Tutorial 2

Question 1. Recall the Monotonic Concession Protocol (MCP) introduced in the lecture. Now consider the following strategy to be used with this protocol:
- Start by proposing your most preferred agreement.
- In the next round, make a minimal concession.
- In all subsequent rounds, if your opponent has conceded $x\%$ of the time so far, then make a (minimal) concession with probability $(100 - x)\%$.

Answer the following questions:
(a) Is this strategy stable, i.e. is it in equilibrium with itself?
(b) Is this strategy efficient, i.e. does it guarantee Pareto optimal outcomes if used by both agents?

Question 2. Recall the English auction protocol introduced in the lecture.
(a) What is the dominant strategy for a bidder in a private value auction following the English Auction protocol?
(b) Justify your answer to part (a).

Question 3. Vickrey auctions are one-shot second-price sealed-bid auctions. We have seen the advantages of using second-price rather than first-price auctions in the lecture. Maybe we could get further improvements by introducing a third-price auction?
(a) Define the protocol for one-shot third-price sealed-bid auctions.
(b) What would be a good bidding strategy for this type of auction?
(c) Recall that the dominant bidding strategy for private value Vickrey auctions is to bid your true valuation. Is there a dominant strategy for third-price auctions?
(d) Recall that the four auction protocols discussed in the lecture are Pareto efficient. Is this also the case for the third-price protocol?