 2 a. Explain LAN and WAN with the help of neat diagrams. (06 Marks)
- b. With a neat diagram, explain the five components of Data Communication. (06 Marks)
- c. Explain encapsulation and decapsulation in TCP/IP model with the help of a neat diagram. (08 Marks)

### Module-2

- 3 a. What is an ARP? Explain the operation of ARP and its packet format with suitable diagrams. (10 Marks)
- b. Explain stop and wait protocol with a neat FSM diagram. Also explain how sequence and acknowledge numbers prevent duplication of frames with necessary diagrams. (10 Marks)

OR

- 4 a. A slotted ALOHA network transmits 200 bit frames using a shared channel with a 200 kbps bandwidth. Find the throughput if the system produces  
(i) 1000 frames per second (ii) 500 frames per second (iii) 250 frames per second? (06 Marks)
- b. Explain CSMA/CA protocol with a flow diagram. (08 Marks)
- c. Explain the Ethernet Frame format of standard Ethernet. (06 Marks)

### Module-3

- 5 a. Explain with a neat diagram, the virtual circuit packet switched network and its various phases of operation. (10 Marks)
- b. With a neat diagram explain IPv4 Datagram format. (10 Marks)

OR

- 6 a. Explain with an example, the Distance Vector Routing algorithm. (10 Marks)
- b. Explain with an example, Link State Routing and also apply Dijkstra algorithm to find least cost path tree. (10 Marks)

### Module-4

- 7 a. Explain connectionless and connection oriented protocols in transport layer. (10 Marks)
- b. With a neat diagram, explain state transition diagram of TCP. (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.

OR

- 8 a. Explain Go-Back-N protocol along with sliding window diagrams. (10 Marks)  
b. Explain TCP connection establishment using three way hand shaking. (10 Marks)

**Module-5**

- 9 a. Explain World Wide Web and Web documents with necessary diagrams. (10 Marks)  
b. Explain the Architecture of Electronic mail with a neat diagram. (10 Marks)

OR

- 10 a. Explain with an example, the working of Hyper Text Transfer Protocol. (10 Marks)  
b. What is Name-address resolution? With a neat diagram, explain the various types of resolution that are available. (10 Marks)

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