Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

II SEMESTER M.TECH. (SOFTWARE ENGINEERING / COMPUTER NETWORKING AND ENGINEERING)
END SEMESTER EXAMINATIONS, APRIL/MAY 2019

SUBJECT: PROGRAM ELECTIVE- III
COMPUTER NETWORK PROTOCOLS [ICT 5233]
REVISED CREDIT SYSTEM
(04/05/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data if any, may be suitably assumed.

1A. Explain the features of Mesh topology and also mention its advantages and disadvantages. 5

1B. i) Give the Network Link LSA in Fig. Q.1B

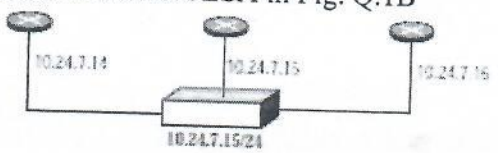

Fig. Q.1B

ii) In the Standard Ethernet , if the maximum propagation time is 25.6 μs , what is the minimum size of the frame? 3

1C. Define the type of address for the following Ethernet destination addresses. 2

i) 27: 22: 51: 12: 02: 1A
ii) 4A: 14: 12: 11: 16: 12

2A. With the help of a neat diagram, explain communication at data link layer. 5

2B. Discuss the hidden station problem in wireless network with a diagram. How can this problem be solved? 3

2C. Differentiate between source- based tree approach and group shared tree approach in Multicast routing. 2

3A. What are raw sockets? Given an array of unsorted positive integer, sort the given array using socket programming.

Eg: Input: 4 5 1 6 7 2 8 3 9 0

Output: 0 1 2 3 4 5 6 7 8 9 5

3B. What are the different ways of increasing the segment size being sent from sender to receiver in TCP using congestion control mechanisms? Explain. 3

3C. Name and explain any two applications of UDP. 2

4A. i) Write the algorithm for "update module" in Distance Vector algorithm.

ii) Using Distance Vector Routing Algorithm, What is the content of Routing Table B after receiving the copy of Routing Table A? Show the changes in Routing Table B after receiving each record from Routing Table A.

A

Dest	Cost	Next
Net1	2	C
Net3	3	D
Net4	4	D
Net6	5	E
Net7	6	-

B

Dest	Cost	Next
Net2	3	G
Net3	5	H
Net5	3	J
Net6	2	F
Net8	4	-

5

4B. Using Dijkstra's algorithm find the shortest path tree for nodes (A, E, C) in the graph of Fig. Q.4B.

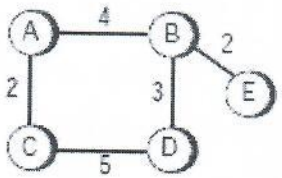

Fig. Q.4B 3

4C. Describe the types of messages that is used by BGP routing protocol. 2

5A. What is multicast distance vector routing? Describe the different decision making strategies in the same. 5

5B. Using SCTP DATA chunks have arrived carrying the following information:

TSN:27 SI:2 SSN:14 BE:00
TSN:33 SI:2 SSN:15 BE:11
TSN:26 SI:2 SSN:14 BE:00
TSN:24 SI:2 SSN:14 BE:00
TSN:21 SI:2 SSN:14 BE:10

i) Which data chunk is the first fragment?
ii) Which data chunk is the last fragment?
iii) How many middle fragments are missing? 3

5C. What is the necessity of multicasting when we can achieve the same using unicasting? Explain. 2