

due : Wednesday October 1 before class (2.30 pm)

Do all 5 questions. Each counts 20%.

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

There are 3 different commodities. The person finds bundle \mathbf{x}^1 at least as good as bundle \mathbf{x}^2 if and only if : the minimum of x_1^1 and $\max(x_2^1, x_3^1)$ is at least as big as the minimum of x_1^2 and $\max(x_2^2, x_3^2)$. (Where $\max(a, b)$ denotes the maximum of a and b .)

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

$$U(x_1, x_2, x_3) = \frac{x_1}{x_1 + x_2} - \frac{1}{x_3}$$

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

$$u(x_1, x_2, x_3) = x_1(x_2 + x_3)^2$$

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

$$u(x_1, x_2) = \frac{x_1 x_2}{x_2 + 1}$$

5. Find the expenditure function, Hicksian demand functions and indirect utility function for the preferences of question #4 above.