

CIS 7412 Fall 2011 Homework 6

1. The four commonest types of auction are English, Dutch, First Price Sealed Bid and Vickrey auction. Consider using each of these auctions to organise the sale of a piece of artwork.
 - (a) For each auction say what price you think that the auctioneer should start the bidding at.
 - (b) For each auction discuss what information each bidder can infer about what other bidders think that the good is worth.
 - (c) For each auction say what strategy you would use if you were bidding in the auction and attempting to win the good.
 - (d) If you were the seller of the artwork, which method would you choose to use to carry out the sale?

You must justify all of your answers, and state any assumptions that you make.

(50 points)

2. We have an election with 4 candidates $\{a, b, c, d\}$ and three voters. The voters' preferences are as below:

$$a \succ_1 c \succ_1 d \succ_1 b$$

$$d \succ_2 c \succ_2 a \succ_2 b$$

$$c \succ_3 a \succ_3 b \succ_3 d$$

- (a) What would be the outcome of a plurality vote?
(10 points)
- (b) What would be the result of a vote using the Borda count?
(10 points)
- (c) Write down a sequential majority election for this example and identify the winner of the election.
(5 points)
Is it possible to manipulate this election? Explain why (or why not).
(5 points)
- (d) Write down the majority graph for this example. Looking at the graph identify which candidates are possible winners and explain how you tell this from the graph.
(10 points)
- (e) How would voter preferences have to change for a to become a Condorcet winner?
(10 points)