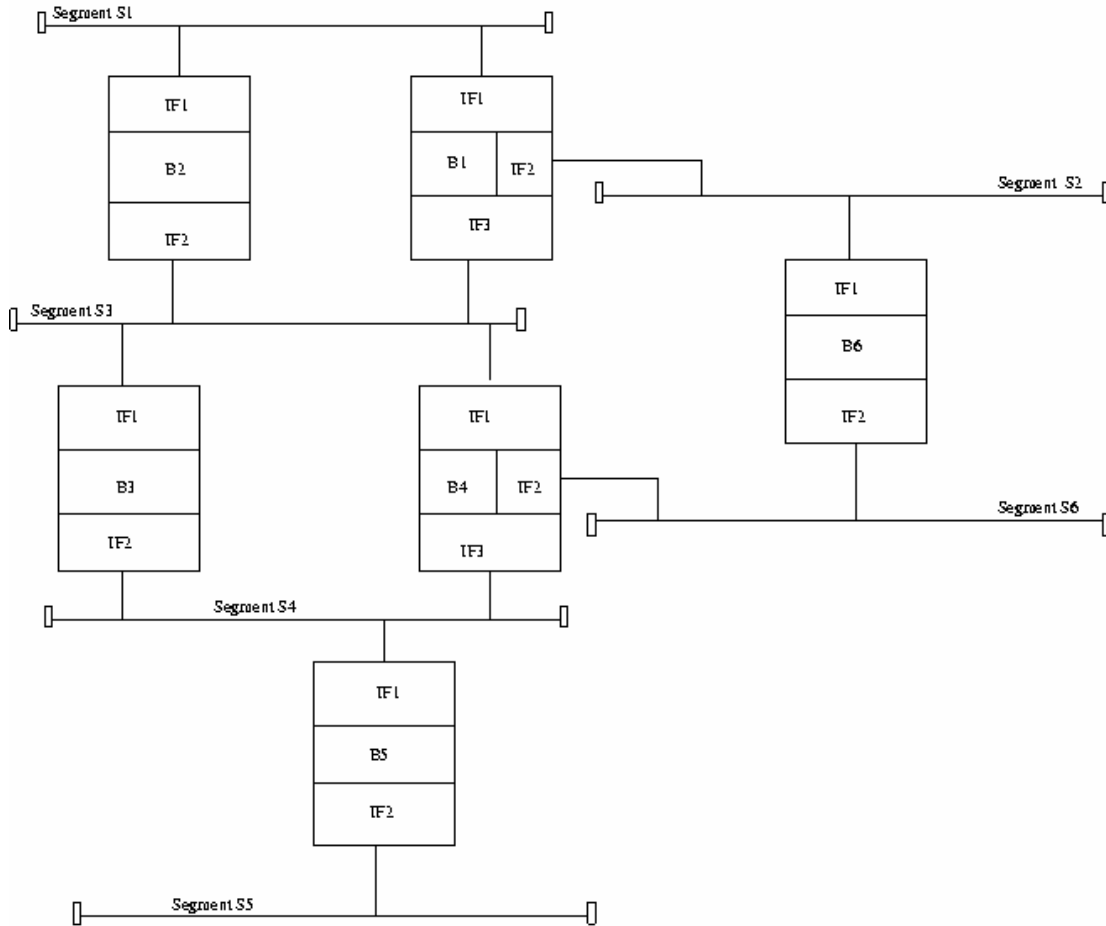


**COE 444 - Internetwork Design and Management  
Fall 2006 (Term 061)**

**Homework 3**

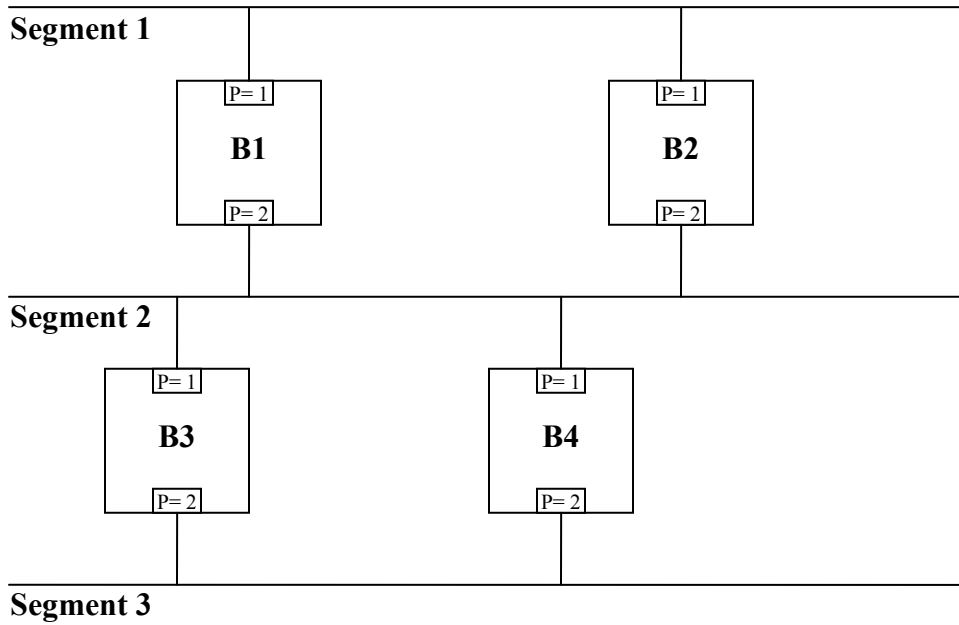
Date: Tuesday, September 26, 2006

**Q1.** Given a LAN consisting of six Ethernet segments interconnected by 6 bridges as illustrated in the figure below. Note that the ID of each bridge is its name.



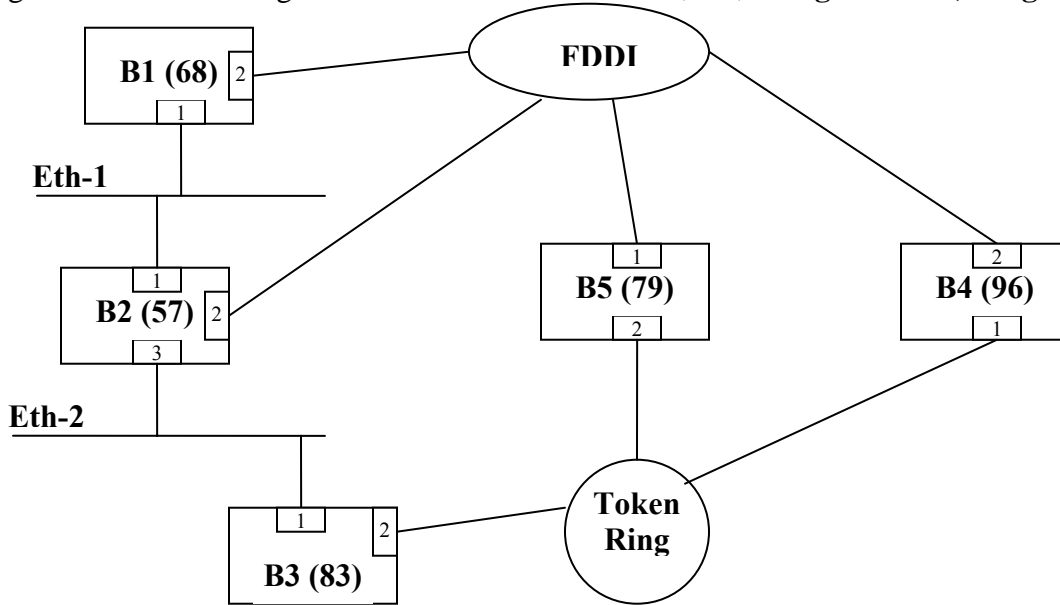
Suppose we are using transparent bridges. Assume that all segments are 10BaseT. Determine the active spanning tree topology. Show the elected Root Bridge, the Root Path Cost (RPC), the Root Port (R), and the Designated Port (D) on all the bridges. Show the ports that will be Blocked (B).

**Q2.** Given a LAN consisting of three 100 Mbps Ethernet segments interconnected by 4 bridges as illustrated in the figure below. Note that the ID of each bridge is its name.



Assume that we are using transparent bridges. Determine the **active spanning tree** topology. Show the elected **Root Bridge**, the Root Path Cost (**RPC**), the Root Port (**R**), and the Designated Port (**D**) on all the bridges. Show the ports that will be Blocked (**B**).

**Q3.** You are given a network interconnected by 5 transparent bridges as illustrated in the figure below. The bridge ID is shown next to its name, i.e., **Bridge\_Name (Bridge\_ID)**.



This network interconnects the following:

- 100 Mbps Ethernet (Eth-1)
- 10 Mbps Ethernet (Eth-2)
- 100 Mbps FDDI
- 16 Mbps Token Ring

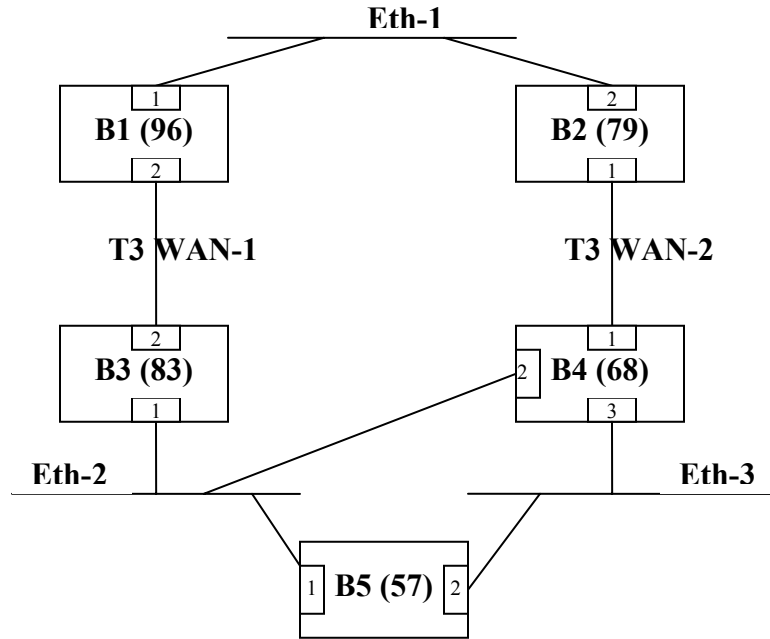
Costs used in the ports of the bridges	
Data Rate	Cost
10 Mbps	100
16 Mbps	62
100 Mbps	19

Determine the active spanning tree topology. In the figure above, show the **cost for each port**, the elected **Root Bridge**, the Root Path Cost (**RPC**), the Root Port (**R**), and the Designated Port (**D**) on all the bridges. Show the ports that will be Blocked (**B**). Then complete the following with appropriate explanations. The status should be either R, D, or B.

Root Bridge is: ..... Explanation: .....

Bridge(Port)	Status	Explanation
B1 (1)		
B1 (2)		
B2 (2)		
B3 (1)		
B3 (2)		
B4 (1)		
B4 (2)		
B5 (1)		
B5 (2)		

**Q4.** You are given a network interconnected by 5 transparent bridges as illustrated in the figure below. The bridge ID is shown next to its name, i.e., **Bridge\_Name (Bridge\_ID)**.



This network interconnects the following:

- 10 Mbps Ethernet (Eth-1)
- 100 Mbps Ethernet (Eth-2 & Eth-3)
- 44 Mbps T3 (WAN-1 & WAN-2)

Costs used in the ports of the bridges	
Data Rate	Cost
10 Mbps	100
44 Mbps	22
100 Mbps	19

Determine the active spanning tree topology. In the figure above, show the **cost for each port**, the elected **Root Bridge**, the Root Path Cost (**RPC**), the Root Port (**R**), and the Designated Port (**D**) on all the bridges. Show the ports that will be Blocked (**B**). Then complete the following with appropriate explanations. The status should be either R, D, or B.

Root Bridge is: ..... Explanation: .....

Bridge(Port)	Status	Explanation
B1 (1)		
B1 (2)		
B2 (1)		
B2 (2)		
B3 (1)		
B3 (2)		
B4 (1)		
B4 (2)		
B5 (1)		