EXAM Number:_____

• Please respect the line limits in each answer. Too lengthy answers will be penalized.

• The invigilator will not answer any queries during the exam. If you have a question that does not allow you to proceed, write down the assumption or assumptions that you deem necessary.

• Communication between students, access to any written material, or to tablets/ mobile phones is strictly forbidden during the exam. Failure to comply is considered a serious breach of academic honesty.

• The exam lasts 2h (+ a 30min slack, if you need)

GOOD LUCK!

1. True or false. Justify each answer carefully in 1-3 lines (0.9*5= 4.5 values)

(a) An increase in tobacco taxation is justified from an efficiency point of view and is positive from an equity point of view.

Answer:_____
_____
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(b) The decrease in fertility rates in 2021 is caused by remote working, which decreased matching opportunities for single individuals.

Answer:_____
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(c) Subsidies to retirement accounts can be an effective way to nudge people to save more for retirement.

Answer:_____
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_____

(d) RCTs, when well implemented, eliminate important selection issues, but are always very expensive.

Answer:_____
_____
_____

(e) If people don't lie on how much they value a public good, then policymakers can straightforwardly decide on whether or not to provide it.

Answer:_____
_____
_____

2. Give a brief definition of <u>two of the following three</u> concepts. Feel free to complement with an example. State clearly which concepts you consider (1.5+1.5= 3 values)

(a) Present bias.

(b) Opportunity cost.

(c) Counterfactual.

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3. The European Commission has offered to give the Portuguese Government 8 million € to invest in renewable energy (non-refundable) and you are asked if you would rather receive the money today or wait two years. Assuming that the annual rate is 6% (and no inflation), write (1+1= 2 values):

a) the formula to compute the <u>future</u> value of the 8 million € after two years if you <u>receive them today</u> (no need to compute the number if you don't have a calculator) and assert if it is > or < than 8 million €

b) the formula to compute the <u>present</u> value of the 8 million € if you <u>receive them in two years</u> (no need to compute the number if you don't have a calculator) and assert if it is > or < than 8 million €

4. Answer <u>one of the following two</u> questions identifying clearly which one you consider (1 value):

a) Explain why setting the default option can be an effective nudge.

b) Explain why Big Data is transforming Social Science.

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5. There is a bar with a superb see view close to Nova SBE. It often has loud music during school hours and its owners believe that each additional 10 minutes of loud music boosts sales by an additional $30/t$ €, where t measures the number of 10-minute intervals with loud music. The cost of playing the music in terms of nuisance to the employees and energy consumption amounts to 1€ per each 10 minutes. The school dean is worried that loud music decreases the attention of students. He estimated that each 10 minutes of loud music require 2€ to hire extra hours of the teaching staff to give special tutorials to the students to catch up on the foregone teaching materials. (1.5+1.5+2+1= 6 values)

(a) During how many slots of 10 minutes will the bar owners decide to play loud music if they decide only considering their private interests?

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_____
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(b) What is the social optimum number of 10 minutes slots with loud music?

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(c) The school principal asked for the mayor of Cascais to intervene because of the noise problem. The mayor is considering imposing a license per slot of 10 minutes of music in the terrace. How much should this license cost? Is this an example of a Pigouvian tax? Explain.

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(d) If instead the mayor decides to give Nova SBE the property right in this question, will there be room for the bar to bargain with Nova SBE? Justify.

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6. The workers of a Law Firm are considering buying a fridge for the office. There are two types of workers: the foodies want to use the fridge to bring their own meal, to save money, and eat healthily, while others (the Boris Johnsons) want to host wine and cheese parties on Friday evenings. There are 10 foodies and each is willing to pay 10 € for the fridge. There are 10 Boris Johnsons and each is willing to pay 15 € for the fridge. (1+1= 2 values)

(a) Suppose that the fridge costs 200 €. Is it efficient to provide it? Justify.

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(b) Can the fridge be considered a public good in this context? Why? Discuss the free-riding problem in relation to the decision to buy it. Can social norms at the firm mitigate this issue? Explain.

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7. When should the government intervene in the economy? (1.5 values)

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