

Main Examination Period 2022-23

ECN111 Microeconomics 1

Duration: 2 hours

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Answer ALL questions.

There are two sections. Section one consists of 8 questions. Section two consists of two questions.

Calculators are permitted in this examination. Please state on your answer book the name and type of machine used. Complete all rough workings in the answer book and cross through any work that is not to be assessed.

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Examiner: Dr Leon Vinokur

Section 1 (40 marks): Short questions. All questions have equal weight. Answer all questions and provide an explanation.

Question 1

Determine whether the statement is True or False. Assume that the product price is £100. For a profit-maximizing firm that continues to operate even though it is losing money, its average variable cost is less than £100.

[5 marks]

Question 2

Determine whether the statement is True or False. Joe's Bar and Grill uses two inputs, beer and pretzels to produce an output. When the price of beer was £10 a case and the price of pretzels was £20 a case, Joe used 1 case of beer and 2 cases of pretzels a day. When the price of beer was £20 a case and the price of pretzels was £10 a case, Joe used 2 cases of beer and 1 case of pretzels a day. Joe's behaviour is consistent with profit maximization if he produced the same output in each of these circumstances.

[5 marks]

Question 3

A company can rent one of two copying machines. The first costs £34 a month to rent and costs an additional £0.02 per copy to use. The second costs £107 a month to rent and an additional £0.01 per copy to use. How many copies would the company need to make per month for it to be worthwhile to rent the second machine?

[5 marks]

Question 4

Ben runs a cookie factory. His cookies are made with sugar, peanut oil, and soybean oil. The number of boxes of cookies that he produces is $f(x, y, z) = \min\{x, y + 2z\}$, where x is the number of bags of sugar, y the number of canisters of peanut oil, and z number of canisters of soybean oil that he uses. The price of a bag of sugar is £12. The price of a canister of peanut oil is £6. The price of a canister of soybean oil is £19. If Ben makes 254 boxes of cookies in the cheapest way possible, how many canisters of soybean oil will he use?

[5 marks]

Question 5

Mr. O. B. Wan will live for only two periods. In the first period he will earn £100,000. In the second period he will retire and live on his savings. Mr. Wan has a Cobb-Douglas utility function $U(c_1, c_2) = c_1^2 c_2$, where c_1 is his period 1 consumption and c_2 is his period 2 consumption. The real interest rate is r . What is the effect of changes in interest rate on savings?

[5 marks]**Question 6**

A competitive firm uses two variable factors x_1 and x_2 to produce its output, with a production function $q = \min\{x_1, x_2\}$. The price of x_1 is £4 and the price of x_2 is £5. Due to a lack of warehouse space, the company cannot use more than 17 units of x_1 . The firm must pay a fixed cost of £136 if it produces any positive amount but doesn't have to pay this cost if it produces no output. What is the smallest integer output price that would make a firm willing to produce a positive amount?

[5 marks]**Question 7**

A firm has fixed costs of £2,000. Its short-run production function is $y = 4x^{1/2}$, where x is the amount of variable factor it uses. The price of the variable factor is £3,000 per unit. y is the amount of output. What is the short-run total cost function?

[5 marks]**Question 8**

Disneyland has two possibilities for pricing rides at its theme parks: (1) Set $MR = MC$ for each ride and charge the maximum price consumers will bear. (2) Charge an admission fee to the theme park but allow unlimited rides for free. Using graphs, show which pricing scheme is more profitable for Disneyland.

[5 marks]

Section 2 (60 marks): Long questions. Both questions have equal weight. Show all your calculations.

Question 1

Harvey Habit's utility function is $U(c_1, c_2) = \min\{c_1, c_2\}$, where c_1 is his consumption of bread in period 1 and c_2 is his consumption of bread in period 2. The price of bread is £1 per loaf in period 1. The interest rate is 21%. Harvey earns £2,000 in period 1 and he will earn £1,100 in period 2.

- a. Write Harvey's budget constraint in terms of future value, assuming no inflation.

How much bread does Harvey consume in the first period and how much money does he save? (The answer is not necessarily an integer.)

- b. Suppose that Harvey's money income in both periods is the same as before, the interest rate is still 21%, but there is a 10% inflation rate. What is the cost of a loaf of bread in period 2?

Write down Harvey's budget equation, given this new information. Explain, intuitively, what happens to the intertemporal consumption and what the economic rationale behind the result is.

- c. Assume that Harvey's new utility function is $U(c_1, c_2) = \min\{2c_1 + c_2, 2c_2\}$. How will your answer to (a) change? Show your calculations.

Find and draw the new intertemporal indifference curves and budget constraint and show Harvey's optimal intertemporal consumption.

[30 marks]

Question 2

Explain the concept of markup pricing and its relationship to monopoly power. Analyze the factors that influence the markup price charged by a monopoly and evaluate the economic efficiency of monopoly pricing. Provide an example for a monopolistic behaviour and explain what options there are to prevent this type of behaviour.

[30 marks]

End of Paper

