ECO316: Applied Game Theory

Problem Set #10 Solutions

1. **Common-Value Auction:** As noted in the hint, by the Revenue Equivalence Theorem, the expected revenue must be equal to the first-price and second-price auctions. As we saw in class, this revenue is:

$$1/2(a+b)s_i$$

In an all-pay auction, the revenue is the sum of both bidders bids. Hence, as the signals are independent and unbiased, each bidder bids:

$$1/4(a+b)s_i$$

which yields the above revenue in expectation.

2. **Cheap Talk:**

   (a) Given that the partition is set at 0.5. After a message of 'High' (assuming the message is truthful), the principal's expectation of the state is 0.75 (i.e., $E[\theta|\theta \geq 0.5]$. Then, the principal's optimal action is 0.75. Likewise after a message of 'Low', the principal's expectation of the state is 0.25.