Original

Exam: Economics I (Microeconomics)

Course No: 5024

Lecturer: Prof. Dr. Ronnie Schöb

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Date: August 01, 2002

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Name, First name

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Student number

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Degree/semester

INSTRUCTIONS

- You have 120 minutes to answer **all** questions. All questions are "Multiple Choice", i.e. only one question is correct.
- **Please write your answers on the answer sheet, which you will find on the last page. Only answers given on the answer sheet will be marked.**
- Dictionaries and non-programmable calculators are allowed.
- Please put your name on **all** sheets and hand in **all** exam materials.

GOOD LUCK!

Questions 1-6

Name _____

1 A clairvoyant predicts for the next soccer season in Germany for four out of 19 team: Borussia Dortmund will beat Bayer Leverkusen. Leverkusen and Bayern München will draw. All will beat Hertha BSC Berlin. Suppose the results specify a transitive order of the respective strength of the teams. From that it would follow

A Borussia Dortmund will become the German Champion.
B Bayern München will beat Borussia Dortmund.
C Borussia Dortmund is the best of the four teams mentioned above.
D Hertha BSC Berlin will be relegated.
E Again Bayer Leverkusen will loose in the Championsleague Final.

2 Paul spends all of his monthly income on textbooks and Pizza. He can just afford to buy 7 textbooks and 7 Pizzas per month. He could also use his entire budget to buy 3 textbooks and 31 Pizzas. The price of Pizza is € 3 each. How much ist Paul's income per month?

A 128
B 131
C 135
D 147
E 153

3 Sally's utility function is $U(x_1, x_2) = \sqrt{x_1} \cdot \sqrt{x_2}$. Her income is € 750 and the price of good x_1 is € 3 for each unit. How many units of x_1 will she consume?

A 140
B 130
C 135
D 125
E There is not enough information to determine the solution.

4 The following can be said about the income and substitution effects of a price increase on the demand for the good whose price rose:

A The income effect is always positive and the substitution effect is always negative.

B Both can be either positive or negative.

C While the substitution effect is always negative, the income effect can be either positive or negative.

D While the income effect is always negative, the substitution effect can be either positive or negative.

E The income effect can at times be negative, but it will never overwhelm the substitution effect.

5 Liz consumes two goods and his utility function is $U(x_1, x_2) = x_1^{\,2} \cdot x_2^{\,4}$. The price of good 2 does not change and her income does not change, but the price of good 1 decreases. It must be that:

A the income effect is zero, since her income remained constant.

B the substitution effect on the demand for good 2 is zero, since the price of good 2 did not change.

C the substitution effect reduces the demand for good 2 and, since the income effect is zero, demand for good 2 falls.

D the substitution effect of the price change reduces demand for good 2 and increases demand for good 1.

E more than one of the above statements is true.

6 Peggy's demand for cinema tickets is described by $D(p) = 60 - 4p$. Assume the market price is € 7. Her consumer surplus therefore is:

A 224

B 128

C 322

D 98

E 144

Questions 7-13

Name _____

7 A competitive firm produces a good using to the production function $f(x_1, x_2) = 4\sqrt{x_1} + 6\sqrt{x_2}$. The price of the output is € 4. The factor prices are € 1 for the first and € 2 for the second input factor, respectively. What is the profit-maximizing quantity of output?

A 68
B 136
C 64
D 148
E 56

8 Assume the short run marginal cost of producing Pizzas is € 5 for first 150 units and € 6 for each additional unit beyond 150, because an overtime premium has to be paid. The market price of Pizza is € 5.50 each. A profit-maximizing Pizza backer will:

A produce the quantity of Pizza, where price equals marginal cost.
B produce any quantity of Pizza since marginal cost is constant.
C produce exactly 150 Pizzas, since marginal cost is above the price afterwards.
D produce up to the point where short run average cost equals € 5.50.
E produce up to the point where long run average cost equals € 5.50.

9 The following relationship must hold between the marginal cost curve and the short run average cost curve:

A if marginal cost is rising, average cost must be rising.
B if marginal cost is rising, average cost must be greater than marginal cost.
C if marginal cost is rising, average cost must be less than marginal cost.
D if average cost is rising, marginal cost must be greater than average cost.
E if average cost is rising, marginal cost must be less than average cost.

10 A competitive firm has the short run cost function $C(y) = 3y^3 - 36y^2 + 128y + 35$. The firm will produce a positive amount in the short run if and only if the price is greater than:

A 10
B 19
C 23
D 20
E Answer depends on the long run cost function.

11 A monopolist faces the inverse demand function $p(y) = 20 - 0.5y$. Assume there are no fixed costs and his marginal costs increase from € 4 to € 6. His profit-maximizing price will:

A rise by € 2.00.
B rise by € 1.50.
C rise by € 1.00.
D not change, since he already charges the profit-maximizing price.
E not change, since marginal revenue is constant.

12 The demand curve of a monopolist is given by the equation $D(p) = 250 \cdot p^{-3}$. At the profit-maximizing choice of output the price elasticity of demand is:

A -3
B $-p-3$
C $-p^{-3}$
D $-3p$
E Information on the marginal costs is needed.

13 Consider a demand curve with a constant price elasticity. Compared to the total revenue in a perfect competitive market the revenue of a profit-maximizing monopolist is:

A larger.
B smaller.
C equal.
D Answer depends on the shape of the demand curve.
E Answer depends on the shape of the cost function.

Questions 14-19

Name

14 Gerhard's utility function is $u = \min(x;0.5y)$. Suppose the price of x is € 25 and the price of y is € 20. How much money does he need to be able to purchase a bundle that he likes as well as the bundle $(x, y) = (6, 18)$?

A 175
B 390
C 150
D 535
E 450

15 The demand function is given by $x(p) = 124 - 4p$. Therefore the inverse demand function for a monopolist is:

A $p(x) = 124 - 4x$.
B $p(x) = 124 - 0.25x$.
C $p(x) = 1/(124 - 0.25x)$.
D $p(x) = 31 - 0.25x$.
E $p(x) = 1/124 - 0.25x$.

16 Michael's utility function is $u(C,R) = CR^3$, where R denotes leisure and C denotes daily consumption. He can spend 16 hours per day for work and leisure. Michael receives € 20 per day as a financial aid. He can also work in an IT business for € 15 per hour. How many hour per day will he work?

A 13
B 11
C 8
D 5
E 3

17 The bicycle industry is made up of 100 firms with the cost function $C(y) = 2 + 0.5 \cdot y^2$ and 80 firms with the cost curve $C(y) = 1/6 \cdot y^2$. No new firms can enter the industry. What is the industry supply curve at prices greater than 2?

A $y = 360p$
B $y = 340p$
C $y = 170p$
D $y = 240p$
E $y = 375p$

18 The market for yellow T-Shirts can be described by the inverse supply function $p(y) = 1/3 \cdot y + 8$ and the demand function $D(p) = 99/p$. What is the equilibrium price of a yellow T-Shirt?

A 12
B 10
C 9
D 8
E None of the above.

19 Suppose the market for refrigerators can be described by the inverse demand function $p(q) = 1250 - 1/3 \cdot q$ and the inverse supply function $p(q) = 150 + 1/6 \cdot q$. Consider a quantity tax of € 10 on every refrigerator sold. What is the deadweight loss resulting from the tax?

A 60
B 75
C 90
D 100
E None of the above.

Questions 20-25

Name _____

20 A monopolist faces the inverse demand function $p(y) = 120 - y$. His marginal cost function is $MC(y) = 2y$. What is the deadweight loss resulting from the monopoly behavior?

A 90
B 120
C 125
D 150
E None of the above.

21 The inverse demand function for a good is described by $p(q) = 84 - 9q$ and the inverse supply function is $p(q) = 7 + 2q$, where q is the quantity of goods. In the past, the good was not taxed, but now a tax of € 33 per unit has been introduced? What is the effect of the tax on the equilibrium quantity of the good?

A Quantity drops by 2 units.
B Quantity drops by 3 units.
C Quantity drops by 4 units.
D Quantity drops by 6 units.
E None of the above.

22 The brothers Mick and Ralf only consume the goods x and y. Mick's utility function is $u_M(x_M, y_M) = \sqrt{x_M} + \ln y_M$, and Ralf's utility function is $u_R(x_R, y_R) = \ln x_R + \sqrt{y_R}$. Mick has an initial endowment of 100 units of x and none of y while Ralf's endowment is 100 units of y und none of x. What of the following situation is a Pareto improvement?

A Ralf receives 20 units of x from Mick. Mick receives 10 units of y from Ralf.
B Ralf receives 50 units of x from Mick. Mick receives 10 units of y from Ralf.
C Ralf receives 30 units of x from Ralf. Mick receives 60 units of y from Ralf.
D Ralf receives 10 units of x from Ralf. Mick receives 60 units of y from Ralf.
E A Pareto improvement is not possible.

23 Consider a bakery that is a price-taker on the market for bread in Magdeburg. Under which circumstances should if employ its apprentice an additional hour?

A If the price is larger than costs.
B If marginal revenue is lower than marginal cost.
C If the value marginal product exceeds wage per hour.
D If the price exceeds the wage per hour.
E If a fixed factor is not employed.

24 A small economy has only two consumers, Siegfried and Roy. Siegfried's utility function is $U(x,y) = x + 144\sqrt{y}$ and Roy's utility function is $U(x,y) = x + 6y$. At a Pareto optimal allocation, how much y does Siegfried consume?

A 144
B 9
C 24
D 18
E We can't tell without knowing the initial endowments.

25 According to the First Theorem of Welfare Economics:

A Every competitive equilibrium is fair.
B If the economy is in a competitive equilibrium, there is no way to make anyone better off.
C A competitive equilibrium always exists.
D At a Pareto optimum, all consumers must be equally wealthy.
E None of the above.

Student number _____ Name _____

Answer Sheet

Question	Answer	Points
1		
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