CBCS SCHEME

USN | | | | | | | | | | |

18EC71

Seventh Semester B.E. Degree Examination, Dec.2023/Jan.2024
Computer Networks

Time: 3 hrs. Max. Marks: 100

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

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.

Module-1

1 a. Explain the functions of each layer in TCP/IP protocol suite. **(10 Marks)**

b. Explain the components of a data communication. **(05 Marks)**

c. Illustrate the concept of multiplexing and demultiplexing at the upper three layers of TCP/IP protocol suite. **(05 Marks)**

OR

2 a. Explain four physical topologies of a network. **(10 Marks)**

b. With a neat diagram illustrate the concepts of encapsulation and decapsulation in internet. **(10 Marks)**

Module-2

3 a. Describe the operation of stop and wait protocol with FSM and flow diagram. **(12 Marks)**

b. Define ARP and its position in TCP/IP protocol suite and also explain ARP operation with relevant diagram. **(08 Marks)**

OR

4 a. Explain how collisions are avoided through the use of CSMA/CA's three strategies with flow diagram. **(10 Marks)**

b. Explain briefly 10 Base 5 and 10 Base T implementation. **(06 Marks)**

c. A slotted ALOHA network transmits 200 bit frames using a shared channel with a 200 kbps bandwidth. Find the throughput if the system (all the stations together) produces.

(i) 1000 frames per second

(ii) 500 frames per second

(iii) 250 frames per second **(04 Marks)**

Module-3

5 a. Compare and contrast connectionless packet-switched network with a virtual-circuit packet switched network using necessary diagrams. **(08 Marks)**

b. An organization is granted a block of addresses with beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets, one sub-block of 10 addresses, one subblock of 60 addresses and one subblock of 120 addresses. Design the subblocks. **(06 Marks)**

c. Explain MPLS packet, briefly. **(06 Marks)**

OR

6 a. Illustrate IPv4 datagram format. **(10 Marks)**

b. Explain path-vector routing by using spanning tree. Also apply path-vector algorithm for updating path-vectors. **(10 Marks)**

Module-4

7 a. Explain FSMs for Go-Back-N protocol with a neat diagram. **(08 Marks)**

b. Explain the concept of sliding window in circular and linear formats with suitable figures. **(07 Marks)**

c. Explain why the size of the Sender and Receiver windows chosen as one half of 2^m for Selective Repeat Protocol. **(05 Marks)**

OR

8 a. Explain TCP segment format. **(08 Marks)**

b. Illustrate connection establishment in TCP using Three-way handshaking using suitable example. **(07 Marks)**

c. Explain briefly Taho TCP with FSM. **(05 Marks)**

Module-5

9 a. Explain non-persistent connection with suitable example. **(08 Marks)**

b. Explain client-server paradigm with an example. **(06 Marks)**

c. Describe the three Mail Transfer Phases. **(06 Marks)**

CMRIT LIBRARY
BANGALORE - 560 037

OR

10 a. Explain DNS resolution and its type Recursive Resolution. **(07 Marks)**

b. Explain briefly local versus remote lagging in Telnet with a neat diagram. **(07 Marks)**

c. Describe the components of SSH. **(06 Marks)**

* * * * *

CR - CR - CR - CR - CR - CR - 29-01-2024 09:06:07am - VTU-29-01-2024 08:40:49am