

Lecture 19

ECO111: 12 September 2024

Q1. Consider the utility function $U(x, y) = xy$. Check if the underlying preference relation satisfies (i) completeness (ii) transitivity (iii) strict monotonicity (iv) monotonicity and (v) non-satiation

Q2. Peter's preferences are represented by the utility function $U(x, y) = 4x + 2(x - y)$ where x denotes the number of gadgets Peter has and y represents the number of gadgets his friend owns.

- (i) Find Peter's MU for the gadgets he owns, and MU for the gadgets his friend owns
- (ii) Are his preferences monotonic?
- (iii) For a given utility level \bar{u} find the indifference curve for Peter
- (iv) Find the MRS between goods x and y . Interpret your answer

Q3. Given Eric's preference for books x , and computers y , using $U(x, y) = x^3 y^2$

- (i) Find Eric's MU for books, and for computers
- (ii) Are his preferences monotonic
- (iii) Are his preferences strictly monotonic
- (iv) Find the IC
- (v) Find MRS and interpret the results

Q4. Suppose Harry has the following utility over the hours of leisure he gets (l) and the grades he receive (g) is $U(g, l) = g^\alpha l^\beta$ with $\alpha, \beta > 0$

The grades he receive is a function of the number of hours he studies. Suppose L is the number of hours he studies, the production function of grades is $g = f(L) = L^{1/2}$.

- (i) Does Harry's utility follow diminishing marginal utility in g and l ?
- (ii) What is the MP of number of hours studying? Is it increasing, decreasing or constant in L ?
- (iii) Find the number of hours Harry should spend studying to maximize his utility?