

Microeconomics

Masters in Economics and Masters in Monetary and Financial Economics

Midterm Test

Maximum duration: 1h30

13th of November of 2018

Please answer Questions 1 to 3. You can choose between Questions 4a and 4b.

Question 1

(3 marks) In a two-good world, let the preferences be defined by: $x \succeq y \Leftrightarrow x_1 > y_1$ or $(x_1 = y_1 \text{ and } x_2 \geq y_2)$. Are these preferences complete? Transitive? Explain.

Question 2

Suppose preferences are represented by utility function, $u(x_1, x_2) = x_1^2 + x_2^2$. Let p_1 be the price of good 1, let p_2 be the price of good 2, and let income be equal to y .

- (1.5 mark) Represent graphically one indifference curve.
- (3 marks) Derive the Marshallian (or ordinary) demands for goods 1 and 2.
- (1.5 mark) Determine the indirect utility function.
- (3 marks) Derive the Hicksian (or compensated) demands for goods 1 and 2.

Question 3

(5 marks) An agent is investing in the development of a new drug. His wealth will be W if the drug fails (probability p) and $W + A$ ($A > 0$) if the drug is successful (probability $1 - p$). The agent has the possibility of entering into a contract that for a price of pB will pay him B if the drug fails and will pay nothing if the drug is successful. The agent can choose the amount B . Show that a risk-averse, utility-maximising agent will choose $B = A$.

Question 4a

(3 marks) Show that the expenditure function is concave in prices.

Question 4b

(3 marks) Show that if preferences \succeq are represented by a utility function, then \succeq satisfy completeness and transitivity.