INDR 371 HOMEWORK-6

1. (35 pts)Consider the following cost matrix to solve a warehouse location problem to minimize the total setup and transportation costs.

	Warehouse sites		
Cust. Loc.	A	B	C
1	100	1000	200
2	1000	100	200
3	500	500	500
Fixed Cost	**300**	**300**	**X**

   What is the **largest integer value** for X (fixed cost of cite C) for which the greedy algorithm we have seen in the class gives a solution that is not optimal, regardless of how one break the ties?

2. (35 pts) Assume that we have the following closeness ratings for the four departments we want to place in a 2x2 grid layout plan.

Dep	**1**	**2**	**3**	**4**
1	–	A	E	O
2	A	–	E	O
3	E	E	–	O
4	O	O	O	–

   Prove or disprove the following claim:

   - The layout given below is an optimal solution that maximizes the closeness score **for any grading scale** in which an A relationship has a strictly more value than an E relationship and an E relationship has a strictly larger value than an O relation.

1	4
2	3

3. (30 pts) Write a small code snippet in your favorite coding environment to implement Johnson's Algorithm to solve the two-machine flow-shop problem given in the provided file schedule.xlsx. **Upload your code and screenshots for the answer.**