Matr. N°. _____ **Name:** _____

Examination	**Principles of Economics** (No. 11049)
Semester:	**Summer Semester 2009**
Examiner:	**Prof. Dr. Gerhard Schwödiauer**
The following aids may be used:	Non-programmable pocket calculators; English language dictionaries without individual entries or markings.
Time:	120 minutes

This exam comprises 24 problems plus 6 "bonus" problems.

For each problem exactly one of the three optional answers is correct. Do not mark more than one answer to any of the questions, otherwise the solution will be considered false.

For every correct answer you obtain 2 points, for every false answer 1 point is subtracted. If no answer is marked you neither obtain nor lose a point.

In order to pass this exam at least 12 points are needed. 48 and more points are graded 1.0.

Make sure that this copy of the test paper bears your matriculation number and name in the appropriate fields at the top of this page.

Examination Questions:

1. Consider an individual which spends its consumption budget at given prices on a variety of goods. The individual's preferences are characterised by marginal rates of substitution of good *i* for good *j* that fall if more of good *i* is consumed. Assume that the individual always tries to get maximal expected satisfaction. Which of the following three predictions is definitely wrong?
   If the price of some good *x* falls, then

   ☐ a) less of this good and more of some other goods is bought.
   ☐ b) more of this good and all other goods is bought.
   ☐ c) less of this good and all other goods is bought.

2. Assume that, under the circumstances described in Problem 1, the price of some good *x* rises but somebody supports the consumer with an additional sum of money that is just sufficient for allowing him to buy the bundle of goods he wanted to acquire before the change in the price of good *x*. In this case, the individual will always buy

   ☐ a) less of good *x* and more of all the other goods.
   ☐ b) the same quantity of good *x* and more of some other goods.
   ☐ c) less of good *x* and more of some of the other goods.

3. The separation of the effect of a price change on consumer demand into a substitution and an income effect was first studied by

- [ ] a) William S. Jevons.
- [ ] b) Yevgeny Slutsky.
- [ ] c) John R. Hicks.

4. Engel curves describe

- [ ] a) the dependence of shares in total expenditure of particular goods (or group of goods) on the level of total consumption expenditure at constant prices.
- [ ] b) the relationship between shares in total expenditure and the changes in relative prices of particular consumer goods.
- [ ] c) the dependence of the quantities of goods bought by a representative household on the development of their prices at constant income.

5. A consumer's demand for a certain good falls if the price of this good rises, provided that

- [ ] a) the marginal utility of this good decreases with an increased quantity consumed.
- [ ] b) the respective good is inferior to other goods.
- [ ] c) a decline in total consumption expenditure at unchanged prices would result in a reduction of the demand for the respective good.

6. Consider a standard market demand curve for some particular good. If the price of some close substitute for this good rises,

- [ ] a) the demand curve shifts downwards.
- [ ] b) the demand curve shifts upwards.
- [ ] c) the demand curve does not change.

7. Consider the (inverse) demand curve $p = 20 - 2x$.

- [ ] a) The price elasticity of demand is 2.
- [ ] b) For prices below 10 the price elasticity of demand is bigger than 1.
- [ ] c) For prices above 10 the price elasticity of demand is larger than 1.

8. In a competitive market for a particular good, which is produced at increasing marginal costs, market demand decreases if the price rises.
If the price of some close substitute falls, the equilibrium price of the respective good

- [ ] a) falls.
- [ ] b) rises.
- [ ] c) does not change.

9. The marginal rate of transformation of good i into good j, which are produced with the same factor of production, equals

- [ ] a) the ratio of the marginal productivity of the factor in the production of good i to its marginal productivity in the production of good j.
- [ ] b) the differences between the marginal productivity in the production of good i and the marginal productivity in the production of good j.
- [ ] c) the ratio of the marginal productivity in the production of good j to the marginal productivity in the production of good i.

10. In an interactive decision making problem where each participant has to make an independent choice and the consequence for each participant is the result of all the choices, a Nash-equilibrium is an outcome (or combination of individual choices)

- [ ] a) which (by changing some or all of the decisions) cannot be improved for any decision maker without worsening the result for some of the other participants.
- [ ] b) which none of the decision makers can improve upon if the other participants stick to their choices.
- [ ] c) which guarantees each participant his result even if the other decision makers deviate from their equilibrium choices.

11. The concept of Nash equilibrium was for the first time applied to an economic problem by

- [ ] a) John F. Nash (1951).
- [ ] b) Antoine A. Cournot (1838).
- [ ] c) John v. Neumann and Oskar Morgenstern (1943).

12. Consider the (inverse) supply curve $p = 8 + x$.

- [ ] a) The price elasticity of supply is 1.
- [ ] b) For $p = 12$ the price elasticity of supply is ⅓.
- [ ] c) For $p = 12$ the price elasticity of supply is 3.

13. A competitive market is described by the demand and supply functions in Problem 7 and Problem 12, respectively. The market-clearing price is equal to

- [ ] a) 10.
- [ ] b) 12.
- [ ] c) 14.

14. Consider the market equilibrium in Problem 13. If the government introduces a tax of 3 € per unit of commodity sold,

- ☐ a) the market price will rise so that the buyers bear one third of tax per unit.
- ☐ b) the market price will not rise so that the buyers bear the whole tax burden.
- ☐ c) the quantity sold will fall and the buyers bear two thirds of the tax per unit.

15. The short-run profit maximisation rule for a price taking firm is to supply that quantity of its output for which

- ☐ a) marginal costs are falling and are equal to the market price.
- ☐ b) marginal costs are rising, are equal to the market price and above average costs (for a price = MC below average costs, supply should be zero).
- ☐ c) marginal costs are rising, are equal to the market price and above average variable costs (for a price = MC below average variable costs, supply should be zero).

16. Suppose a firm produces some good with two factors of production. Its technology is characterised by decreasing returns to scale and diminishing marginal productivities. If for constant prices of output and of factor 1 the price of factor 2 falls

- ☐ a) the then relatively cheaper factor 2 is substituted for factor 1 and profit-maximising production is not changed.
- ☐ b) if the elasticity of factor substitution is relatively low, the profit maximising input of factor 1 will rise.
- ☐ c) the profit-maximising input level of factor 2 will rise while the profit-maximising input level of factor 1 will fall.

17. Two goods can be produced by two producer-households which can also trade their outputs. They cannot trade, however, their factors of production. For producer A the necessary factor inputs for good 1 and good 2 are, respectively, 5 and 4. For producer B the input coefficients are, respectively, 2 and 3. A possible trade equilibrium for price-taking producer-households is supported by a relative price p_1/p_2 with

- ☐ a) $p_1/p_2 \geq {}^5/_4$ and producer-household B buying good 2 from producer-household A while selling good 1 to A.
- ☐ b) ${}^2/_3 < p_1/p_2 < {}^5/_4$ and B selling good 1 to A while buying good 2 from A.
- ☐ c) $p_1/p_2 \leq {}^2/_3$ and A selling good 2 to B while buying good 1 from B.

18. If for some household its real wage does not change and both leisure and material consumption are normal goods, then the receipt of some additional transfer income from the government

- ☐ a) is an incentive to work more.
- ☐ b) is an incentive to work less.
- ☐ c) does not change the household's labor supply.

19. Suppose a consumer may in period 1 borrow or lend at some (nominal) market interest rate. If the consumer expects the inflation rate to rise

- ☐ a) the household's planned saving may rise (in case the saving was positive at the previous interest rate).
- ☐ b) the household's planned borrowing is reduced (in case the saving was negative at the previous interest rate).
- ☐ c) the household's planned borrowing may fall (in case the volume of borrowing at the previous interest rate was small).

(Assume that both present and future consumption are normal goods.)

20. If the owner of a firm has access to a "perfect capital market",

- ☐ a) she will favour a lower investment volume if her personal time preference rate rises.
- ☐ b) she will require the firm's management to maximise the present value of income independent of her personal time preference.
- ☐ c) she will instruct the management to choose the investment level which can be financed by her own saving.

21. The inverse demand function for labor of a price-taking profit-maximising firm is

- ☐ a) the steeper the faster the marginal productivity of labor falls when employment is extended.
- ☐ b) the flatter the faster the marginal productivity of labor falls.
- ☐ c) not dependent upon the behavior of the marginal productivity of labor.

22. Assume that an economy's aggregate net value added is 1000, the government revenue from indirect taxes is 300, the subsidies it pays to the enterprise sector is 100, the government revenue from direct taxes is 300, and the depreciation on the private and public capital stock is estimated at 150. Then GDP is

- ☐ a) 1250.
- ☐ b) 1350.
- ☐ c) 1650.

23. Assume that the exports of a country fall by 1000. As a consequence,

- ☐ a) the trade balance worsens but the current account balance does not change.
- ☐ b) the trade balance worsens but the balance of payments (exclusive of official reserve transactions) does not change if the exchange rate is fully flexible.
- ☐ c) not only the trade balance but also the overall balance of payments (inclusive of official reserve transactions) worsens.

24. Which of the following statements may be true?

- ☐ a) Domestic saving exceeds domestic investment and there is a trade balance deficit.
- ☐ b) Domestic saving exceeds domestic investment and there is a trade balance surplus.
- ☐ c) The trade balance is zero though domestic investment is smaller than domestic saving.

25. * If the production function for some good is given by

$$y = x_1^{1/3} \cdot x_2^{1/2}$$

the technology is characterised by

- ☐ a) constant returns to scale.
- ☐ b) decreasing returns to scale.
- ☐ c) increasing returns to scale.

26. * The utility function of a consumer who considers buying two different goods is given by

$$u(x_1, x_2) = \alpha \ln x_1 + \beta \ln x_2,$$

with $\alpha, \beta > 0$. If good 1 is substituted for good 2

- ☐ a) the marginal rate of substitution $-\frac{dx_2}{dx_1}$ falls.
- ☐ b) the marginal rate of substitution rises.
- ☐ c) the marginal rate of substitution remains constant.

27.* Assume that there are 100 markets in an economy. Prices have adjusted so that 98 markets are in equilibrium. Then Walras' Law implies that

- ☐ a) also the remaining two markets are in equilibrium.
- ☐ b) it is impossible that both remaining markets display excess demand.
- ☐ c) the market prices in the remaining two markets have to fall.

28.* Assume that the costs of producing a quantity x of some good is given by the function

$$C = 20 + 4x + x^2.$$

If the firm is a price taker in the output market, its supply function is

- ☐ a) $x = \frac{1}{2}p - 2.$
- ☐ b) $x = 2p + 4$
- ☐ c) $x = 4p$

29.* An individual has the choice between playing a lottery, which offers 1000 € with probability 4/5 and 0 with probability 1/5, and receiving a sure amount of 801 €. If he chooses the lottery, you may conclude that the individual is

- ☐ a) risk-seeking.
- ☐ b) risk-averse.
- ☐ c) risk-averse or risk-neutral.

30.* Two firms may offer their product for sale either at a low price (L for firm 1, *l* for firm 2) or at a high price (H for firm 1, *h* for firm 2). The following table displays their respective profits (lower left corners for firm 1, upper right corners for firm 2):

	h	*l*
H	9 / 7	8 / 4
L	1 / 8	2 / 3

- ☐ a) There is no Nash-equilibrium.
- ☐ b) There is exactly one Nash-equilibrium, viz. (H, *h*).
- ☐ c) There is exactly one Nash-equilibrium, viz. (L, *l*).

– End of text. Good luck! –