AS/ECON 4080MW   Assignment 2

due : Wed. March 17, before class

All 5 questions count equally.

1. Which axiom(s) of Arrow's impossibility theorem does the following choice rule violate? "Rank alternative A as preferred to alternative B if more than 80 percent of the people prefer A strictly to B. Otherwise (if 80 percent or less of the voters prefer A to B), rank A and B as tied." Explain briefly.

2. The rankings of voters 1, 2 and 3 over 3 alternatives a, b, c and d are

1	2	3
a	b	d
b	c	c
c	a	a
d	d	b

It is been decided that voters will first split the four alternatives into two pairs, and vote on each of the two pairs. They will then decide their overall choice by voting between the winners of the two first–stage votes.

Voter 1 gets to pick how to divide the alternatives into pairs at the first stage. If she thinks voters will vote sincerely, how might she divide them?

Would people vote sincerely if this agenda were proposed? Explain briefly.

3. Legislators are choosing how much to spend on highways, and on education. Voter i has a utility function

$$U^i = x_i + a_i \ln H + b_i \ln E$$

where x_i is voter i's expenditure on private goods, H and E are total public expenditure on highways and education respectively, and a_i and b_i are positive numbers defined in the table immediately below

voter	1	2	3
a_i	6	3	1
b_i	6	2	9

The cost of expenditure on highways and on education will be split equally among the three voters. Each voter has the same income, 24.

What is the most–preferred policy of each voter?

4. Suppose that the voters described in question #3 above voted, separately, on highway and education expenditure, using pairwise majority rule. (That is, they meet in separate sessions, one session to consider proposals on highway expenditure, and the other to consider proposals on education expenditure.) Are preferences over each expenditure category single–peaked? What would be the likely outcome of this political process?

5. Now suppose that the voters described in question #3 again vote separately, but now they choose total expenditure, and also the percentage split of that expenditure between the two categories. (That is, they again meet separately. This time, in one session they propose total levels of public expenditure, and in the other session they propose what fraction of public expenditure should be devoted to education.)

Are preferences in each vote single–peaked? What would be the likely outcome of this political process if pairwise majority rule is used to decide outcomes?