Economics Olympiad

INTERNATIONAL FINAL

ROUND EXAMINATION

Part A

FIRST NAME:____

LAST NAME:____

COUNTRY:____

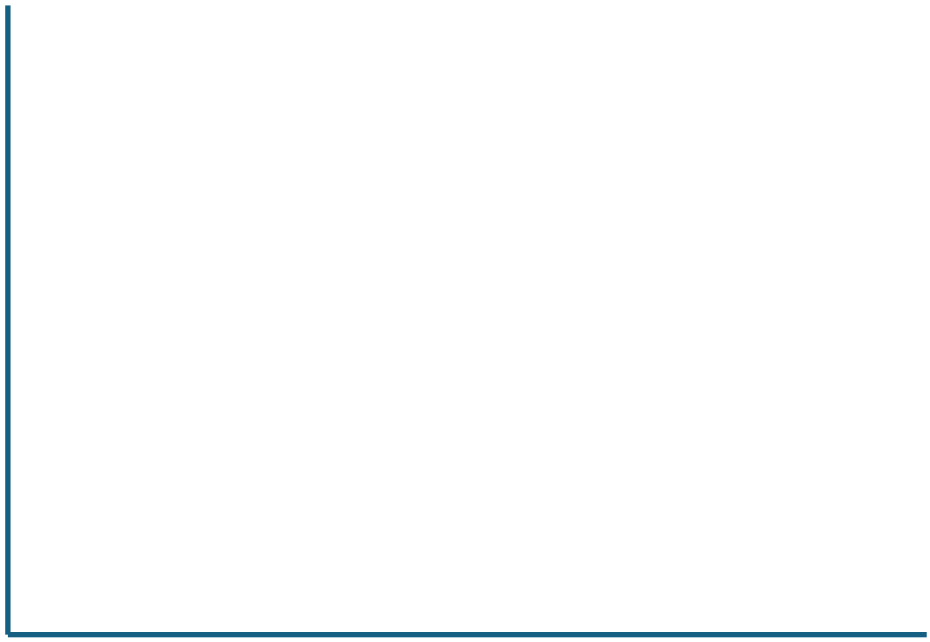
INSTRUCTIONS

- This section consists of short answer and problem-solving questions. Each question is worth 10 points.
- Read each question carefully before you begin your response. Ensure that you fully understand what is being asked before starting your answer.
- For questions that involve calculations, it is important to show all your work clearly. Partial credit may be awarded for correct methods, even if the final answer is incorrect.
- Use graphs and diagrams where applicable to illustrate your answers. Label all axes and curves clearly, and explain the significance of any shifts or changes depicted.
- Provide clear explanations and justifications for your answers. When asked to discuss or analyze, support your arguments with relevant economic theories, models, or data.
- Allocate your time wisely. Some questions may require more time to answer fully, so plan accordingly to ensure you can attempt all questions in this section.
- Write legibly and ensure your answers are concise and to the point. Focus on the key aspects of the question and avoid unnecessary information.
- If time permits, review your answers before moving on to the next section. This will give you an opportunity to correct any errors or add any additional points.
- If you wish to appeal any part of the test, you can do so by emailing your appeal to testmasters@economicsolympiad.org after the test has concluded.
- The last 5 pages of this test booklet have been provided for your calculations, practice, or any other notes you may need to make during the exam. We suggest labeling these pages as **“Work Pages”** or **“Scratch Pages”**. Please note that any work or answers written on these pages will not be graded unless specifically directed to do so.

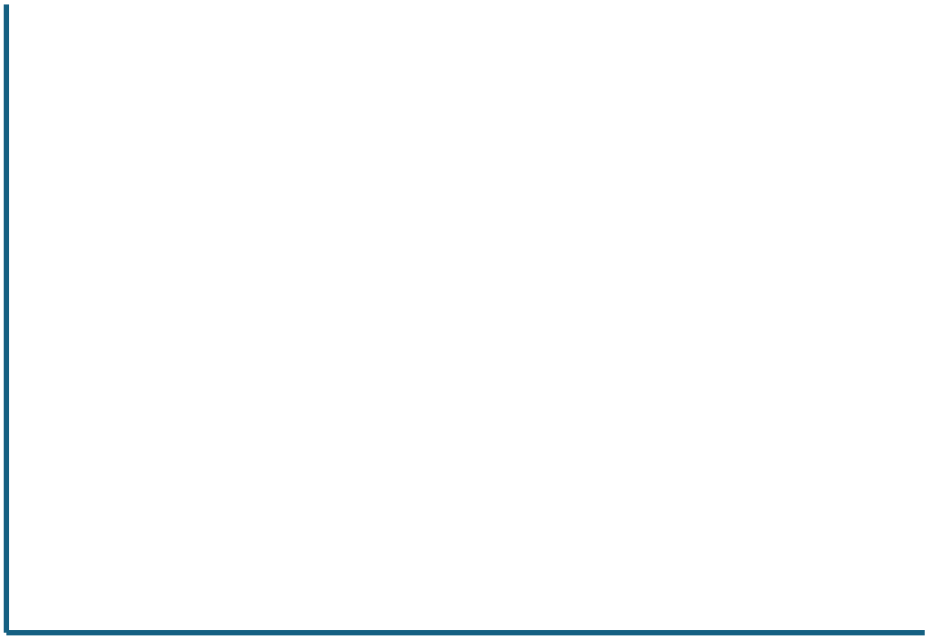
PART A (90 points – 90 minutes)

Section I (30 points)

(a) In the graph below, construct a model of a firm in monopolistic competition. In your graph, use the demand curve (D), marginal revenue curve (MR), and marginal cost curve (MC). Mark the firm's optimal quantity as Q_1 and the optimal price as P_1. **(10 points)**

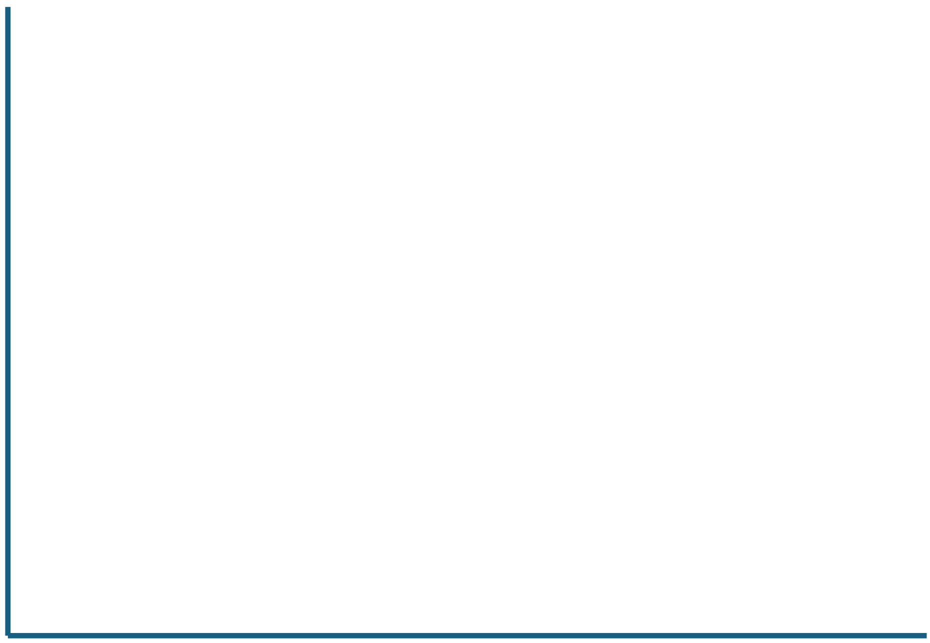


(b) Suppose that the demand for this firm's product increases from D_1 to D_2. Indicate this change in your graph and mark the new optimal quantity as Q_2 and the new optimal price as P_2, as well as the previous optimum Q_1 and P_1. **(10 points)**



(c) Consider that due to the existence of menu costs, the firm decides not to change its price after the increase in demand from D_1 to D_2 and keeps it at the original level P_1. In your graph, show the quantity Q_3 that the firm will sell in this case, as well as the previous quantities Q_1 and Q_2.

Let π_1 denote the profit in the first case when producing Q_1, π_2 denote the profit in the second case when producing Q_2, and π_3 denote the profit in the third case when producing Q_3. Order these profits by size and explain this order. **(10 points)**



Section II (40 points)

(a) Explain in your own words what a tariff imposed on imported foreign goods is. List the microeconomic reasons why governments impose tariffs. Discuss the possible microeconomic consequences of implementing tariffs. **(10 points)**

(b) Now assume that the given country has a trade balance deficit. What are the possible reasons for the existence of this deficit? **(10 points)**

(c) Explain whether it is possible for the imposition of a tariff to eliminate this trade deficit in the medium term. What would be the impact on the country's exchange rate after imposing a tariff on foreign goods? Explain your answer in detail. Considering not only the direct effects of the tariff but also the subsequent impact on the exchange rate, what could be the final effect of the tariff on the trade balance in the long term? Explain your answer in detail. **(10 points)**

(d) Finally, assume that the country's central bank attempts to prevent the exchange rate from moving after the tariffs are imposed. What type of foreign exchange interventions will it conduct? What will be the impact on the country's money supply and subsequently on the price level? If the nominal exchange rate does not change, will the real exchange rate change after the price level moves? What will be the impact on the trade balance? Explain your answers in detail. **(10 points)**

Section III (20 points)

An entrepreneur has the option to deposit her 100,000 euros into a savings account that offers an annual interest rate of 4%. For this scenario, let's assume there are no taxes on the interest earned.

Another option is to invest this money this year (i.e., in 2024) into a business project that will earn 35,000 euros in one year (i.e., in 2025), 35,000 euros in two years (i.e., in 2026), and 35,000 euros in three years (i.e., in 2027). Each return from this business project can then be deposited into the given savings account, which offers a 4% interest rate.

(a) Calculate and explain whether it is more profitable for the entrepreneur to undertake this investment or keep her money in the savings account using the net present value model. **(10 points)**

(b) Now consider that the investment scheme changes slightly. In the first year (i.e., in 2024), it is necessary to invest only 20,000 euros from the 100,000 euros, with the remaining 80,000 euros being invested in the second year (i.e., in 2025). The flow of returns (i.e., 35,000 euros each year from 2025 to 2027) remains the same as in the previous case. As before, each return from this business project can then be deposited into the given savings account, which offers a 4% interest rate. Using the net present value model, calculate and explain whether it is more profitable for the entrepreneur to undertake this investment or keep her money in the savings account. **(10 points)**