



Assignment No. 02
Semester: Spring 2020
CS206: Introduction to Network Design
& Analysis

Total Marks: 20
Due Date: 15th June
2020

Instructions:

Please read the following instructions carefully before submitting assignment:

You need to use MS word document to prepare and submit the assignment on VU-LMS.

It should be clear that your assignment will not get any credit if:

- The assignment is submitted after due date.
- The assignment is not in the required format (.doc or docx).
- The submitted assignment does not open or file is corrupt.
- Assignment is copied (partial or full) from any source (websites, forums, students, etc).

Objectives:

To enhance the learning capabilities of the students about:

- Packet fragmentation at link layer
- Determining shortest path tree based on cost analysis

Assignment

Scenario:

Consider a system in an ethernet based local area network is connected with a server through Internet.

Assume that a datagram of 30000 Bytes (including the IP header) arrives at the router of local network. The router forwards this datagram to the link over the local network which needs to be fragmented before passing it to the link-layer. In the context of mentioned scenario, answer the following questions:

Question No. 1 (A):

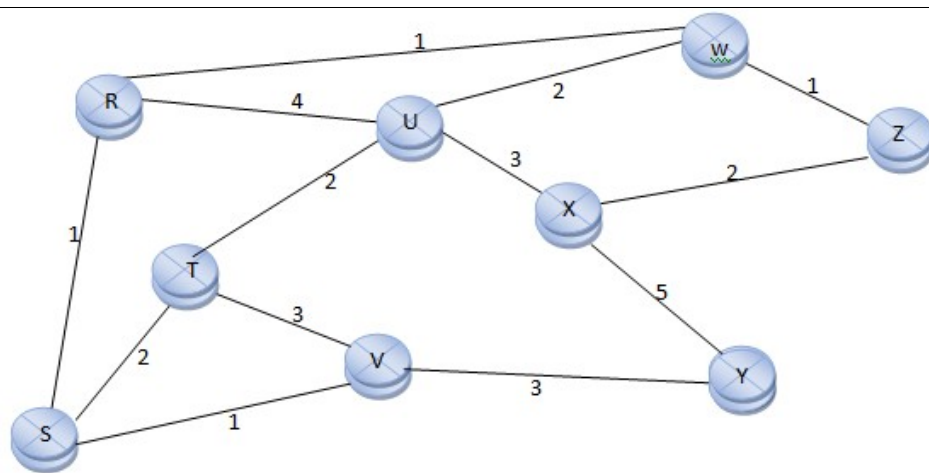
If the fragmentation is done with maximum transmission unit over the link layer, how many frames will be needed to carry out this datagram over the link? Write all necessary calculation steps.

Question No. 1 (B):

What will be the size of last frame, if all the initial frames occupy data according to the maximum capacity (MTU)?

Question No. 2:

The following diagram depicts a network of routers connected through various links (paths) having cost (weight) associated with each link. The routing algorithm determines the suitable path through the networks of routers based on the least cost. Based on the cost associated with each link, identify the shortest path for each destination router from 'R' and depict in the form of Shortest-Path Tree:



Best of Luck!