COMP323 - Introduction to Computational Game Theory

Tutorial 3 - Questions

Problem 1. Is the following function P an exact potential for Prisoner's Dilemma? Justify your answer.

		Player 2	
		Quiet	Fink
Player 1	Quiet	2 , 2	0 , 3
	Fink	3 , 0	1 , 1

Prisoner's Dilemma

	Quiet	Fink
Quiet	0	1
Fink	1	2

Function P

Problem 2. Is the following function P' a weighted potential for Prisoner's Dilemma? Justify your answer.

	Quiet	Fink
Quiet	0	1
Fink	2	3

Function P'

Problem 3. In the following congestion game, where n players ($n \geq 6$) can use three edges to go from A to B (1 edge each):

(a) What would be the maximum value of the Rosenthal Potential?

(b) What is the value of the Rosenthal Potential when the players split equally to the three edges? (Assume n is divisible by 3.)

(c) What is the worst-case running time of the algorithm (from lecture notes) for finding a PNE?