GS/ECON 5010 Assignment 2 F2006

due : Wednesday October 11 before class

Do all 5 questions. Each counts 20%.

1. Find all the violations of the strong and weak axioms of revealed preference in the following table, which indicates the prices p^t of three different commodities at four different times, and the quantities x^t of the 3 goods chosen at the four different times. (For example, the second row indicates that the consumer chose the bundle $\mathbf{x} = (4, 15, 20)$ when the price vector was $\mathbf{p} = (5, 8, 1)$.)

t	p_1^t	p_2^t	p_3^t	x_1^t	x_2^t	x_3^t
1	10	1	1	5	10	20
2	5	8	1	4	15	20
3	5	1	8	2	30	10
4	8	5	5	4	12	12

2. The following table lists the prices of 3 goods, and the quantities a consumer chose of the goods, in 4 different years.

From these data, what can be concluded about how well off the consumer was in the different years? Explain briefly.

t	p_1^t	p_2^t	p_3^t	x_1^t	x_2^t	x_3^t
1	10	1	1	5	10	20
2	5	8	1	6	10	8
3	5	1	8	9	20	5
4	8	5	5	15	8	8

over

3. A country contains thousands of identical firms, each of which have initial wealth of 4, and each of which is run by an identical risk–averse entrepreneur, with a utility–of–wealth function

$$u(W) = \sqrt{W}$$

Each entrepreneur faces a choice between 2 projects. Project s offers a sure gain of 4 (on top of the entrepreneur's initial wealth of 4). Project r offers a chance at a gain of G, with probability 0.5, but will cause the entrepreneur to lose everything (including her initial wealth of 4) with probability 0.5.

The outcome of any individual entrepreneur's risky project r is independent of the outcome of any other entrepreneur's risky project.

i For what values of G would an entrepreneur prefer to invest in project r?

ii If the entrepreneurs each owned an equal (small) share of each of the firms, for which values of G would they prefer to invest in project r?

4. Suppose that $G = 9$ in the model of question 3 above. Suppose that a government programme to encourage entrepreneurial activity is introduced, in which losses from the risky project r are covered completely. Entrepreneurs are guaranteed that their wealth stays at its initial level of 4, even if they invest in project r and get a bad outcome.

This project is funded by a tax T on all successful entrepreneurs : entrepreneurs who invest in project s, and those who invest in project r and get the good outcome each must pay a tax of T.

For what values of T will entrepreneurs decide to undertake project r, rather than s?

5. Now suppose that the government entrepreneurial insurance programme from question #4 must break even : the revenues collected from the tax must exactly cover the compensation for losses from the risky project.

Each entrepreneur takes the tax payable T as given, and makes her own expected–utility–maximizing choice. An equilibrium tax T is one which leads to the insurance programme breaking even, given this behaviour.

Find two equilibrium values for T.