AS/ECON 2300W

Assignment 1

due: Wed. February 4, 10.30 a.m.

Do all 5 questions. All count equally.

1. Untied Van Lines has the following price schedule for moving people's possessions from Toronto to Montreal : 20 cents per kilo on the first 2000 kilos, 40 cents a pound on each additional kilo ( above 2000 kilos ) up to 6000 pounds, and 50 cents a kilo on anything in excess of 6000 kilos.

A person has $4000 to spend, either on having possessions moved from Toronto to Montreal, or on food, which costs $2 per kilo.

Draw her budget set.

2. As part of a promotion, a television owner has been given a certificate worth $140, which can be spent this week only on watching pay television provided by her cable operator. ( Since the service is experimental, she also cannot spend any of her own money on the programmes, just the certificate. ) The television owner is a busy person, and has at most 30 hours available for television watching in the week that the certificate is valid. There are two programmes available : watching the Algebra Channel costs $2 per hour, and watching the Bass Fishing Channel costs $10 per hour.

Draw the person's budget set for hours spent watching the two channels.

3. Suppose that a person's preferences over consumption bundles can be described in the following way, when the two commodities which she can consume are apples and bananas.

Asked to compare two bundle, she says that she prefers the bundle which contains the highest quantity of apples. If the two bundles have the same quantity of apples, then she prefers the bundle which contains the highest quantity of bananas.

Are these preferences complete? transitive? convex? monotonic? In each case, explain briefly.

4. Suppose a person is asked her preferences concerning bundles which contain the quantity consumed of food, and the amount of second–hand smoke which she must inhale. Commodity 1 is food, and commodity 2 is second–hand smoke.

Asked to compare two bundles $(x_1, x_2)$ and $(y_1, y_2)$, she says that she likes the bundle $(x_1, x_2)$ at least as much as the bundle $(y_1, y_2)$ whenever $x_1 - (x_2)^2 \geq y_1 - (y_2)^2$.

Are these preferences complete? transitive? convex? monotonic?

5. Sketch the indifference curves of a person with the following preferences among bundles containing quantities of tea ( good 1 ) and coffee (good 2 ).

She prefers the bundle $(x_1, x_2)$ which gives her the highest value of $u(x_1, x_2)$ where

$$u(x_1, x_2) = 3x_1 \quad \text{if} \quad x_2 > 2x_1$$

$$u(x_1, x_2) = x_1 + x_2 \quad \text{if} \quad x_1 > x_2 \le 2x_1$$

$$u(x_1, x_2) = 2x_2 \quad \text{if} \quad x_1 > x_2$$