Microeconomics 1 – **Part A: Individual decision making**
Masters M1 QEM, IMMAEF & MAEF – DU MMEF

TD – Wednesday, October 10, 2018

Producer Theory

The following exercises must be submitted on Wednesday, October 10. A particular attention will be given to your presentation.

Exercise 1. $L = 2$ is the number of commodities. The firm produces commodity 2 using commodity 1 as an input. The production function is $f(z) = \alpha z$ with $\alpha > 0$ and $z \geq 0$.

1. Write the profit maximization problem of this firm.
2. Consider the production set Y determined by the production function f. Using the shape of Y and the iso-profit lines, determine the supply of this firm.
3. Determine the profit function of this firm.

Exercise 2. Let L be the finite number of commodities. Assume that the production set Y of the firm is represented by a transformation function $t : \mathbb{R}^L \to \mathbb{R}$, such that $Y = \{y \in \mathbb{R}^L : t(y) \leq 0\}$.

1. State the profit maximization problem (PMP) of the firm.
2. Let t be continuous and strictly quasi-convex. Show that if PMP has a solution for $p \gg 0$, then it must be unique.