GS/ECON 5010 section "B"' Assignment 1 F2011

due : Wednesday September 28 before class

Do all 5 questions. Each counts 20%.

1. Are the preferences described below transitive? Strictly monotonic? Convex? Explain briefly.

The person consumes 2 goods, food and clothing. A bundle A will be ranked as at least as good as bundle B if **either** of the following conditions holds :

(i) bundle A contains at least twice as much food as bundle B ;

(ii) bundle A contains at least half as much food as bundle B, **and** the amount of food in A added to the amount of clothing in A, is at least as large as the amount of food in B added to the amount of clothing in B.

If neither (i) or (ii) is true, then bundle A is not considered at least as good as bundle B.

2. Are the preferences represented by the utility function below strictly monotonic? Convex? Explain briefly.

$$U(x_1, x_2, x_3) = \max(x_1 + x_2 + x_3, 3x_1)$$

3. Calculate a person's Marshallian demand functions, if her preferences can be represented by the utility function

$$u(x_1, x_2) = \min(x_1 + x_2, 2x_2)$$

4. Calculate a person's Marshallian demand functions, if her preferences can be represented by the utility function

$$u(x_1, x_2, x_3) = x_1 - \frac{1}{x_2} - \frac{4}{(x_3)^2}$$

[You can restrict attention to the case in which her income is high enough that $y > \sqrt{p_1 p_2} + 2(p_1)^{1/3} p_3^{2/3}$.]

5. Calculate the Marshallian and Hicksian demand functions, the indirect utility function, and the expenditure function, for a consumer whose preferences can be represented by the utility function

$$u(x_1, x_2) = \ln x_1 + \ln x_2 - \ln(x_1 + x_2)$$