

Course ISE 327, EEE 051: Introduction to Computer Networks

Recitation 6 Exercise

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In lecture today we discussed routing algorithms and the extended LAN bridging algorithm. In this recitation we will do some examples using the material discussed.

1 Unweighted Datagram Routing

Consider the example network given in Figure 1. Write down the full forwarding tables for Switches 1–4.

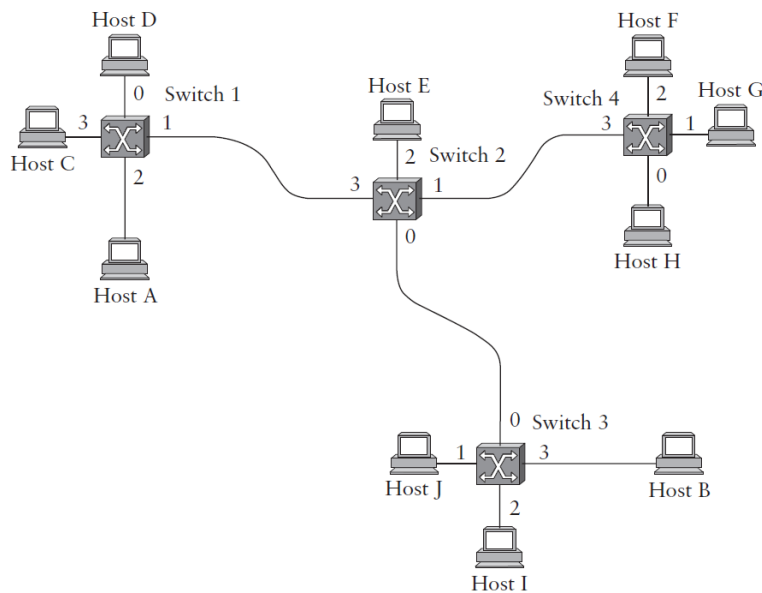


Figure 1: Example Network for Exercises 1 and 2

2 Virtual Circuit Routing

Using the example network given in Figure 1, give the virtual circuit tables for all the switches after each of the following connections is established. Assume that the sequence of connections is cumulative; that is, the first connection is still up when the second connection is established, and so on. Also assume that the VCI assignment always picks the lowest unused VCI on each link, starting with 0.

- (a) Host D connects to host H.

- (b) Host B connects to host G.
- (c) Host F connects to host A.
- (d) Host H connects to host C.
- (e) Host I connects to host E.
- (f) Host H connects to host J.

3 Weighted Datagram Networks

For the network given in Figure 2, give the datagram forwarding table for each node. The links are labeled with relative costs; your tables should forward each packet via the lowest-cost path to its destination.

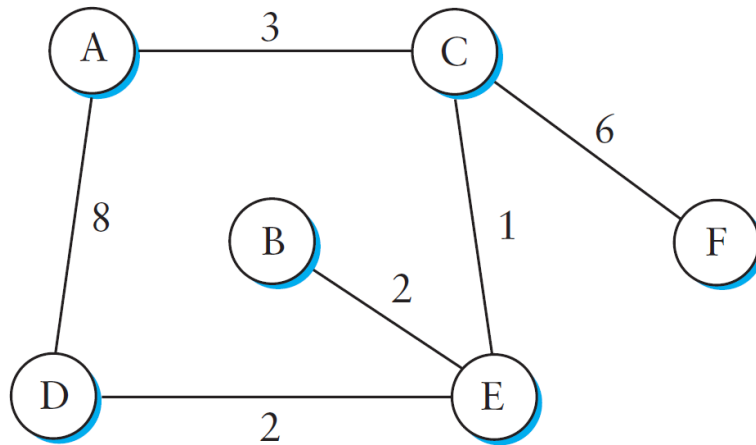
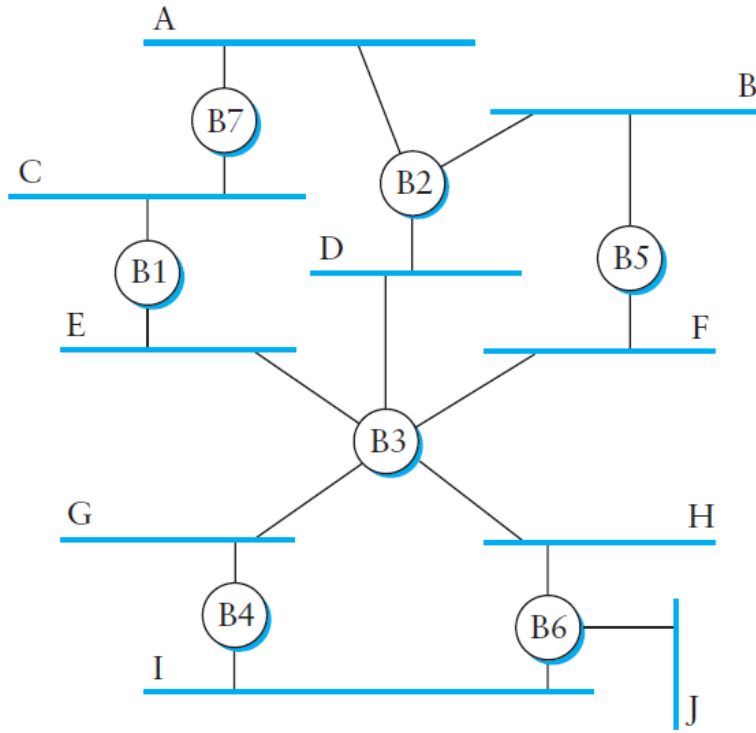


Figure 2: Network for Exercise 3



4 Spanning Tree

Given the extended LAN shown in Figure 4, assume that bridge B1 suffers catastrophic failure. Indicate which ports are not selected by the spanning tree algorithm after the recovery process and a new tree has been formed.