Test
Advanced Microeconomics: Part II (Uwe Jirjahn)

Winter 2016/2017

Choose **two** questions out of the three questions Q1, Q2 and Q 3.

Q.1 Player 1 and player 2 bargain over sharing 300 dollars. The bargaining procedure follows the Rubinstein bargaining model. Player 1 makes the first offer. Each player's discount factor is given by $\delta = 1/(1+r)$ with $r = 1$. Find the bargaining solution.

Q.2 Two firms (i = 1, 2) produce differentiated products. The market-clearing price is given by: $p(q_i, q_j) = 60 - q_i - \frac{1}{2}q_j$, where q_i is the quantity chosen by firm i and q_j the quantity chosen simultaneously by its competitor. The cost function of each firm is $C_i(q_i) = 10q_i$.
Q.2.a Find the response functions and show the response functions graphically.
Q.2.b Identify the Nash equilibrium.
Q.2.c Calculate each firm's equilibrium profit.

Q.3 Two firms (i = 1, 2) produce differentiated products. The demand function for the product of firm i is given by: $q_i(p_i, p_j) = 4 - p_i + \frac{1}{2}p_j$, where p_i is the price chosen by firm i and p_j the price chosen by its competitor. Firm 1 chooses its price first and firm 2 chooses its price after observing the price of firm 1. The cost function of each firm is $C_i(q_i) = 2q_i$. Find the subgame-perfect Nash equilibrium.

Note: If you answer all questions, we will only consider Q.1 and Q.2.