CBCS SCHEME

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)**

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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