

ISyE 8801B Game Theory

Fall 2003

Assignment 5

Issued: October 27, 2003

Due: November 3, 2003

Problem 1

Friedman, Section 7.1, p.55: “Clearly, Assumptions 2.1, 2.2’, and 2.3’ are satisfied.” Show that Conditions 2.1, 2.2, and 2.3 are not sufficient for Assumptions 2.1, 2.2’, and 2.3’ to be satisfied. For example, construct a counterexample that satisfies Conditions 2.1, 2.2, and 2.3, but which does not satisfy Assumptions 2.1, 2.2’, and 2.3’. Show that as a result a Cournot equilibrium may not exist.

Problem 2

Friedman, Section 7.2, p.59: “Condition 2.4 guarantees that such an ε can be found.” Show that this claim is not true in general. For example, construct a counterexample that satisfies Condition 2.4, but for which the claim does not hold.

Problem 3

Friedman, Section 7.2, p.59: “This follows from Walras’ law, which states that $\sum_j p_j (y_j^0 - w_j^0) = \sum_j p_j (\sum_i y_j^i - \sum_i w_j^i) = \sum_i (\sum_j p_j y_j^i - \sum_j p_j w_j^i) = 0$.” Show why this claim is true. State the assumption that is essential for the claim to be true in more explicit terms.