AP/ECON 4380 & GS/ECON 5950 : Final Exam

Thursday June 16 2011
2 − 4 pm

Do **any 5** of the following 8 questions. All questions count equally.

1. Suppose that there are 5 voters of type #1, 6 voters of type #2, 7 voters of type #3, 8 voters of type #4 and 9 voters of type #5, with the following preference orderings over candidates

	[5 people]	[6 people]	[7 people]	[8 people]	[9 people]
first choice	v	z	y	z	x
second choice	w	w	z	v	w
third choice	x	x	v	w	y
fourth choice	y	v	w	x	z
fifth choice	z	y	x	y	v

   Is there a Condorcet winner here? Explain briefly.

2. Which of the axioms of Arrow's Impossibility Theorem does the following choice rule violate?

   Take all the different **pairs** of alternatives, and number them. (So if there were 4 alternatives a, b, c and d, then there would be 6 pairs of alternatives : a versus b, a versus c, a versus d, b versus c, b versus d and c versus d).

   Then let person 1 make the choice for **pair** #1 (so that if pair #1 is alternative a versus alternative b, we would rank a above b if and only if person #1 ranked a above b). Let person #2 make the choice for pair #2, and so on. If there are more pairs of alternatives than people, then keep going back around to person #1 after we get to the last person. (So with 8 people, and 10 pairs of alternatives, person #1's preferences would determine the ranking of pairs #1 and #9, person #2's preferences would determine the ranking of pair #2 and #10, person #3's preferences would determine the ranking of pair #3 and so on.)

3. What are the key assumptions needed to get the result that all parties will choose the median of the voters' most–preferred policies?

4. What level of service provision X and what budget B should a government official propose if she wants the largest budget B possible, in the following circumstances? The budget B she requests must cover the cost $C(X)$ of providing the service where

$$C(X) = 2X^2$$

She can propose any service level X and budget B which she wishes (provided that $B \geq C(X)$). However, the proposal must pass a referendum of the voters.

If the proposal does not pass, the budget will be 0, and the level of service provision will be 0.

Each voter gets a total benefit of

$$W(X) = 30X - X^2$$

from a public service level X, and cares only about his total benefits $W(X)$, minus the budget B which is financed from his taxes.

5. How much infrastructure spending will be spent in district 1 of a legislature in the following situation? Explain briefly.

There is a fixed budget of \$1 billion for infrastructure spending, which must be divided up among geographically concentrated projects. Each project is located in a single district, and there are many competing projects.

There are 101 districts represented in the legislature. The representative from district 1 has been chosen to propose a bill dividing up the budget. But any bill she proposes must be passed by a simple majority of the legislature. If it is defeated, someone else will be chosen (randomly) to propose a new bill.

6. What determines whether some category of public expenditure is best provided at the national, provincial or local level?

7. Suppose that the income elasticity of demand for highway expenditure is 1, and that highway expenditure in New Brunswick equals 1% of total provincial income.

Theoretically, what would be the effect on New Brunswick's highway expenditure of a categorical non–matching grant of \$100,000,000 from the federal government to the New Brunswick government, which must be spent on highway construction and maintenance?

How does the "flypaper effect" modify this theoretical prediction?

8. What (if anything) is the net gain to the cable television industry, if the government of some country decided to award a monopoly franchise worth \$400 million in profits in some metropolitan area when there are four firms in the industry, and each firm can spend money L_i in lobbying the government, and the probability that firm i is awarded the franchise is

$$\pi_i = \frac{\sqrt{L_i}}{\sum_{j=1}^{4} \sqrt{L_j}}$$

when firms choose non–cooperatively how much to spend on lobbying activities?