Assignment Instructions: Module 6 - The Transportation Model

Purpose

The purpose of this assignment is to formulate and solve a transportation / transshipment problem. In addition, this will help you master the following module outcomes:

- Formulate a transportation problem.
- Solve a transportation problem
- Formulate the dual of the transportation problem
- Interpret the dual of transportation problem

Directions

Heart Start produces automated external defibrillators (AEDs) in each of three different plants (A, B and C). The unit production costs and monthly production capacity of the two plants are indicated in the table below. The AEDs are sold through three wholesalers. The shipping cost from each plant to the warehouse of each wholesaler along with the monthly demand from each wholesaler are also indicated in the table. How many AEDs should be produced in each plant, and how should they be distributed to each of the three wholesaler warehouses so as to minimize the combined cost of production and shipping?

	Unit Shipping Cost			*Unit*	*Monthly*
	Warehouse 1	*Warehouse 2*	*Warehouse 3*	*Production Cost*	*Production Capacity*
Plant A	*$20*	*$14*	*$25*	*$400*	*100*
Plant B	*$12*	*$15*	*$14*	*$300*	*125*
Plant C	*$10*	*$12*	*$15*	*$500*	*150*
Monthly Demand	*80*	*90*	*70*		

1. Formulate and solve this transportation problem using R
2. Formulate the dual of this transportation problem
3. Make an economic interpretation of the dual