# ECON0106: **Microeconomics**

# Problem Set 8

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Due date: 24 November, 12:30

**Question 1.** MWG: Exercise 8.E.1$^B$.

**Question 2.** MWG: Exercise 8.E.3$^B$

**Question 3.** Each of two players receives a ticket on which there is a number from the set $\{0\} \cup [M] = \{0, 1, ..., M\}$, $M \in \mathbb{N}$. The number on a player's ticket is the dollar-value of the prize they will receive upon returning the ticket. The two players' prizes — the nubers on their tickets — are independently and identically distributed according to a commonly known probability mass function $f$ with non-singleton support on $\{0\} \cup [M]$. Before turning in their tickets, players simultanously announce whether or not they would like to exchange their ticket with the other player. If both players agree to exchange, then they exchange their tickets before turning them in; otherwise each player turns in their original ticket. Players receive the prize indicated on the ticket they turn in. Each player's objective is to maximize their expected prize.

(i) Describe how this situation can be viewed as a Bayesian game: what is the type space and the distribution, what are the strategies, and what are the payoffs?

(ii) Characterize all the Bayesian Nash equilibria of this game. Discuss briefly.

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