Second chance exam in microeconomics (MAE2)

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Guidelines: You have one hour and half to complete this exam.

Question 1 Preety has a preference $\succsim$ for short skirts (good 1) and money (good 2) that is defined by $(x_1, x_2) \succeq (y_1, y_2) \Leftrightarrow x_1 + x_2 \geq y_1 + y_2$ and max $(x_1, x_2) \geq$ max (y_1, y_2). Is this preference convex (weakly or strictly) ? increasing (weakly or strictly) ? locally non satiable ? continuous ? complete ? transitive ? (explains and draw the sets $NW \succeq$)

Question 2 Conrad is an amateur of souvlakis who is endowed with the following preferences. For every pair A and B of bundles of souvlakis and money available to other use than souvlakis, Conrad *weakly prefer* A to B *if and only if*:

1) The quantity of souvlakis available in A exceeds the quantity available in B by at least two units and

2) The money available to other use than souvlakis in A is not lower than that available in B by more than 100 euros.

Are Conrad preferences transitive ? Complete ? Continuous ? Locally non-satiable ? Convex ? Justify and draw a representative $NW_{\succsim}(x_1, x_2)$ set.

Question 3. Kumar has preference for two goods that are numerically represented by the utility function

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

a) Find the Marshallian and Hicsksian demand functions (or correspondances) as well as the indirect utility and the expenditure functions.

Question 4 Suppose that at prices $(p_1, p_2) = (5, 10)$, a rational consumer endowed with a wealth of 100 consumes the bundle $(6, 7)$. Suppose that an econometrician has measured the following derivatives:

$$\begin{aligned} \frac{\partial x_1^H(5, 10, V(5, 10, 100))}{\partial p_1} &= -2 \\ \frac{\partial x_1^H(5, 10, V(5, 10, 100))}{\partial p_2} &= +1 \\ \frac{\partial x_1^M(5, 10, 100)}{\partial R} &= 2/7 \end{aligned}$$

Estimate the bundle that the consumer would have choosen if he or she had faced prices $(p_1, p_2) = (5, 11)$.

Question 5 (2 points) : A statistician has collected the following information on the behavior of a firm producing one output with two inputs.

	1st trimester	2nd trimester	3nd trimestre
output price	2	3	2,5
price of input 1	1	0,5	2
price of input 2	1	3	2
quantity of output	100	90	70
quantity of input 1	75	75	50
quantity of input 2	75	55	50

Can this behavior be coming from a profit maximizing firm evolving in a perfectly competitive environment ? (Justify).