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18EC71

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

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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