

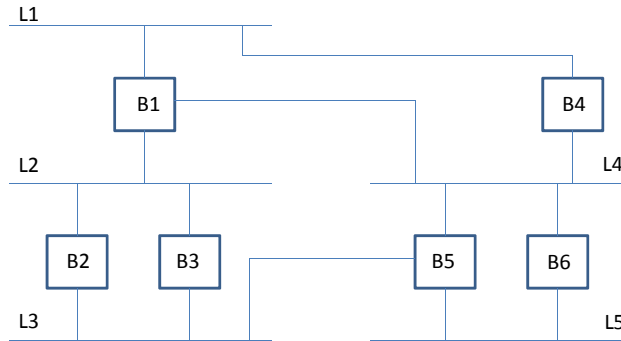
King Fahd University of Petroleum and Minerals  
 College of Computer Sciences and Engineering  
 Department of Computer Engineering

**COE 444 – Internetwork Design and Management (T102)**

**Homework # 01 (due date & time: Sunday 06/03/2011 during class period)**

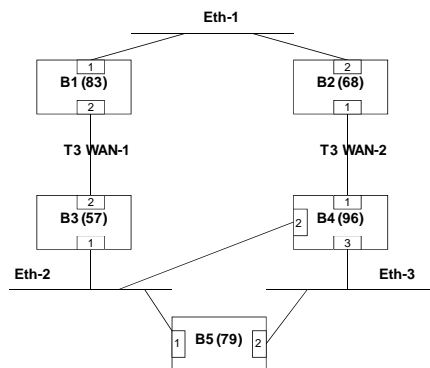
**\*\*\* Show all your work. No credit will be given if work is not shown! \*\*\***

**Problem # 1 (50 points):** Given a LAN consisting of five Ethernet segments interconnected by 6 bridges as illustrated in the figure below. Note that the ID of each bridge is its name.



Suppose fixed routing is used to configure the bridges. Determine the central routing directory for all segments, and the routing tables for Bridges B2 and B5. If alternate routes are available then chose the one with the least number of hops. If they are the same than choose the one with the lowest bridge ID.

**Problem # 2 (50 points):** A network is interconnected by 5 transparent bridges as shown in the figure. 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)

<b>Costs used in the ports of the bridges</b>	
<b>Data Rate</b>	<b>Cost</b>
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).