Department of Mathematical Sciences
CARNEGIE MELLON UNIVERSITY

OPERATIONS RESEARCH II 21-393

Homework 3: Due Monday Octobber 22.

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

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

Q2
Players A and B choose integers i and j respectively from the set $\{1, 2, \ldots, n\}$ for some $n \geq 2$. Player A wins if $|i - j| = 1$. Otherwise there is no payoff. Solve the game.

Q3
Player B chooses a number $j \in \{1, 2, \ldots, n\}$ and A tries to guess what it is. If A guesses correctly then A wins 1. If A guesses too high then A loses 1. If A guesses too low there is no payoff. Solve the game.