GS/ECON 5010 section "B" Assignment 2 F2015

due : Wednesday October 21 2:30 pm

Do all 5 questions. Each counts 20%.

1.Could the following three functions be Marshallian demand functions for a consumer with well–behaved preferences? Explain briefly.

$$x_1(\mathbf{p}, y) = yp_1^{-1} - 2^{4/3}p_1^{-2/3}p_2^{1/3}p_3^{1/3}$$
$$x_2(\mathbf{p}, y) = 2^{1/3}p_1^{1/3}p_2^{-2/3}p_3^{1/3}$$
$$x_3(\mathbf{p}, y) = 2^{1/3}p_1^{1/3}p_2^{1/3}p_3^{-2/3}$$

2. 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 third row indicates that the consumer chose the bundle $\mathbf{x} = (30, 30, 10)$ when the price vector was $\mathbf{p} = (10, 5, 10)$.)

t	p_1^t	p_2^t	p_3^t	x_1^t	x_2^t	x_3^t
1	10	10	5	20	20	20
2	5	10	10	30	15	25
3	10	5	10	30	30	10
4	5	5	10	30	20	20

3. If a person has a constant coefficient of relative risk aversion equal to β, what is the probability of winning π which must be offered the person to make her just willing to accept the following bet? The bet : with probability π the person's initial wealth increases by a factor of 4 (from W_0 to $4W_0$) but with probability $1 - \pi$ she loses all her initial wealth.

4. If a person has a constant coefficient of relative risk aversion equal to 2, what would be the highest amount that she would be willing to pay to insure completely against loss of half of her wealth, if she perceived the probability of that loss as equalling some π (with $0 < \pi < 1$)?

5. A von Neumann–Morgenstern expected utility maximizer has a utility–of–wealth function

$$U(W) = -\frac{1}{W + A}$$

where A is some positive constant. What is the certainty equivalent for her of a gamble which doubles her wealth with probability π, and leaves her with zero wealth with probability $1 - \pi$?