GS/ECON 5010 Assignment 1 F2004

due : Wednesday September 29 before class

Question 1 counts 40%, questions 2 – 4 20 % each.

1. For each of the following utility functions, state whether the preferences represented are (i) strictly monotonic and (ii) strictly convex. In each case, explain briefly.

(a) $u(x_1, x_2) = x_1 + x_1 x_2$

(b) $u(\mathbf{x}) = b\mathbf{x} + \mathbf{x}'A\mathbf{x}$ where b is a vector of positive numbers, and A is a matrix with positive numbers on the diagonal, and zeroes off the diagonal

2. Solve a consumer's utility maximization problem, if her preferences can be represented by the utility function

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

3. Find a person's Marshallian demand function if her preferences are CES, but with a slightly more general form than that used in the textbook,

$$u(\mathbf{x}) \equiv (a_1 x_1^\rho + a_2 x_2^\rho + \cdots + a_n x_n^\rho)^{1/\rho}$$

where the a_i's are positive parameters.

4. If a person's preferences can be represented by the utility function

$$u(x_1, x_2) = x_1 + 2\sqrt{x_2}$$

find the person's Marshallian demand functions for each good, her indirect utility function, her Hicksian demand function, and her expenditure function.