Lisbon School of Economics & Management
Universidade de Lisboa

Microeconomics II
Spring 2022-2023
Midterm I
March 15, 2023

Duration: 1 hour (60 minutes)

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General Guidelines

- You may use a calculator;
- You may **not** use a programmable calculator;
- You may **not** use notes or books;
- You may have some beverages on your desk;
- All other belongings, including phones, must be on the floor;
- Write all your answers on the blank answer sheets;
- Write your name and student number on every answer sheet;
- If a question does not ask for an explanation, there is no need to give one;
- Any form of fraud will, at least, imply an invalid grade for this course.

1. Monopoly (12 points)

A monopolist faces a demand curve given by $y = 100 - 2p$. Its cost function is $c = 850 + 2y$.

a. What are the profit-maximizing quantity and price? (3 points)
   A: 48 and 26

b. What is the elasticity of demand at the profit-maximizing quantity and price? (3 points)
   A: -52/48

c. What are the producer surplus and profit? Briefly explain in words why they differ. (3 points)
   A: 1152 and 302. The difference is the fixed cost of 850.

d. What is the producer surplus if the firm could perfectly price discriminate (i.e., first degree price discrimination)? (3 points)
   A: 2304

2. Quantity competition (8 points)

There are only two firms in a market, and they compete on quantities. The firms' cost functions are $c_1 = 40y_1$ and $c_2 = 40y_2$. The demand curve is $p = 940 - 5y$, where $y = y_1 + y_2$.

a. What are the equilibrium quantities and price if the firms choose quantity simultaneously? (3 points)
   A: 60, 60, and 340

b. What are the equilibrium quantities and price if firm 1 chooses quantity first? (3 points)
   A: 90, 45 and 265

c. Briefly explain in words why firm 1 chooses to produce more if it is allowed to choose first. (2 points)
   A: Firm 1 strategically commits to producing a higher quantity since it knows that firm 2 responds by using her BRF and thus will produce a lower quantity.