Exam
Advanced Microeconomics: Part II (Uwe Jirjahn)

Summer 2020

Choose **<u>two</u>** questions out of the three questions Q.1, Q.2 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 Player 1 and player 2 bargain over sharing 1000 dollars. The asymmetric Nash product is: $\Omega = (x_1 - 50)^{0.25}(x_2 - 150)^{0.75}$. Find the Nash bargaining solution.

Q.3 Player 1 and player 2 choose their strategies s_1 and s_2 simultaneously where $s_1 \in \{X, Y\}$ and $s_2 \in \{L, R\}$. The payoff matrix is

Player 2 Player 1	L	R
X	10, θ	$-\theta$, 0
Y	θ, 0	10, θ

where $\theta \in \{-20, 20\}$ is privately known by player 1, and $Prob(\theta = -20) = 0.8$. Find the Bayesian Nash equilibrium.

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