MASTER'S DEGREE PROGRAMME IN BUSINESS ADMINISTRATION

*Module: **Managerial Economics (MBA50)***
*Academic Year: **2021-22***

1st Written Assignment (WA1)

Subject 1: Monopoly (30%)

A pharmaceutical firm (monopolist) sells a medicine in two markets (1 and 2). In market 1, the demand function is $Q_1 = 16 - p_1$ and in market 2 it is $Q_2 = 2 \times (10 - p_2)$. The firm's cost function is $C(Q) = 2Q$, with $Q = Q_1 + Q_2$.

(a) Assume that price discrimination is feasible. Compute the prices charged and quantities sold in each market. What is the firm's profit under price discrimination? What is the aggregate consumer surplus? **[Mark: 1.0]**

(b) Calculate the Lerner's index of monopoly power in market 1 and in market 2 and relate each one of them to the corresponding price elasticity of demand. What do you observe? Provide an economic explanation of your findings. **[Mark: 0.75]**

(c) Assume now that price discrimination is not feasible. Compute the price charged, the firm's profit, and the aggregate consumer surplus. **[Mark: 0.75]**

(d) Compare and comment on your results from (a) and (c). **[Mark: 0.5]**

[Marking scheme: economic intuition 10%, use of appropriate arguments 40%, correct application 30%, overall presentation 20%]

Subject 2: Perfect Competition (20%)

The market for an agricultural commodity is perfectly competitive. The long-run average cost function of the representative farm in the market is *U*-shaped, with Minimum Efficient Scale (*MES*) equal to 2 and minimum average cost equal to 5.

(a) If the long-run demand function is $D(p) = 1,200 - 100p$, determine the market price, the quantity supplied by the representative farm, the aggregate quantity traded, and the number of farms in the long-run market equilibrium. Show the market and the representative farm equilibria on the same graph. **[Mark: 1.0]**

(b) Suppose now that the demand for the commodity increases to $D^S(p) = 1,500 - 100p$ and that, because of biological constraints, the farms cannot adjust their production to the new demand conditions. Also, the number of farms in the market remains the same. Determine the market price and the profit of the representative farm under D^s. Show the market and the representative farm equilibria on the same graph (*Hint:* Assume a constant cost industry). **[Mark: 1.0]**

[Marking scheme: economic intuition 10%, use of appropriate arguments 40%, correct application 30%, overall presentation 20%]

Subject 3: Elasticities (25%)

The manager of *British Steel Corp.* (*BS*), which produces steel in the United Kingdom, has estimated that the elasticities of demand for steel (*S*) are: $e_S = -2$ (own-price); $e_M = 1$ (income), and $e_{S,A} = 1.5$ (cross-price with respect to aluminum). Next year, the marketing department of *BS* is planning to increase the price of steel by 6%, while economic forecasts suggest that next year consumers' income (*M*) in the UK will rise by 4% and the price of aluminum will fall by 2%.

(a) Comment on the relationship between steel and aluminum. **[Mark: 0.5]**

(b) If the total sales for steel during this year are 1,200 tones, how many tones of steel will *BS* sell next year? **[Mark: 1.0]**

(c) If *BS* wants its volume of sales next year to be exactly the same as in this year, by how much (in % terms) must it change its price? **[Mark: 1.0]**

[Marking scheme: economic intuition 30%, use of appropriate arguments 30%, correct application 20%, overall presentation 20%]

Subject 4: Market Welfare (25%)

Assume that in a small island of Greece there are only four consumers with different preferences towards sailing boats: Consumer A is willing to pay 70,000€, consumer B 20,000€, consumer C 80,000€ and consumer D 40,000€. In the area, there are only four firms that are producing identical sailing boats at the following cost conditions: Sun Co with 30,000€, Sea Co with 60,000€, Moon Co with 40,000€ Co and Beach Co with 20,000€. Each firm can produce at most one sailing boat. Suppose that the government nationalizes the sector and distributes the sailing boats to consumers for free.

(a) Determine the number of sailing boats that maximize the social surplus (*i.e.*, the difference between consumers' willingness to pay for sailing boats and the cost of producing those boats). Which of the firms will be producing? Which consumers will be enjoying the sailing boats? **[Mark: 1.0]**

(b) Find the social surplus generated in the nationalized sector. **[Mark: 0.5]**

(c) Suppose now that there are free market conditions. Find the market equilibrium price and quantity of sailing boats. Calculate producer, consumer and social surpluses and comment on your findings. **[Mark: 1.0]**

[Marking scheme: economic intuition 30%, use of appropriate arguments 30%, correct application 20%, overall presentation 20%]

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Assignment guidelines

- *It is important that the coursework reflects your **knowledge** rather than it being simply an accumulation of information.*
- *The assignment should be **well structured** and **easy to read**.*
- *The assignment should clearly present all aspects and perspectives of the subject area, i.e.:*
  - o *efficiently develop all necessary elements*
  - o *refer to actual case studies or statistics if required*
  - o *present reasonable argumentation*
  - o *omit irrelevant material*
- *All questions are compulsory. The assignment should not exceed 2500 words or 10 pages long with font size 12pt. Any necessary graphs, figures, tables, references and equations do count in the final length. Note also that although a violation up to 20% of the maximum length is acceptable, a penalty of 8% of your final grade applies beyond that threshold.*
- *Each question accounts for a percentage of the total mark. This is clearly marked at the beginning of each question.*
- ***You are strongly advised to use the template for WAs provided by the Hellenic Open University.***
- ***The assignment is due on <mark>November 30, 2021</mark>. Please note that no assignment will be acceptable after this date as the electronic submission system automatically locks at 23:59 on the last day of submission. You should submit your assignment via*** https://study.eap.gr ***using your username and password.***
- *You may use any of the following file formats:*
  - o *Rich Text Format (*.rtf).*
  - o *Microsoft Word 97-2003 (*.doc).*
  - o *Microsoft Word Open XML (*.docx)*
  Other document formats or read only file formats such as Portable Document Format (.pdf) are not acceptable formats for the submission of your assignment.*
- ***Hand-drawn graphs are not acceptable. They must be drawn using any software. You must submit only one comprehensive file that contains text and graphs.***
- *Please pay attention to the proper naming of your assignment. The file should be named as follows: **Surname-Initial-WAnumber-YourClass**. For example, if your name is **Peter Drucker**, you are sending in your 3rd assignment, and you are in ATH1 Class, then you should name your file as follows: **Drucker-P-WA3-ATH1**. Assignments that fail to comply with this requirement will receive a lower mark in the presentation grade.*
- *Copying is considered cheating and is not acceptable in any form. **<u>Copying large parts or whole paragraphs of text found in any of the sources used for an assignment (printed books, academic articles, or electronic media of any kind) is totally unacceptable. It is considered plagiarism and leads to a severe penalty for the student(s) involved.</u>** Students should cite all sources from which they take data, ideas or words, whether quoted directly or paraphrased.*

Good luck!!