1. ) a furniture manufacturer produces three products, desks, tables, and chairs. These products can be produced during either the morning shift or the evening shift. The morning shift has a labor cost of $20 per hour with a maximum availability of 20,000 hours. The evening shift has a labor cost of $25 per hour and is limited to 15,000 hours. The labor, lumber, and demand requirments are given as follows:

resource Desk Table Chair

Labor (hours) 0.75 2 0.5

Lumber (pounds) 7 15 4

Nails (pounds) 0.5 2 0.25

Demand: 50 75 100

Assume that there are 20,000 pounds of lumber and 20,000 pounds of nails for both shifts

Formulate this problem to minimize total labor cost

2.) Friendly manufacturing has three factirues (1,2 AND 3) and three warehouses (A,B,C). The table below shows the shipping costs between each factory (in dollars) and warehouse, the factory manufacturing capabilities (in 1000’s) and the warehouse capacities (in 1000’s). Write the objective function and the constraint inequalities. Let X1a =1000s of units shipped from factory 1 to warehouse A, etc.

From To Production

A B C Capability

Factory 1 6 5 3 6

Factory 2 8 10 8 8

Factory 3 11 14 18 10

Factory 4 7 12 5