**Problem set 2**

**Q1**. Consider the following second-price sealed-bid private value auction with two bidders, $n = 2$. Each bidder's private value is uniformly distributed over $[0, 1]$, and the distribution of the private value is denoted by $F$. The valuation of each bidder $i$, $i = A$ *or* $B$, is denoted by $v_i$. A bidder does not know any other bidder's private value. If a bidder with value $v_i$ chooses to enter the auction, an entry cost $c = 0.04$ should be incurred.

(a.) Show that conditional on entering the auction, a bidder cannot do better than bidding his/her true value.

(b.) Given that all bidders play the bidding strategy characterized in (a), please characterize the symmetric equilibrium entry strategy for the two bidders.

**Q2**. Suppose $N = 2$ bidders exist in a second price auction, and each bidder's private value is a random draw from a uniform distribution $F$ on $[0, 1]$. Show the seller revenue with and without optimal reserve price $r$.