IE 479 HW4

Question 1: A company produces a single type of product at a plant P. The company is planning for the next two periods. Unit production cost is $25/unit at period 1 and $24/unit at period 2. The production capacity is 8 units per period. The company has two main retailers; retailer A and retailer B. The demand of each retailer for the next two periods is:

	Period 1	**Period 2**
Retailer A (RA)	4	4
Retailer B (RB)	3	2

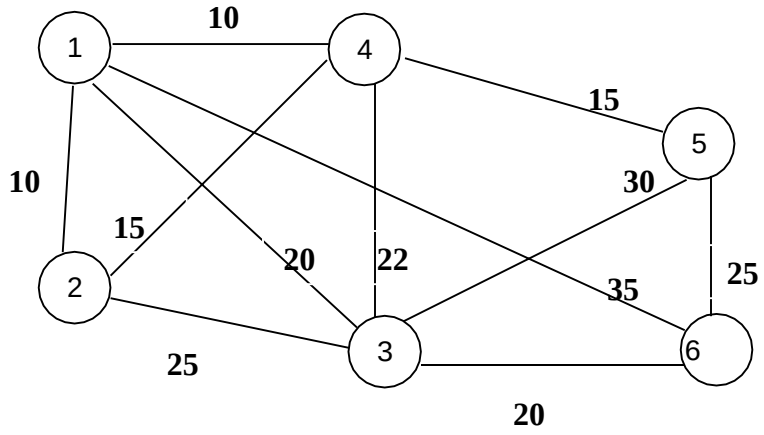
Assume that shipment is instantaneous. Unit shipping cost from plant P is 50 $/unit to RA and 40 $/unit to RB. The product may be held in inventory at P or at the retailers. Inventory holding cost per period at P is 1 $/unit, 2 $/unit at each of the retailers. Is the flow given below optimal? Why or why not? If not, find a better solution using **network simplex** algorithm. Also provide the cost reduction.

Produce 8 units at period 1. Send 4 units to RA, 3 units to RB, and keep 1 unit inventory at P

Produce 5 units at period 2. Send 4 units to RA and 2 units to RB

Question 2: Solve the TSP in the following network using Christofides algorithm. Show all your work.

a)



b) Solve the same TSP with patching.