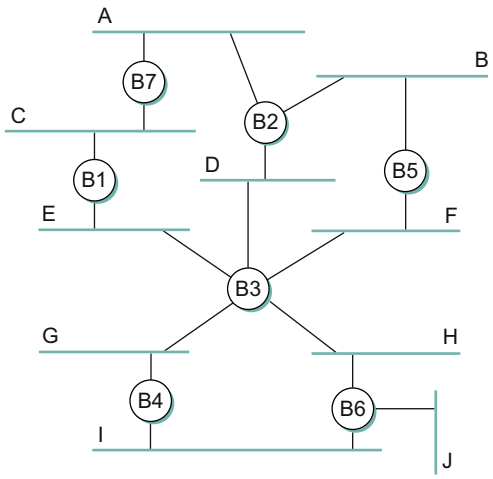
chosen by each approach. If each switch chooses the outbound VCI, is it still necessary to wait one RTT before data is sent?

13. Given the extended LAN shown in Figure 3.48, indicate which ports are not selected by the spanning tree algorithm.



■ **FIGURE 3.48** Network for Exercises 13 and 14.

14. Given the extended LAN shown in Figure 3.48, 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.

15. Consider the arrangement of learning bridges shown in Figure 3.49. Assuming all are initially empty, give the forwarding tables for each of the bridges B1 to B4 after the following transmissions:

- A sends to C.
- C sends to A.
- D sends to C.

Identify ports with the unique neighbor reached directly from that port; that is, the ports for B1 are to be labeled "A" and "B2."

16. As in the previous problem, consider the arrangement of learning bridges shown in Figure 3.49. Assuming all are initially empty, give

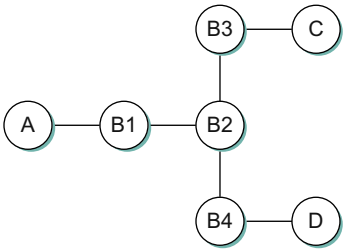


FIGURE 3.49 Network for Exercises 15 and 16.

the forwarding tables for each of the bridges B1 to B4 after the following transmissions:

- D sends to C.
- C sends to D.
- A sends to C.

17. Consider hosts X, Y, Z, W and learning bridges B1, B2, B3, with initially empty forwarding tables, as in Figure 3.50.

(a) Suppose X sends to W. Which bridges learn where X is? Does Y's network interface see this packet?

(b) Suppose Z now sends to X. Which bridges learn where Z is? Does Y's network interface see this packet?

(c) Suppose Y now sends to X. Which bridges learn where Y is? Does Z's network interface see this packet?

(d) Finally, suppose W sends to Y. Which bridges learn where W is? Does Z's network interface see this packet?

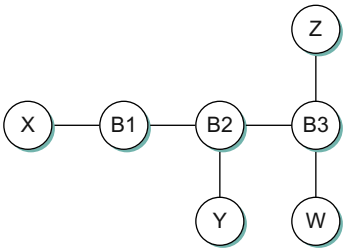


FIGURE 3.50 Diagram for Exercise 17.

18. Give the spanning tree generated for the extended LAN shown in Figure 3.51, and discuss how any ties are resolved.