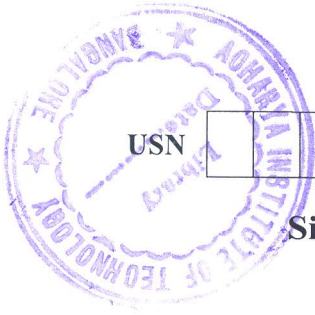


AJ091F21

# CBCS SCHEME



USN

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15EC64

## Sixth Semester B.E. Degree Examination, Jan./Feb. 2021 Computer Communication Networks

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Explain the following briefly;
  - i) Data flow
  - ii) Star topology
  - iii) LAN
  - iv) WAN

(08 Marks)
- b. With a neat diagram, explain TCP/IP protocol suite along with relevant diagram. (08 Marks)

**OR**

- 2 a. With a neat diagram, explain link layer addressing in detail. (06 Marks)
- b. Explain character oriented framing and Bit oriented framing. (05 Marks)
- c. Explain stop and wait protocol with FSM diagram. (05 Marks)

### Module-2

- 3 a. With a neat diagram, explain standard Ethernet frame format and addressing. (08 Marks)
- b. Differentiate pure ALOHA and slotted ALOHA protocol. (04 Marks)
- c. A slotted ALOHA network transmits 200 bit frames using a shared channel with a 200kbps bandwidth. Find the throughput if the system produces:
  - i) 1000 frames per second
  - ii) 500 frames per second
  - iii) 250 frames per second.

(04 Marks)

**OR**

- 4 a. With a neat flow diagram, explain CSMA/CD random access protocol along with different persistence methods. (08 Marks)
- b. In the standard Ethernet with the transmission rate of 10Mbps, the length of the medium is 2500m and the size of the frame is 512 bits. The propagation speed of a signal in a cable is  $2 \times 10^8$  m/s. Calculate propagation delay, transmission delay and efficiency. (03 Marks)
- c. What are the goals of fast Ethernet and explain Augonegotiation. (05 Marks)

### Module-3

- 5 a. Explain two types of packet switched networks. (07 Marks)
- b. Explain Hubs, link layer switches, routers. (06 Marks)
- c. Differentiate basic service set and extended service set. (03 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

- 6 a. Explain classful addressing in detail. (05 Marks)  
b. An organization is granted a block of addresses with beginning address 14.24.74.0/24. The organization needs to have 3 sub blocks of addresses to use in three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks. (07 Marks)  
c. What is Bluetooth? Explain two types of Bluetooth networks. (04 Marks)

**Module-4**

- 7 a. Explain IPV4 Datagram format and header fields with diagrams. (08 Marks)  
b. Explain distance vector routing along with distance vector routing algorithm for a node. (08 Marks)

OR

- 8 a. Explain ICMPV4 message formats with diagram and explain error reporting messages. (08 Marks)  
b. What is path vector routing and explain the same? (06 Marks)  
c. In an IPV4 packet, the value of HLEN is 5, and the value of the total length field is 0X0028. How many bytes of data are being carried by this packet? (02 Marks)

**Module-5**

- 9 a. Explain connectionless and connection oriented protocols in transport layer. (08 Marks)  
b. Explain Goback N protocol along with sliding window diagrams. (08 Marks)

OR

- 10 a. Explain TCP segment format along different fields. (08 Marks)  
b. With a neat diagram, explain state transition diagram of TCP. (08 Marks)

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