## Department of Mathematical Sciences CARNEGIE MELLON UNIVERSITY

## **OPERATIONS RESEARCH II 21-393**

Homework 2: Due Monday October 23.

Q1 Solve the following 2-person zero-sum games:

[	2	1	1	0	-1
$\begin{bmatrix} 6 & 2 & 4 \end{bmatrix}$	4	3	2	1	-1
5 2 5	1	1	0	-1	1
4 1 -3	2	1	1	-2	-2
	4	1	0	-2	-3

**Q2** Find a symmetric equilibrium for the first price sealed bid auction in the case where N = 3 and  $F(x) = 1 - e^{-\lambda x}$ .

Q3 A firm manufactures and sells 3 different products, production time. production time is negligible. Data on costs and demands are given in the table below. The maximum average inventory that can be held is \$4000. Find the optimal re-order policy under these circumstances if the inventory charge is 10% of the items value per period.

Product	Demand/Year	Value/Item	Set up cost
1	200	10	50
2	1500	15	40
3	300	20	60