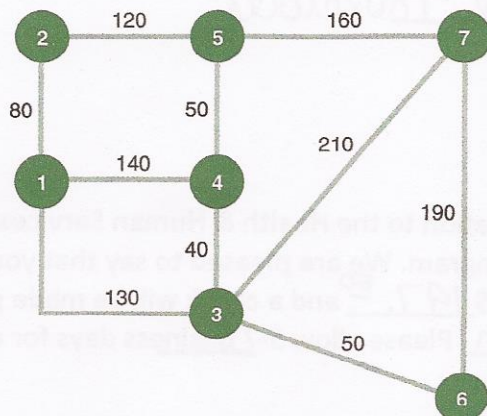


4. The plant engineer for the Bitco manufacturing plant is designing an overhead conveyor system that will connect the distribution/inventory center to all areas of the plant. The network

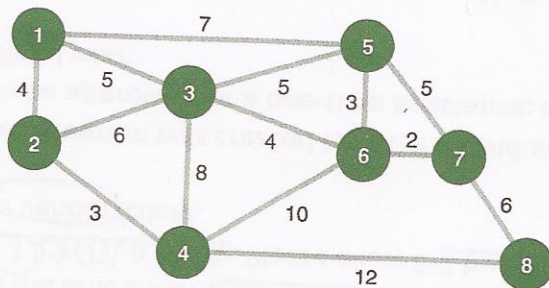
of possible conveyor routes through the plant, with the length (in feet) along each branch, follows:



Determine the shortest conveyor route from the distribution/inventory center at node 1 to each of the other six areas of the plant.

*each*

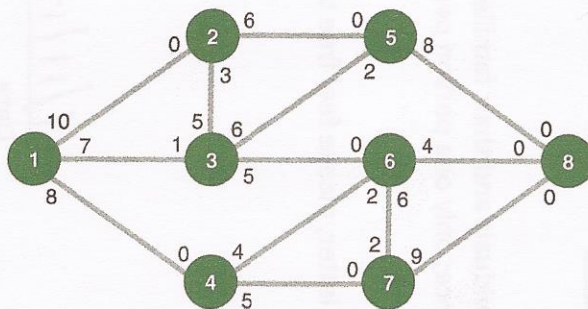
20. One of the opposing forces in a simulated army battle wishes to set up a communications system that will connect the eight camps in its command. The following network indicates the distances (in hundreds of yards) between the camps and the different paths over which a communications line can be constructed:



Using the minimal spanning tree approach, determine the minimum distance communication system that will connect all eight camps.

CHAPTER 7 NETWORK FLOW MODELS

32. A new stadium complex is being planned for Denver, and the Denver traffic engineer is attempting to determine whether the city streets between the stadium complex and the interstate highway can accommodate the expected flow of 21,000 cars after each game. The various traffic arteries between the stadium (node 1) and the interstate (node 8) are shown in the following network:



The flow capacities on each street are determined by the number of available lanes, the use of traffic police and lights, and whether any lanes can be opened or closed in either direction. The flow capacities are given in thousands of cars. Determine the maximum traffic flow the streets can accommodate and the amount of traffic along each street. Will the streets be able to handle the expected flow after a game?

33. The FAA has granted a license to a new airline, Omniair, and awarded it several routes between