



Repeat Examination

First name:

Last name:

Matriculation number: [] [] [] [] [] [] [] []
(up to 9 digits)

- **Available time:** 120 minutes
- **Achievable points (max.):** 120 points
- **Permitted aid(s):**
 - Pocket calculator *without data storage and communication capabilities*
- **General information:**

1. You have 22 questions all together. In all questions *one out of four* answers is correct.
2. In each question points are given as follows:

points	You mark...		
	... (only) correct	... (only) wrong	... correct and wrong/nothing
see Problem	0		0

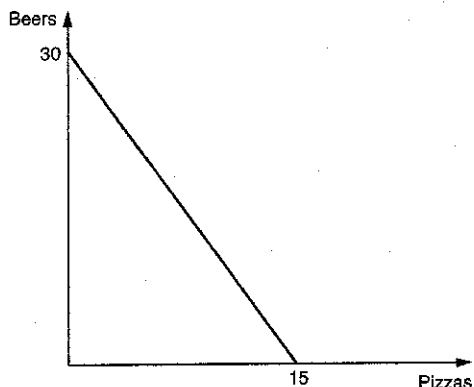
3. Feel free to use the empty space on the present exam for your personal calculations or notes. But note that *whatever you write on these pages will be ignored during correction!* Only the answer sheet will be evaluated.
4. Points given for correct solutions correspond to the processing time assigned (in minutes).
5. Return *all* the paper you received (without exception).

GOOD LUCK!

1. (4 points) A consumer spends his entire income on 8 sacks of acorns and 8 crates of butternuts. The price of acorns is 9 dollars per sack and his income is 88 dollars. He can just afford a commodity bundle with x_1 sacks of acorns and x_2 crates of butternuts that satisfies the budget equation ... (Hint: Cancel out.)

- (a) $9x_1 + 4x_2 = 88$.
- (b) $18x_1 + 4x_2 = 176$.
- (c) $11x_1 + 2x_2 = 88$.
- (d) None of the above.

2. (4 points) The figure shows Mark's budget constraint.



If Mark's income is 90, the price of beer is

- (a) 30
 - (b) 15
 - (c) 6
 - (d) 3
3. (4 points) A consumer has indifference curves with the equation $x_2(x_1) = c - 4x_1^{\frac{1}{2}}$, where larger c correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the marginal rate of substitution when his consumption bundle is (9, 5)?
- (a) $-\frac{2}{3}$
 - (b) -8
 - (c) $-\frac{9}{5}$
 - (d) $-\frac{5}{9}$
4. (4 points) A consumer with well-behaved preferences buys 10 pounds of cheese and 12 boxes of crackers each month. A pound of cheese costs €5 and a box of crackers costs €3. If she is maximizing her utility, what is her monthly income?
- (a) €86
 - (b) €90
 - (c) €95
 - (d) There is not enough information to determine her monthly income.

5. (4 points) A professor gives one midterm and a final exam. He weights the final twice as heavily as the midterm to determine the course grade. No grades can be dropped. If the midterm score is represented on the horizontal axis and the final score on the vertical axis, and if a student in the class cares only about her course grade, her indifference curve is ...

- (a) ... a line with slope -2 .
- (b) ... a line with slope -0.5 .
- (c) ... L-shaped with the kink at $(x, 2x)$.
- (d) ... L-shaped with the kink at $(2x, x)$.

6. (4 points) Regardless of his income and regardless of prices, a consumer always spends 25% of his income on housing, 10% on clothing, 30% on food, 15% on transportation, and 20% on recreation. This behavior is consistent with which of the following?

- (a) All goods are perfect substitutes.
- (b) Smedley's demands for commodities do not change when their prices change.
- (c) Smedley consumes all goods in fixed proportions.
- (d) Smedley has a Cobb-Douglas utility function.

7. (6 points) Betty always spends her whole income. Let three bundles (x_1, x_2) be given as $A = (7, 9)$, $B = (10, 5)$, and $C = (6, 6)$. When prices are $(p_1, p_2) = (12, 3)$ Betty chooses A, when prices are $(p_1, p_2) = (2, 4)$ she chooses C. What is a correct statement? (Hint: Draw the two corresponding budget lines and all three bundles in one diagram)

- (a) A is directly revealed preferred to B.
- (b) A is indirectly revealed preferred to B.
- (c) C is directly revealed preferred to A.
- (d) None of the above.

8. (4 points) When prices are (2, 10), Jack chooses the bundle (1, 6), and when prices are (12, 4), he chooses the bundle (7, 2). What is correct?

- (a) The bundle (1, 6) is directly revealed preferred to (7, 2), but (7, 2) is not directly revealed preferred to (1, 6).
- (b) The bundle (7, 2) is directly revealed preferred to (1, 6), but (1, 6) is not directly revealed preferred to (7, 2).
- (c) Emil violates WARP.
- (d) Emil has to have kinked indifference curves.

9. (4 points) What is a true statement?

- (a) If a good is an inferior good, then an increase in its price will increase the demand for it.
- (b) A Giffen good must be an inferior good.
- (c) The Slutsky substitution effect measures the movement between two points on the same indifference curve.
- (d) In the case of homothetic preferences, the income expansion path is always concave.

10. (6 points) A consumer considers x_1 and x_2 to be perfect substitutes. They originally cost €10 and €9 respectively. His income is $m = 720$. One day the price of x_1 drops to €8. What is the consequence?
- The income effect increases the quantity of x_2 by 90.
 - The substitution effect increases the quantity of x_2 by 80.
 - The substitution effect increases the quantity of x_1 by 90.
 - The income effect increases the quantity of x_1 by 80.
11. (8 points) Mary consumes x_1 and x_2 . She says, "Give me one unit of the one good or of the other, I don't care. I can't tell the difference between them." She is currently endowed with 14 units of x_1 and 3 units of x_2 . The price of x_1 is 3 times the price of x_2 . Mary can trade x_1 and x_2 at the given prices but has no other source of income. How many *more* units of x_2 would Mary like to have?
- 14
 - 42
 - 45
 - She wants to get rid of good 2.
12. (8 points) Erica's utility function is $u(x_1, x_2) = \min\{5x_1, x_2\}$. If the price of x_1 is 10 and the price of x_2 is 15, how much money would she need at least to be able to purchase a bundle that she likes as well as the bundle $(x_1, x_2) = (10, 25)$ (given that she always spends everything)?
- 209
 - 440
 - 475
 - 425
13. (4 points) Sir Plus has a demand function for beer that is given by the equation $D(p) = 100 - p$. If the price of beer is 60, how much is Sir Plus's net consumer's surplus?
- 40
 - 1600
 - 800
 - 400
14. (8 points) The market demand is $X^D(p) = 10 - 2p$ and the market supply $X^S(p) = 3p$. The market price increases 50% starting from its equilibrium price. The loss of welfare is
- $\frac{2}{3}$
 - $\frac{1}{3}$
 - $\frac{7}{3}$
 - $\frac{5}{3}$
15. (4 points) What is a true statement?
- If a consumer has to pay his reservation price for a good, then he gets no consumer surplus from purchasing it.
 - In general, aggregate demand depends only on prices and total income and not on income distribution.
 - The market demand curve is simply the product of the individual demand curves.
 - If the demand curve is linear, then the price elasticity of demand is constant.
16. (4 points) John's demand function for blueberries is $x = 20 - 2p$, where p is the price and x is the quantity demanded. If the price of blueberries is 3, then what is John's price elasticity of demand for blueberries?
- $-\frac{6}{14}$
 - $-\frac{2}{20}$
 - 2
 - None of the above.
17. (6 points) The demand function for rental apartments is $x = 960 - 7p$ and the supply function is $x = 160 + 3p$. The government makes it illegal to charge a rent higher than €35. How much excess demand will there be?
- 149
 - 450
 - 364
 - 726
18. (6 points) A competitive firm's production function is $f(x_1, x_2) = 6x_1^{\frac{1}{2}} + 8x_2^{\frac{1}{2}}$. The price of factor 1 is 1 and the price of factor 2 is 4. The price of output is 8. What is the profit-maximizing quantity of output?
- 416
 - 208
 - 204
 - 419
19. (4 points) Which statement is *false*?
- Price equals marginal cost is a sufficient condition for profit maximization.
 - The area under the marginal cost curve measures total variable costs.
 - Average fixed costs never increase with output.
 - The cost function $C(y) = 10 + 3y$ has marginal cost less than average cost for all levels of output.
20. (4 points) A monopolist faces the inverse demand curve $p = 120 - 6y$. At what level of output is his *total revenue* maximized?
- 5
 - 20
 - 15

(d) 10

21. (10 points) An industry has two identical firms. The inverse demand function for this industry is $p = 263 - 6Y$ where Y is the total supply of both firms together. Both firms produce at a constant average cost of 29 per unit. What is the Cournot equilibrium supply of each firm? (Hint: Both firms are identical. Do not perform unnecessary calculations)

- (a) 11
- (b) 12
- (c) 13
- (d) 14

22. (10 points) Monica's utility function is

$$u(x_1, x_2, s) = s + f(x_1) \cdot x_2^{\frac{1}{2}}$$

where x_1 is the number of Blu-Ray-recorders, x_2 is the number of Blu-Ray-discs, and s is the amount of money ("saving") she has left to spend after buying recorders and discs. Currently her total budget is $b = s + p_1x_1 + p_2x_2$ which is large enough to buy at least one recorder. The function f is given by $f(x_1) = 0$ if $x_1 < 1$ and $f(x_1) = 24$ if $x_1 \geq 1$. The price p_1 of recorders is positive but less than 36, the price of discs is $p_2 = 4$. How many discs will Monica buy? (Hints: Write down the utility functions for the cases $x_1 < 1$ and $x_1 \geq 1$. Can it be utility maximizing to have more than one recorder? Compare the maximal utility for two remaining values of x_1 . No tangency criterion needed here!)

- (a) 9
- (b) 11
- (c) 0
- (d) Cannot be determined without the exact value of p_1 .