Complete Test & Exam Archive 2018

Microeconomics 2 – first module

This is a complete archive with all tests and exams that have been ever given in this course under my teaching. I provide this document to the students so everyone will equally have full access to previous tests and exams for preparation. Till 2016 this module was "module III of Microeconomics". From 2017 this module became "Module I of Microeconomics 2".

All included tasks in all past tests and exams were asked and answered during the lectures and labs of those years. In this archive there may exist (a few) tasks, the material or examples of which are not taught anymore in this module. Also, there may exist tasks the material of which has been moved to different parts of the module or different modules. All tasks are doable; there is not a single task for which at least one student was not able to solve it under limited time and exam pressure.

Even though I have typed answers for all included tasks, I have made the conscious decision to not make them available. Posting those solutions would take the minimal effort of two minutes to upload. Additionally, I do not recycle tasks, so withholding the answers to past questions does not save me any work. ***The reason I have selected to withdraw the solutions is that <u>I strongly believe that this will have a negative educational impact on the majority of students</u>. Problems are meant to be solved, not to be read. Whenever solutions are available, most students end up reading the problems three hours before the exam (been there, done that!). This makes them think that they can also solve them, but unfortunately they cannot because they lack the hands-on experience.***

Even though solutions will not be provided, you are free to work on those tasks -if you wish- and submit them to your teachers for grading or ask them for hints to enable you to solve them. Have in mind that several of those tasks, which carry instructional value, are also included in the practice sets of the relevant lecture and will be solved in classes.

Sincerely,

--

Kosmas Marinakis, Ph.D.
Instructor of Microeconomics
FES, HSE

HIGHER SCHOOL OF ECONOMICS,
FACULTY OF THEORETICAL ECONOMICS

1	2	3	4	5	6	7	8	9	10	11

for graders only

Microeconomics II – first module
End-module Exam – October 2017
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Rules
1. Students are required to follow all instructions given by the proctors.
2. Students are NOT allowed to leave the examination room until ready to turn in their paper.
3. Use only blue or black pen. You may use an electronic calculator provided that the device is non-programmable.
4. The examiner reserves the right to void your paper and prosecute dishonest behavior after the fact, in case a violation of rules is verified by the cameras located in the examination room.
5. Your paper will be immediately removed and voided in case of any kind of communication with another examinee or contact with another examinee's paper or for facilitating access to your paper by another examinee.
6. You will be prosecuted for cheating to the full extent of the student conduct code of HSE in case a phone or an electronic peripheral of a phone or any other communication device or any unauthorized by the examiner written or printed material is detected on you or within your immediate reach, independently of its function or its relevance or its use or its intention to use.

Instructions
- This booklet contains 4 pages of questions (pages 2, 3, 4, 5). Page 6 is blank and can be used for scratch paper.
- Answer all questions. Time 120 min.
- Numbers in brackets indicate each task's value.
- The space below each question indicates the maximum you may write. Use only this space. If you write anywhere else your answer will be ignored.
- Keep your answers short. Points will be taken off for redundant information.
- Non-English text or illegible handwriting will be ignored.
- Any unreasonable guess will be penalized with up to 1 point per instance.

Good luck!

I have read and understood the examination rules and instructions. I will not cheat, copy from other students, or use unauthorized materials or devices.

Signed: _____

1. Woof & Meow animal hospital has two major client groups: cats and dogs. The executives know that cat owners are usually willing to spend less than dog owners on the health of their pets. Therefore, they are using a system that allows owners to select between two different health plans offered at different prices: the *Basic*, where diagnostic exams are free but therapy costs more; the *Premium* where they offer free diagnostic exams, free preventive exams and therapy is cheaper. They also have realized that their profits have increased after they started selling these packages. Last month they asked the opinion of a 370 young economists on how they should improve their pricing system but nearly no one was able to help them. Try again, using the appropriate economic terminology as you were taught in the lecture. [5p]

2. McIlhenny Co. is the manufacturer of Tabasco pepper sauce. This sauce is for years priced significantly higher than other competitive brands to the degree that often the difference in prices exceeds 350%. Does McIlhenny violate the Sherman act for excess market power? Explain. [5p]

3. Explain who of the following entities will sell higher quantity: (A) a Cournot duopolist (B) A Stackelberg leader (C) a regular monopolist (D) a first-degree price discriminating monopolist (E) A Bertrand duopolist (F) A PC firm. [5p]

4. In the lecture we examined the *beach location* game with a 200 meter beach and 2 vendors. Explain what the NE in this game is if there are 3 vendors. [4p]

5. Point out <u>the difference</u> between a *strategic* and a *non-strategic* decision. [6p]

7. Kostia, Vasili and Yana attend Victoria's auction for an antique clock. Their valuations for the clock are 50, 60 and 100 coins respectively. Players know only their own valuations.

   (a) Is this a *common* or a *private* value auction? Explain. [4p]

   (b) What is the maximum possible gain for Victoria if the auction is *oral-English*, has starting price 20 coins and the minimum increase in every bid is 3 coins? Explain. [4p]

   (c) How much will Victoria gain if the auction is *Dutch*? Explain. [4p]

   (d) If the auction is *Dutch* and Victoria knows Vasili's and Kostia's valuations, should Victoria reveal them to Yana? Explain why or why not. [4p]

8. Georgi and Olga are trying to figure out where they will have launch together. They have four options: Tanuki, Yakitoria, Domino's, Pizza 29, where the first two are Japanese and the last two Italian. Georgi does not like Domino's and Olga does not like Japanese. Assume that information is perfect and complete and both players make simultaneously non-cooperative decisions. Find the equilibrium of this game and explain what type of equilibrium concept you have used. [5p]

9. Use the example with the best toothpaste in the world to explain why market demand is less elastic than brand demand. [4p]

10. K and L play the following simultaneous pricing game for n periods and afterwards they will never interact again.

K\L	Low	High
Low	2 , 4	8 , 2
High	1 , 10	5 , 7

(a) If $n = 1$, which would be the NE? Explain. [3p]

(b) If $n = 1$, what would be the collusive outcome and why it could not be achieved? Explain. [3p]

(c) Could the collusive result be achieved if both K and L know that $n = 3$? Explain. [4p]

(d) Could the collusive result be achieved if both K and L know that $n = \infty$? Be as specific as possible. [5p]

(e) Could the collusive result be achieved if $n = 3$ but both K and L wrongly believe that $n = \infty$? Explain. [5p]

(f) Could the collusive result be achieved if L knows that $n = 3$ but K wrongly believes that $n = \infty$? Be as specific as possible. [5p]

11. Two firms compete in an industry where the market demand is $p = 12 - q_L - q_F$. Firm L has constant marginal costs c and sets q_L first. Firm F has zero costs and observes q_L before it sets q_F.

(a) Find the value of c which makes the quantities of L and F equal. [9p]

(b) Is L having a first mover advantage if c exceeds the value you derived in (a)? Explain [3p]

12. Two firms produce differentiated goods and compete by simultaneously setting prices. The demand for each firm's output is $q_i = 8 - p_i + dp_j$, where $i = 1,2$ and $j \neq i$. Assume that average costs are 1.

(a) What would you expect for the value of d? Explain. [2p]

(b) What is the equilibrium price for each firm? [7p]

(c) Show that the firms wish their products to be as homogeneous as possible. [4p]

You may use this page as scrap paper.

HIGHER SCHOOL OF ECONOMICS,
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1	2	3	4	5	6	7	8	9

for graders only

Microeconomics II – first module
Mid-module Test – October 2017
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Rules
1. Students are required to follow all instructions given by the proctors.
2. Students are NOT allowed to leave the examination room until ready to turn in their paper.
3. Use only blue or black pen. You may use an electronic calculator provided that the device is non-programmable.
4. The examiner reserves the right to void your paper and prosecute dishonest behavior after the fact, in case a violation of rules is verified by the cameras located in the examination room.
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6. You will be prosecuted for cheating to the full extent of the student conduct code of HSE in case a phone or an electronic peripheral of a phone or any other communication device or any unauthorized by the examiner written or printed material is detected on you or within your immediate reach, independently of its function or its relevance or its use or its intention to use.

Instructions
- This test contains 3 pages of questions (pages 2, 3, 4). Page 5 is blank and can be used for scratch paper.
- Answer all questions. Time 79 min.
- Numbers in brackets indicate each task's value.
- The space below each question indicates the maximum you may write. Use only this space. If you write anywhere else your answer will be ignored.
- Keep your answers short. Points will be taken off for redundant information.
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Signed: _____

1. Nastya is in the process of setting up a small taxi firm. Her plan is to lease 3 cars on a four-year contract and hire 6 drivers to operate them.

   (a) Explain if the production function of Nastya's firm is of fixed proportions. [5p]

   (b) Nastya has two alternative options for the cars. She can buy either *Hyundai Solaris* which is cheaper but has higher operation costs or *Skoda Octavia* which is more expensive but cheaper to operate. Plot the cost structures of the two alternative options and explain if this is a L-R or a S-R decision. [5p]

   (c) Nastya also has to consider how she will pay her drivers. She can pay them with a fixed wage so that they will drive more carefully but take less rides or she can pay them with bonuses so that they will drive faster and take more risks damaging the cars. Explain if this is a L-R or a S-R decision. [5p]

2. Sergey operates a profile selling books on Amazon.com. His best-selling item is "Crime and Punishment", which he currently sells for 449 rubles a copy, a price very similar to most of his competition. Sergey recently came across the diploma paper of an HSE graduate who has calculated the demand elasticity of this book to be negative 0.8.

   (a) What does an elasticity of demand equal to negative 0.8 mean for a product in general? [6p]

   (b) How should Sergey use this information to improve his profits? [6p]

3. Define the term "rent seeking" (just definition – nothing more). [6p]

4. AirCrash is an airline that does not perform very well in terms of sales. The company owns 12 Airbus-a330 planes and employs 200 workers on a 100,000 ruble salary each. 50 of those workers are on a 1-year contract and the rest have no contract. AirCrash has bought each aircraft for 1 billion rubles and can resell it immediately for 0.5 billion. The life expectancy of each aircraft is (another) 12 years. The company currently runs losses of around 24 million rubles a month. What would you consult this company (other than changing its name)? [9p]

5. Recently Apple announced iPhone X, the most expensive smartphone ever presented. One of the reasons the device is so expensive is its OLED display, which is manufactured by Apple's fiercest competitor, Samsung. Business sources report that Samsung charges Apple $140 per display compared to the $40 that costs Apple to manufacture iPhone 8's LCD display in-house. Having an OLED display on iPhone X was necessary for Apple's flagship model to be able to compete and Samsung was the only manufacturer in the world who could meet the enormous demand by Apple. On the other hand, Apple was the only buyer in the world, who would demand such a sophisticated display at this time. Explain which competition model you would use to describe this market and how would you derive the equilibrium price that Apple pays to Samsung per display. [9p]

6. Consider a market where the seller has positive market power.
    (a) Prove algebraically that marginal revenue is less than the price. [9p]

    (b) Explain intuitively how this is possible and why it happens. [6p]

7. A monopolistic firm sells its product to two types of customers, business customers and other customers. Its total costs are given by $TC = 20 + 2Q$, where Q denotes total output. The total demand of business customers is given by $Q^B = 14 - p$. The total demand of retail customers is given by $Q^R = 5 - 0.5p$.

   (a) Calculate the prices that the firm will charge each group, the amount it will sell to each group and the firm's total profit if third degree PD is applied. [7p]

   (b) The government now requires the firm to charge the same price to all its customers. Explain if this is good for market efficiency and if it is good for consumers. [7p]

   (c) Now suppose that the firm decides to serve only the business customers and will apply a two-part tariff. Calculate the two-part tariff and the profits. Compare the profits if the firm applies first-degree price discrimination only to the business consumers. [7p]

8. A mountain resort, which faces a higher demand in the winter, applies peak-load pricing by setting its prices as following: $MR_w = MC_w$ and $MR_s = MC_s$, where w, s stand for winter and summer. Explain why this equilibrium conditions may not accurately portray profit maximization for the resort. [7p]

9. You are hired as a consultant by the Woof & Meow animal hospital, where they ask for your expert opinion on their pricing system. They inform you that their major client groups are cats and dogs and that cat owners are usually willing to spend less than dog owners on the health of their pets. Therefore, they are using a system that allows owners to select between two different health plans: The *Basic*, where all exams are free but therapy costs more; the *Premium* where they offer more free exams and therapy is cheaper. They also have realized that their profits have increased after they applied this system. What would you consult them based only on the information above? Explain using the appropriate economic terminology as you were taught in the lecture. [7p]

You may use this page as scrap paper.

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for graders only

Microeconomics – module III
Mid-module Test – October 2016
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Examination Rules

- Students are required to follow all instructions given by the examiners.
- Students are NOT allowed to leave the examination room until ready to turn in their work.
- You may use an electronic calculator provided that the device is non-programmable.
- The examiner reserves the right to void your paper and prosecute dishonest behavior after the fact, in case a violation of rules is verified by the cameras located in the examination room.
- Your paper will be immediately removed and you will be prosecuted for cheating in case:
  - Of any kind of communication with other examinee(s).
  - Of any kind of contact with another examinee's paper or for facilitating access to your paper by another examinee.
  - A phone, a peripheral of a phone or any other communication device is detected on you or within your immediate reach, independently of its function or its use or its intention to use.
  - Any unauthorized by the examiner written or printed materials is detected on you or within your immediate reach, independently of its nature or its relevance or its intention to use.

Examination Instructions

- This exam consists of a total of 11 questions. Answer all of them.
- Use only the space provided under each question. If you write anywhere else your answer will be ignored.
- The space below each question indicates the maximum you need to write.
- Keep your answers short. You will have points taken off for providing redundant information.
- Numbers in brackets indicate each question's value.
- Questions must be answered in English. Use clean handwriting. Illegible handwriting will be ignored.
- There is a blank page attached at the end of the quiz to be used for scrap paper.

Good luck!

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Signed: _____

1. *KosmicPrint* is a print shop. When the firm was established, the manager expected to produce around 25,000 prints every day. The MES for professional printers was at 60,000 prints. When the manager was in the market for a printer there was no printer for which the min AC would occur at exactly 25,000 prints. So, he had to decide between model A with a minimum AC of $0.075 at 22,000 prints, and model B with minimum AC of $0.07 at 29,000 prints. The manager leased model A. Also, the manager was right about his expectation and the average output of KosmicPrint is 25,000 prints a day. What can you say about the *economies* and the *returns* of KosmicPrint? Explain. [8p]

2. How exactly can the square-cube law affect the economies of scale for a company? [8p]

3. As we discussed in the lecture, economies of scale can be developed because of *specialization*. It is a fact that small firms are usually more specialized than big firms because small firms focus in the production of a limited range of products, while bigger firms are involved in several areas of production. Can we say that because of specialization small firms have better economies of scale than bigger firms? [8p]

4. Name and briefly define the two reasons for which demand curves must be negatively sloped. Explain why these two reasons do not apply to the demand curve faced by a PC firm. [8p]

5. The executives of a firm decided that it will be optimal to increase advertising spending by 10%. This increased quantity sold by 20% yielding total revenue of 1 million euros. In order for the firm to cover the cost of the extra advertisement price had to be increased by 2%. How much money in total was spent by this firm for advertisement? [8p]

6. Johnny has a hotdog stand in Bronx, NY. Johnny knows no economics. Hotdogs cost him $0.8 each and he sells them for $2.40 just because this is the price at which he will be sold out by 17:00 and he can go home. What is the elasticity of demand for Johnny's hotdogs? [8p]

7. In Greece, there is only one company that produces electricity, ΔEH (pronounced as 'they'). The econometricians of ΔEH have data showing that the demand of electricity has changed between 2014 and 2015 while the cost curves have remained unchanged. According to public data, in 2014 the price was €0.1 per kw/h and the supplied quantity was 1.62 TW/h. In 2015 the price increased to €0.12 per kw/h and the supplied quantity increased to 1.96 TW/h. Explain how you can calculate the supply curve of ΔEH. [8p]

8. "*Governments should be avoiding taxing monopolies' profits because taxation of profits to firms with high market power can increase prices by an amount more than the tax itself creating serious burden to the consumers*". Explain if this claim is accurate or not. [8p]

9. A PC firm produces using labor and raw materials. The firm has two workers. One is paid $50 a day and has no contract with the company. The other is paid 70$ a day but because she has a contract she cannot be fired for one year. The value of raw materials that the company buys every day is 560$. Calculate the value of daily revenue below which this company must shut down immediately. Explain why the value you calculated is right. [8p]

10. The other day I was on Amazon.com looking to order a tie. When I picked a tie that I liked, amazon popped a banner proposing me to buy the tie together with a pair of dress socks and they would give me a discount of $7 in both together. Why is amazon doing that? [8p]

11. A seller faces the following demand curves for women and men: $p = 100 - 8q_w$ and $p = 68 - 4q_m$. The seller's cost per unit is constant and equal to $c = 4$.
    (a) Find the equilibrium quantities and the equilibrium prices if the seller can discriminate between women and men. [8p]

    (b) Is price discrimination beneficial for this seller? Explain. [4p]

    (c) Is there a possibility that some customer with lower reservation value for the good will be able to buy it while some other customer with a higher reservation price will not be able to afford it? Explain. [4p]

    (d) Assume now that an increase in the price of inputs is expected to drive cost up so that $c = a > 4$. Find the critical value of a that will make the producer to want to serve only one gender. [4p]

You may use this page as scrap paper.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

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Microeconomics – module III
End-module exam – October 2016
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group: _____

Examination Rules

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Examination Instructions

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- Answer all questions. Time 120 min.
- Numbers in brackets indicate each task's value.
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>
>
> Signed: _____

1. Asus Ltd is an incumbent monopoly in the market of widgets. Bass Inc. considers entering the market of widgets. As an entrant, Bass is a *first-mover*. Feasible strategies and payoffs for this entry game are shown below.

Bass\Asus	Fight	Accept
Enter	-100 , 200	150 , 300
Stay out	0 , 400	0 , 500

(a) In order to prevent Bass from entering, Asus threatens that it will fight in case of entrance. Explain if this practice will be effective in preventing entry. [5p]

(b) Before Bass decides about entrance, Asus proceeds to an *investment* that will decrease its payoffs by 50 in case it *accepts* the entrance and increase them by 5 in case it decides to *fight*. Explain if this practice will be effective in preventing entry. [5p]

2. Sergey, Masha, Alex and Sophia take place in an auction for a painting. Their reservation values for the painting are 5,000, 4,000, 2,000 and 10,000 respectively. Players know only their own valuations.

(a) If the auction is an *oral-English* with a starting price of 1,500 and bids can increase in increments of 10 find who is going to win the auction and how much will pay. [3p]

(b) If the auction is a *second-price-sealed*. Who is going to win the auction and how much will this person pay? [3p]

(c) Explain what the *winner's curse* is in general. [3p]

(d) Will the winners in (a) or in (b) have to face the *winner's curse*? Explain. [3p]

3. How exactly can the *square-cube law* affect the economies of scale for a company? [3p]

4. Anna and Boris play the following game where Anna moves first. Find the *SPNE*. [5p]

Anna\Boris	Cyan	Violet	Green
Pink	-3 , -1	4 , 11	7 , 8
Black	1 , 7	0 , 2	2 , 3

5. SuperSoft and TerraHard play the following *repeated* simultaneous pricing game.

SF\TH	Cheat	Fix
Cheat	20 , 40	150 , 25
Fix	10 , 300	100 , 200

   (a) Is the outcome (*cheat, cheat*) a DE, an IDE, simply a NE or no equilibrium at all? Explain briefly. [4p]

   (b) Is the outcome (*fix, fix*) a DE, an IDE, simply a NE or no equilibrium at all? Explain briefly. [4p]

   (c) Will be possible for the firms to agree to the outcome (*fix, fix*) by using a tit-for-tat strategy? Explain. [4p]

6. In the lecture we examined the *beach location* game with a 200 meter beach and 2 vendors. Explain why the location 50m and 150m is not a NE. [4p]

7. Consider the *beach location* game with a beach 180 meters long and 3 vendors. Find the NE. [4p]

8. One of the resolutions for the *Bertrand Paradox* is to impose *capacity constraints* to the firms.
    (a) Explain what the Bertrand Paradox is. [3p]

    (b) Explain what the *source* for this paradox is. [3p]

    (c) Explain how capacity constraints resolve the paradox. [4p]

9. In the oligopolistic market of telecommunications competition can become particularly aggressive between firms. Research in this market shows that price is higher than what the MR = MC condition implies.
    (a) Do those firms maximize their profit by charging such high price? Explain. [3p]

    (b) Provide a *model* that explains why those firms prefer to not lower their prices. [5p]

10. A *new firm* with capacity 20 thousand units and constant marginal cost of $1 enters a market that there already exist 7 *incumbent* firms. The prevailing price in this market is $7 and the total quantity is 650 thousand units. The incumbent firms have constant marginal cost at $3.
    (a) How should this firm price upon entering this market? Explain why. [4p]

    (b) What would be different in your answer if the new firm's capacity was 1 million units? [3p]

11. There are two firms in a market. Marginal cost is equal to 10 for both. The *first year* firms collude by fixing the price to 35. At this price they sell 7,350 units each. In the beginning of the *second year* collusion brakes down and firms compete in a Bertrand manner. Price falls to 10 and firms sell 72,500 units each. In the *third year*, firms decide to compete with respect to quantities but now firm 1 can complete production *before* firm 2 starts producing. Estimate the quantities for each firm and the new price. Explain. [5p]

12. You get a job at WhitePool, a company that manufactures kitchen electrical devices. Your boss tells you to consider *bundling* refrigerators and stoves. The analyst of the company has done some market research on the reservation prices of consumers and you receive the plot on the right. What would your opinion be on how those two goods should be bundled? [5p]
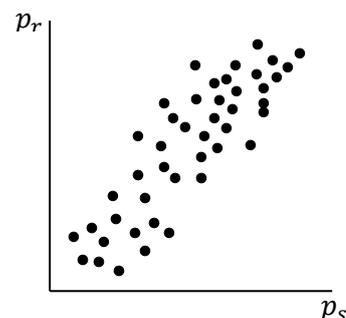
13. Explain what a *rebate* is and how it can help in price discrimination. [3p]

14. Consider two monopolies acting in different markets with similar demand curves and similar costs. The first monopolist applies a *two-part-tariff* and the second uses a *single price*. Both monopolists are profit maximizers.
    (a) Explain which one will make more money. [2p]

    (b) Explain which one is more efficient. [3p]

    (c) Explain which one would serve more customers. [2p]

15. Explain what the necessary conditions are in a market for a *natural monopoly* to be formed. [5p]

You may use this page as scrap paper.

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for graders only

Microeconomics – module III
End-module Exam – October 2015
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Examination Rules
- Students are required to follow all instructions given by the examiners.
- Talking is NOT allowed under any circumstances.
- Students MAY NOT bring any written or printed materials into the examination hall.
- Mobile phones are strictly prohibited in the examination hall.
- Students MAY NOT bring any electronic device into the examination hall except a simple calculator.
- Students may raise their hand to ask the examiner a question. The examiner reserves the right to not answer the question: students are expected to know the requisite terminology and understand the examination questions.
- Students are NOT allowed to leave the examination room until ready to turn in their work.

Examination Instructions
- This exam consists of a total of 13 questions. Answer all of them.
- Use only the space provided under each question. If you write anywhere else your answer will be ignored.
- All questions can be answered with a few sentences only. The space below each question indicates the maximum you need to write.
- Keep your answers short. You will have points taken off for providing redundant information.
- Numbers in brackets indicate each question's value.
- Use clean handwriting. Illegible handwriting will be ignored.
- Questions must be answered in English.
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1. Consider the following simultaneous game between player 1 and player 2. Specify restrictions on x, y, z so that (f,a) is the only IDE. [10p]

P1 \ P2	a	b	c
e	x, 18	15, 20	9, y
f	20, 17	16, 16	8, 12
g	15, 9	z, 8	4, 60

2. Consider the following sequential game between player 1 who plays first and player 2.

P1 \ P2	L	R
T	8, 5	4, 3
B	1, 2	6, 7

(a) Find the SPNE in this game. [5p]

(b) If P2 had a method that could permanently reduce his own payoff by x units for only the strategy L, would he want to use this method before the game? [5p]

3. Consider the following simultaneous game between player 1 and player 2. Explain the equilibrium(s) and what the most possible outcome of this game is. [5p]

P1 \ P2	L	R
T	10^6, 1	-1, -1
B	-1, -1	1, 1

4. Oleg and Maria consider joining the Fuera-de-Vista school of dancing. The owner of the school, Athena, offers lessons in two different dance styles: Kizomba and Tango. Athena has the following incomplete table of information on the reservation values for the two potential customers.

	Kizomba	Tango
Oleg	25	x
Maria	40	30

Find the range of x, on which bundling will be the most profitable option for Athena and both potential students will buy the bundle. [10p]

5. With respect to the abstract shape of the individual firm graphs of demand and cost in the S-R, a firm of Monopolistic Competition looks quite similar to a Monopoly. However in the L-R period there is a major difference between the two market structures concerning the profits. Point the difference and explain the reason for this difference. [5p]

6. Consider a Cournot competition between firm 1 and firm 2. Both firms face demand $p = a - q_1 - q_2$. The average cost for firm 1 is 2 and for firm 2 is 4. The reaction function for firm 1 is $q_2 = 12 - 2q_1$. Find the equilibrium quantities. [10p]

7. Consider a usual ψ-shaped cost structure (AC-MC) for a firm in the S-R. Explain how advertisement will affect the cost structure. [5p]

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8. Describe the Bertrand Paradox and explain how it can be resolved with repeated interaction. [10p]

9. Britta™ is a company that produces water filtration systems for household use among other uses. One of their most popular patented systems is a machine that connects to the water supply and reroutes water through a filter to be cleaned. The machine is durable while the filter needs to be replaced every 100 gallons of water. Britta knows that there are households that use their system only for drinkable water and other households that use it for more general use.

(a) Explain what kind of pricing you would expect Britta to apply for this system. [5p]

(b) Assume that Britta indeed applies the policy in (a). What would happen if other companies were able to produce filters compatible with Britta? [5p]

10. Provide a graph that illustrates the equilibrium of a monopoly with 2 production plants, each with a different MC. Explain briefly. [5p]

11. Explain the factors that affect monopsony power. [5p]

12. Define the term "rent-seeking" and point out 3 ways it might be accomplished. [5p]

13. A monopolist with constant average cost c, faces 2 identifiable groups of customers, where demands are
$$p_1 = \alpha - bq_1, \ \ p_2 = \alpha - dq_2.$$

Should the monopolist price discriminate? [10p]

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HIGHER SCHOOL OF ECONOMICS,
FACULTY OF THEORETICAL ECONOMICS

1	2	3	4	5	6	7	8	9	10	11

for graders only

Microeconomics – module III
Mid-module Test – October 2015
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Examination Rules
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Examination Instructions
- This exam consists of a total of 11 questions. Answer all of them.
- Use only the space provided under each question. If you write anywhere else your answer will be ignored.
- All questions can be answered with a few sentences only. The space below each question indicates the maximum you need to write.
- Keep your answers short. You will have points taken off for providing redundant information.
- Numbers in brackets indicate each question's value.
- Use clean handwriting. Illegible handwriting will be ignored.
- Questions must be answered in English.
- There is a blank page attached at the end of the quiz to be used for scrap paper.

Good luck!

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>
>
> Signed: _____

1. The production function for a "Bloody-Mary" cocktail is $B = \min(0.25T, V, 20L)$, where B is the total amount of cocktails produced, T is the quantity of tomato-mix measured in parts, V is quantity of vodka measured also in parts and L is the labor hours of the bar tender.

   (a) How do we call such production functions? [2p]

   (b) What is the rate of substitution in this production function? [2p]

   (c) How long does it take to the bar-tender to prepare one Bloody-Mary cocktail, according to the above function? Explain briefly. [4p]

   (d) If you have 100 parts of tomato-mix, 100 parts of vodka, and a bar-tender for 8 hours, how many cocktails can you produce? Explain briefly. [4p]

2. A firm produces a specific quantity, q_0. Draw a graph that demonstrates that it is possible that q_0 can be produced under 'diseconomies of scale' and 'increasing returns to scale' at the same time. Explain briefly what happens in your graph. [11p]

3. Explain why the supply curve for a perfectly competitive market cannot be defined below the intersection of MC and AVC. Is this a short-run or a long-run supply curve? [11p]

4. Mansion™ in Miami Beach is one of the most prestigious nightclubs in the world. Featuring world class events and the most groundbreaking DJs, it is not unusual to meet on its floor the world's hottest celebrities. In summer 2015 the club charged for entry a flat fee of $40 for guys and $30 for girls. Compared to other clubs in the area this was relatively cheap. However, the prices of the drinks at Mansion were nearly triple than in other clubs.

    (a) Identify the type of price discrimination for the entry fee alone. [4p]

    (b) From the information given above, what can you conclude for the demand curves for drinks for Mansion's customers compared to other clubs in the area? [8p]

5. According to the 2014 data, the market shares of the 5 major banks in Russia are: Sberbank 28.1%, VTB group 17%, GazPromBank 5.9%, OFC 4.5%, Alfa Bank 2.7% and RusArgro 2.6%. According to the federal antitrust legislation 135FZ in Russia:

    (a) Can VTB group buy Alfa Bank? [3p]

    (b) Can Sberbank and VTB group merge? [4p]

    (c) Can Sberbank, VTB group and GazPromBank merge? [3p]

6. You are hired as a consultant by the public water company of Greece (ΕΥΔΑΠ). The company does not primarily care to maximize profits. However it would be very interested in reducing the monthly consumption of water because reserves are running low. In a past effort to keep the equilibrium quantity low, the company raised significantly the price of water. However, this policy was quite unpopular because it made it hard for those with low income to afford to pay for water. Given that the company has no information about household incomes, can you propose a price system that will make water affordable for everyone but it will also be effective in keeping the total quantity down? [10p]

7. A perfectly competitive firm, CosmoWidgy™, sells 100 widgets (w) per day for 1 dollar each. The firm investigates ways to increase revenue from widgets and hires an econometrician to estimate the demand curve for widgets. The econometrician conducts thorough market research and comes up with the estimate that in daily basis, $w = 10{,}000 - 500p$, where p is the price of widgets.

   (a) How many firms does this market have assuming that all firms are identical? Show your work. [4p]

   (b) Explain what will happen to the revenue of CosmoWidgy if the firm decides to increase price to $1.5. [4p]

8. In a non-monopoly market, would you expect the demand for the individual firm to be more, equally or less elastic than the market demand? Explain. [6p]

9. Some companies keep spending vast amounts of money on advertisement even though consumers are very well informed about all aspects of those products. Why? [6p]

10. A convenient store owner prices his products by adding 25% on top of the marginal cost of each product. Calculate the elasticity of demand for the products sold at the store. [7p]

11. Explain how 'arbitrage' can ruin third degree price discrimination. [7p]

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HIGHER SCHOOL OF ECONOMICS,
FACULTY OF ECONOMICS

Microeconomics – Third module
End-module Examination – 2014
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

Examination Rules

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Examination Instructions

- This exam consists of a total of 13 questions. Answer all of them.
- Use only the space provided under each question. If you write anywhere else your answer will be ignored.
- All questions can be answered with a few sentences only. The space below each question indicates the maximum you need to write. Keep your answers short. You will have points taken off for providing redundant information.
- Numbers in parenthesis indicate each question's value.
- Use clean handwriting. Illegible handwriting will be ignored.
- Questions must be answered in English.
- There is a blank page attached at the end of the quiz to be used for scratch paper.

Good luck!

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Signed: _____

1. You are hired as a junior analyst by the Ministry of Economics of Russia. In your first day at work you bump into the minister in the elevator. You introduce yourself and immediately he tells you that he wants to make the telecommunications companies to pay more taxes. On the spot, he asks you for your opinion on the effect of an *excise tax* (7%) on mobile services. You immediately remember that you have read somewhere that in this market $\varepsilon_D = -0.02$. What do you respond? (6 pts)

2. Draw a graph illustrating the effects of a *minimum wage law* in the labor market. Be sure to demonstrate and describe all the transfers of surplus. (6 pts)

3. The marginal revenue for a monopolist is $100 - 4q$. The monopolist has a constant average cost of 20. Calculate the price of the good that maximizes the monopolist's profits. (7 pts)

4. Consider a big supermarket and a neighborhood convenient store. Which one do you expect to have a higher *markup* and why? (6 pts)

5. Consider an *oral English* auction and a *second-price sealed-bid* auction. Which one is expected to yield a higher revenue for the seller and why? (8 pts)

6. The price of generic raw espresso coffee is 11 rubles per dosage. The price of the specialized espresso cartridges that only the Lacafessimo espresso machine uses cost 19 rubles per dosage. Consider the price of the Lacafessimo espresso machine compared to the price of a generic espresso machine of similar quality. Is the price of Lacafessimo machine expected to be higher, lower or similar? Use economic reasoning and terminology in your answer. (7 pts)

7. Russia is considered to be within the 10 largest exporters of oil in the world. Use a graph to explain if Russia benefits from the existence of OPEC. Be sure to mention which model you use in your analysis and shortly reason your answer. (10 pts)

8. Icon club in Moscow applies the following pricing system. For admission, men have to buy a 2000 ruble card while women enter for free. The card can be redeemed at the bar for 5 free drinks. The price of a drink (without using a card) is 400 rubles. The club is also well-known for its strict "face-control" policy at the entrance and on average only one out of three customers is admitted every Saturday night. Experience has shown that people who speak English at the door and are identified as foreigners are almost never denied entrance. (12 pts)

    a) Is "face control" a price discrimination method? If yes, which degree? Explain your answer shortly.

    b) Is the fact that men pay 2000 for admission and women pay 0, a price discrimination method? If yes, which degree? Explain your answer shortly.

    c) Consider the pricing for men. Is this a two-part tariff? Explain your answer shortly.

9. Consider the *beach location game* as it was presented in the lecture. Assume that 2 sellers of ice-cream want to locate their canteens across a beach 100 meter long. Explain what the NE for this game is. Provide a graph if it helps you. (7 pts)

10. In the lecture we mentioned that when companies with serious purchasing power in the labor market negotiate with labor unions, negotiations may last for several months. Use economic arguments to explain why it is difficult for such a market to reach some equilibrium. What does the final outcome depend on? (6 pts)

11. In class, when we talked about corporate strategy we used the expression "burn your bridge". (8 pts)

    a) Explain shortly where this expression has its origin.

    b) How can the "burn your bridge" strategy improve the position of a firm in bargaining?

12. In a single graph illustrate the long-run equilibrium for a *perfectly competitive* market and a *monopolistically competitive* market. Make sure that in your graph both equilibrium prices and quantities are indicated. Provide a short explanation for the difference in equilibrium prices. Which market yields higher long-run profit? (8 pts)

13. Consider a monopolist who produces output using only labor (L) and capital (K). Both inputs can be purchased in perfectly competitive markets. The price of labor is w and the price of capital is r. Consider the short-run period, where capital is considered fixed. Prove algebraically that the profit maximizing condition for the market of output can be transformed to the equilibrium condition for the market of labor. (9 pts)

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HIGHER SCHOOL OF ECONOMICS,
FACULTY OF ECONOMICS

Microeconomics – Third module
Mid-module Examination – 2014
Instructor: Kosmas Marinakis

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Last Name: _____

Group number: _____

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Examination Instructions
- This exam consists of a total of 6 pages. Answer all questions.
- Use only the space provided under each question. If you write anywhere else your entire answer will be ignored.
- Keep your answers short. You will have points taken off for providing redundant information.
- Use clean handwriting. Illegible handwriting will be ignored.
- Questions must be in English.
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Good luck!

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1. Consider a competitive market, where the domestic equilibrium price is higher than the world price, p_w. The government considers two alternative policies (i) an import tariff or (ii) an import quota. Both (i) and (ii) result to the same domestic price, p^*. What are the differences of the two policies?

2. Explain why products with ε close to 0 such as cigarettes, alcohol and gasoline are highly taxed while products with ε further away from 0 like tomatoes, soap and newspapers are not so highly taxed.

3. A monopolist has a constant average cost equal to 10 as long as his production does not exceed 25 units. If production exceeds the 25 units the average cost becomes 20 for all units produced. The market demand is $p = 100 - q$. Derive the profit maximizing combination (p^*, q^*).

4. Consider a monopolist who practices first-degree price discrimination. The monopolist's MC intersects with the demand curve at point E. E is above the AC curve. Should the monopolist serve the customers on the demand curve to the right of E as long as they are above AC? Explain why or why not.

5. A European politician once said: "If we have to use excise taxes, then lets tax the monopolies and leave the small competitive firms alone". This statement surely won him lots of votes. Is it economically valid? Explain.

6. Explain how arbitrage can ruin price discrimination.

7. Describe an intervention policy that will help the producer of a good but will not impose a dead weight loss.

8. In one of the lecture slides (11.2 – 25) "building excess capacity" is referred to as a cost of monopoly. Explain how "building excess capacity" can help establish a monopoly.

9. In one sentence with no more than 20 words explain the difference between "economies of scale" and "increasing returns to scale".

10. George sells hotdogs in front of the NY courthouse. He owns a cart valued at $3,000 and his opportunity cost of doing this job is $400 per week. The cost of raw materials for each additional hotdog he produces is constant and equal to $1. George charges $2 for each hotdog and sells around 400 hotdogs per week. Explain if George has any market power.

11. In markets where we have more than one firms but the firms still have some market power, we observe that the market demand curve is less elastic than the individual demand curves faced by each firm. Why?

12. Explain under what conditions you would advise a company to exercise pure bundling and under what conditions to exercise mixed bundling.

13. Explain how economies of scale can lead to the establishment of a special kind of monopoly.

14. This is a true story: In 1979 an architect designed a residential building to be built in Athens, Greece. The building was supposed to have 15 apartments with one designated parking space for each apartment. In 1981, when the building was ready and the owner of the apartment 13 got the keys, he realized that in order to park his car to his designated space, he had to drive through the space reserved for apartment 8. The owner of apartment 8 had no intention to move his car every time the owner of apartment 13 had to use his car. Thus, parking space 13 remained unused for years. At some point, the two owners decided that the fair solution to this problem is that one of the owners should buy the spot belonging to the other owner. Explain what kind of market is this and describe its equilibrium condition.

15. You are hired as Chief Economist by a firm which is interested to charge its customers with a two-part tariff. You conduct an econometric survey and you discover that all your potential customers have a linear demand $q = a - 0.53p$. You also discover that for each of your customers, a ranges uniformly between 1 and 300. What will your recommendation be on using the two-part tariff?

16. Explain what a "rebate" is and how it can serve as a price discrimination tool.

17. In both the second-degree and the third-degree price discrimination consumers end up being separated into groups. What is the major difference in the grouping of consumers under the two discrimination types?

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HIGHER SCHOOL OF ECONOMICS,
FACULTY OF THEORETICAL ECONOMICS

Microeconomics – module III
Mid-module Test – September 2014
Instructor: Kosmas Marinakis

First Name: _____

Last Name: _____

Group number: _____

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Examination Instructions

- This exam consists of a total of 12 questions. Answer all of them.
- Use only the space provided under each question. If you write anywhere else your answer will be ignored.
- All questions can be answered with a few sentences only. The space below each question indicates the maximum you need to write.
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1. The revenue for a perfectly competitive firm is calculated as the product of price and quantity. Explain how the revenue in a monopoly is calculated and why it cannot be calculated in the same way as in perfect competition. (7p)

2. Consider the advertising of products. Explain when advertisement is economically efficient and when it is simply 'rent-seeking'. (7p)

3. Prove that in a monopsony the marginal expenditure curve should always be above the supply curve if supply is positively sloped. (7p)

4. Slide 17 of lecture 5 states that "Demand for a firm's product is more elastic than the market elasticity". Explain the reason why this happens and provide an example. (7p)

5. In a perfectly competitive market, supply is $p = 5 + 3q$ and marginal revenue is $MR = 65 - 4q$. (8p)
   (a) Find the market equilibrium. (4p)

   (b) Assume now that all firms exit this market apart from one. The total cost for the only firm that remained is $TC = 10 + 25q$. Find the market equilibrium. (4p)

6. A city is supplied electricity by a unique power plant. The price for each unit of electricity turns out to be outrageously expensive if the firm is allowed to maximize profit. Thus, the government decided to regulate the price at a lower level, P_R. The government selected P_R, so that the firm will be producing the maximum quantity of electricity without running losses. Without providing a graph, explain if this regulation is going to work as the government expects if the power plant is a private company. (8p)

7. In almost all countries in the world, milk is taxed less than petrol. Provide an economically justified reason for this fact. (5p)

8. A supplier of a homogeneous good is facing a large amount of competitors and has a usual ψ-shaped cost structure. The supplier also faces some positive fixed costs. At the current moment, the supplier is producing a quantity, such that the cost of each additional unit would be larger than the variable cost of each unit on average. In a neat graph, show that (i) this supplier can be maximizing profit and (ii) profit can be positive. Explain briefly why your graph indeed shows those two things. Additionally, explain what the scale of the cost is for this supplier. (12p)

9. Provide a definition for the term "market failure". Explain how the equilibrium condition for a perfectly competitive market is affected by market failure. Name three reasons that might cause a market to fail. (7p)

10. As you enter the HSE campus, on your right hand immediately after the entrance gate, there is an old, residential building. Today this building is vacant and in bad condition but its real estate value may be quite significant. This structure is the only one in campus that is not owned by HSE. The owner is interested in selling the building and he knows that HSE would like to buy it since there are no other available buildings around the campus. However, he also knows that no other buyer will be interested to buy a building that is contained within someone else's property. Identify the type of this market and predict the equilibrium outcome. (9p)

11. Consider a perfectly competitive market with demand $p = 100 - 5q_D$ and supply $p = 10 + 4q_S$. (19p)
    (a) Find the PC equilibrium. (1p)

    (b) Explain how a price ceiling of 60 will affect the PC equilibrium. (6p)

    (c) Explain how a price floor of 60 will affect the PC equilibrium. (6p)

    (d) Calculate the DWL for (b) and (c). (6p)

12. According to the section 2 of the Sherman act, when is monopolization OK? (4p)

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HIGHER SCHOOL OF ECONOMICS,
FACULTY OF THEORETICAL ECONOMICS

Microeconomics – module III
End-module Exam – October 2014
Instructor: Kosmas Marinakis

First Name: _____

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1. Point fitness, a gym located near our campus, normally charges 49,000 rubles per year for a full membership. Due to proximity, several HSE employees were interested in joining this gym. Last year, some HSE employees decided to negotiate a corporate membership price for all HSE employees. After intense negotiations the director of the gym decided to offer a price of 36,000 rubles to HSE employees. Is this discount some kind of price discrimination or is it something else? Explain. (6p)

2. Briefly explain what a rebate is and why stores use rebates. (5p)

3. Consider the model of the kinked demand that we analyzed in the lecture. What makes consumers to have a demand that is kinked for this particular product? (6p)

4. Four individuals are taking part in an auction for a painting. The auctioneer is not willing to sell the painting below 3 million rubles. The reservation prices for the bidders are 6, 10, 2 and 8 million. The bidders are absolutely rational and they are not willing to bid based on social or any sentimental criteria. Each individual knows only his or her own reservation price. Which auction format should be preferred: English, Dutch or Second Price Sealed Bid? Explain why. (8p)

5. "In business strategy there is nothing more valuable than an escape root, a plan B, a bridge to safety. You should always cherish your bridges and never burn them. Only fools burn their bridges!" Is this statement right or wrong? Explain why. (6p)

6. Consider the following static game between you and player X.

You \ X	A	B
C	1 , -1	-1 , 1
D	-1 , 1	1 , -1

How would it be optimal for you to play? (6p)

7. Consider the "beach location game" we discussed in the lecture. Is it a NE if one vendor locates in the one end of the beach and the other vendor to the other end of the beach? Explain why. (7p)

8. Monopolistically competitive markets generate deadweight loss. Explain if they should be regulated. (6p)

9. Two firms compete by setting prices simultaneously. Which model should you use to analyze their interaction and what is your prediction about market power for those firms. If one of the firm can move before the other, does the first mover have an advantage? Explain. (8p)

10. You are hired as economic director by Giorgio Armani. The marketing director brings you the following estimates for reservation prices on suit pants and suit jackets by two groups of consumers:

	Pants	Jackets
Ages 16 – 39	20,000	30,000
Ages 40 – 79	32,000	28,000

Explain if you would prefer to bundle pants and jacket as a suit or sell them separately. Specify your choice of price or prices. (9p)

11. If you take a tour at any tech store such as mvideo, you will realize that ink printers are strangely cheap. For instance, you can buy a brand name printer for as low as 1,500 rubles. This is quite odd, because those machines are made of high technology and high quality parts. On the other hand, ink cartridges, which are made by some cheap looking plastic and contain a few grams of common ink, are so unexpectedly expensive. Explain why. (8p)

12. Write the equilibrium condition for a monopsony. Explain what each variable represents and why the market is in equilibrium when the condition is satisfied. (5p)

13. The market of cola is predominantly served by Coke and Pepsi . The demand of cola is given by
$$p = 130 - q_P - q_C$$
Where q_P is the quantity of Pepsi and q_C is the quantity of Coke. Marginal cost is 20 for coke and 30 for Pepsi.
(a) Find the equilibrium quantities if firms move simultaneously. (5p)

(b) Find the equilibrium quantities if Coke is the leader. (5p)

(c) Find the equilibrium quantities if they collude. (5p)

(d) Which market of the above (a, b or c) is the most efficient. (5p)

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