UGEB2530 Game and Strategic Thinking
Assignment 4

Due: 9 March 2015 (Monday)

1. (4 marks) Explain whether the following bimatrix games can be transformed to a zero sum game.

   (a) $\begin{pmatrix} (3,-8) & (1,-2) \\ (-2,7) & (0,1) \end{pmatrix}$

   (b) $\begin{pmatrix} (2,2) & (-2,4) \\ (-4,5) & (3,1) \end{pmatrix}$

2. Find all pure Nash equilibrium of the games with the following game bimatrices and state whether they are Pareto optimal.

   (a) $\begin{pmatrix} (1,3) & (4,6) \\ (2,4) & (1,2) \end{pmatrix}$

   (b) $\begin{pmatrix} (-1,2) & (3,4) & (1,-3) \\ (2,1) & (5,-1) & (3,3) \\ (4,2) & (-2,2) & (2,0) \end{pmatrix}$

3. Consider the 2-person game with the following bimatrix

$$\begin{pmatrix} (1,4) & (5,1) \\ (4,2) & (3,3) \end{pmatrix}$$

   (a) Find a prudential strategy for each of the players and the payoffs to the player if both of them use prudential strategies.

   (b) Find the Nash equilibrium of the game and the corresponding payoffs to the players.

4. Consider the 2-person game with the following bimatrix

$$\begin{pmatrix} (5,-3) & (2,4) \\ (1,3) & (-1,0) \end{pmatrix}$$

   (a) Find a prudential strategy for each of the players and the payoffs to the player if both of them use prudential strategies.

   (b) Find the Nash equilibrium of the game and the corresponding payoffs to the players.