Faculty _____ Matr.-Nr. _____ Name: _____

Final Exam: Principles of Economics I (50-16)

Examiner: Prof. Dr. Schwödiauer

Term: Winter 2003/04

No aids permitted except for language dictionaries without any marking and calculators.

There are 40 different problems on this exam. Make sure that this copy of the exam is complete and write your matriculation number and your name into the appropriate fields on top of this page. Work on all 40 problems. Do not mark more than one possible solution, otherwise the problem is considered to be incorrectly solved. For every correct solution you obtain two points. For every incorrect solution one point is subtracted. If no solution is marked you neither obtain nor loose a point. In order to pass this exam you need at least 40 points.

1. Which of the following statements is true?

   ☐ a) If an allocation is Pareto-inefficient then it can never be Productive-efficient.
   ☐ b) If an allocation is Productive-inefficient it can never be Pareto-efficient.
   ☐ c) If a cake is to be split between two persons who each prefer more cake to less, then Pareto-efficiency requires that each of them gets a share of 50%.

2. Macroeconomics is mainly concerned with

   ☐ a) the study of the economy as a whole.
   ☐ b) the study of individual entities (e.g. firms and households).
   ☐ c) the identification of policies leading to welfare gains.

3. It follows from data generated in Ultimatum Game experiments and related studies that

   ☐ a) subjects are likely to be altruistic.
   ☐ b) subjects are likely to fear offer rejections.
   ☐ c) proposers offer usually more than 50% to responders.

4. The traditional "Homo Oeconomicus"

   ☐ a) faces cognitive limitations.
   ☐ b) is perfectly informed about all relevant issues concerning any decision he faces.
   ☐ c) inconsistently maximizes his utility.

5. If Florian receives a car from his wealthy grandfather two days before he turns 18 together with the note that "he can do everything with it, selling inclusively, except of driving the car if he is drunken", then on the day Florian receives the present, he misses some

   ☐ a) control rights.
   ☐ b) cash-flow rights.
   ☐ c) alienability rights

6. Briana received a ticket for a Robbie Williams Concert. This tickets can be traded for a price of 100€. Her best alternative to enjoying Robbie Williams "live" is to sell the ticket and earn 25€ with babysitting. It follows that the cost she bears if she goes to the concert is

☐ a) 125€.
☐ b) 100€.
☐ c) 25€.

7. Suppose a firm pollutes a river and is located upstream, close to the river's source. If the objective (utility or profit) of every economic agent remains unaffected by the pollution, then there is

☐ a) a negative externality but no inefficiency.
☐ b) an inefficiency since nature is damaged.
☐ c) no negative externality.

8. What is an example for capital in the economic sense:

☐ a) Bonds.
☐ b) Labor.
☐ c) Downloadable lecture slides.

9. Consider any market with downward-sloped demand function and upward-sloped supply function where the market equilibrium price is x € (per unit of the traded good). If demanders with a reservation price that is lower than x € drop out of the market when it is in its equilibrium, then the quantity traded in the market most likely

☐ a) increases.
☐ b) remains unchanged.
☐ c) decreases.

10. Suppose that goods X and Y are complements and that both markets are in equilibrium. If demanders for both goods suddenly come to expect that consumption of good X increases the probability of getting cancer and therefore adjust their demand downwards, it is most likely that the market price of good Y

☐ a) increases.
☐ b) decreases.
☐ c) remains constant.

11. Suppose the market for microeconomic textbooks in Macromania is described by $D(P) = 100 - 4P$ and $P^S(Q) = -20 + Q$. Mark the correct market equilibrium price:

☐ a) $P^*=16$
☐ b) $P^*=20$
☐ c) $P^*=24$

12. Suppose the market for macroeconomic textbooks in Macromania is described by $D(P) = 10{,}000$ and $P^S(Q) = 5 + 0.001\ Q$. Mark the correct market equilibrium price:

☐ a) $P^*=6$
☐ b) $P^*=15$
☐ c) $P^*=24$

13. Since the market equilibrium price of pizza decreased, the equilibrium demand for pizzas must have

☐ a) increased
☐ b) decreased
☐ c) responded in a way which cannot be predicted from the price movement alone

14. Two estimated points of the supply function in the labor market for yoga teachers in Magdeburg are (P=10 €, Q=10,000 hours) and (P=20 €, Q=40,000 hours) where P denotes the hourly wage level and Q the corresponding supply of yoga hours. Use the average method to calculate the price elasticity of supply:

☐ a) $E_S = 5/9$.
☐ b) $E_S = 3$.
☐ c) $E_S = 9/5$.

15. Data from simple market experiments such as the implementation of the "apple market" in class suggest that the simple model of "Demand and Supply" that predicts the market equilibrium price to be the only price at which trade occurs

☐ a) is useless since individually bargained prices most of the time differ from one another.
☐ b) is useful since it exactly predicts prices at which individuals trade.
☐ c) is useful although only a minority of trades is carried out at the theoretical market equilibrium price.

16. If the average product of an artist equals four pictures if she works only one hour and two pictures if she works two hours, then her marginal product if she has already worked for an hour is equal to

☐ a) two pictures.
☐ b) four pictures.
☐ c) zero pictures.

17. If the average product curve slopes downward, then the

☐ a) marginal product is smaller than the average product.
☐ b) marginal product is larger than the average product.
☐ c) marginal product is equal to the average product.

18. From the cost function $C(Q) = 30 + 20Q$ it can be inferred that average variable costs are

☐ a) U-shaped.
☐ b) constant.
☐ c) strictly increasing.

19. The U-Shape of average costs implied by many cost functions and in particular the cost function $C(Q) = 20Q^2$ with $MC(Q) = 40Q$ suggest that average costs are

☐ a) always minimized when marginal costs are at their lowest point.
☐ b) never minimized when marginal costs are at their lowest point.
☐ c) sometimes minimized when marginal costs are at their lowest point.

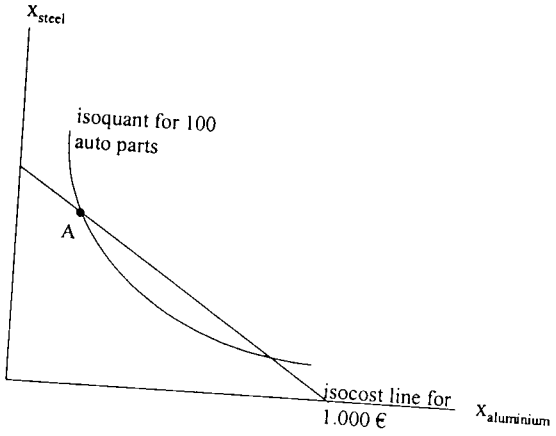
20. Consider a cost-minimizing firm that is described by a production function with two inputs where both inputs are perfect complements. As a cost-minimizing response to an increase in the price of input 1 that leaves its output level unchanged, the firm should

☐ a) decrease its use of input 1 and increase its use of input 2.
☐ b) not change its use of inputs 1 and 2 if that was minimizing costs before.
☐ c) change its input mix in a way that is impossible to predict without additional information.

21. The company Adecco lost much information about its costs due to its ill-designed controlling system. Two inputs are type A-pencils and type B-pencils. Both pencil types are perfect substitutes and their technical rate of substitution is $TRS_{B,A} = 4$ [B-pencils/A-pencil]. If the price of type A-pencils is 20€ per pack with 100 pencils and the cost-minimizing company bought pencils of both types, what is the price of a single type B-pencil?

☐ a) 0.20 €.
☐ b) 0.80 €.
☐ c) 0.05 €.

22. The following figure depicts an isoquant and an isocost line of a firm that uses steel and aluminium in its production process of auto parts. Input mix A can be the choice of a cost-minimizing firm if



☐ a) the price of aluminium increases ceteris paribus.
☐ b) the price of steel increases ceteris paribus.
☐ c) the prices of steel and aluminium remain unchanged.

23. If a profit-maximizing monopolist faces a demand curve with a constant price elasticity $E_D=2$, then

☐ a) higher prices lead to larger revenue than do lower prices.
☐ b) every positive price leads to the same revenue.
☐ c) lower prices lead to larger revenue than do higher prices.

24. The next table reports market shares of ski boot producers in the season 2002/2003; in this season, a total of ca. 3.65 million pairs were sold worldwide.

Firm	Group Tecnica	Salomon-Adidas	Rossignol-Lange	Dal Bello	Head	Atomic	Others
Market share	31%	27%	20%	8%	8%	4%	2%

The Herfindahl-Hirschman-Index for this market must be

☐ a) between 2234 and 2238 (including 2234 and 2238).
☐ b) between 2230 and 2234 (including 2230 and excluding2234).
☐ c) lower then any concentration ratio.

25. A monopolist with the cost function $C(Q) = 40Q$ faces the inverse demand curve $P(Q) = 200 - 4Q$. If the firm wants to maximize its profits, then it should charge a unit price of

☐ a) 80 €.
☐ b) 40 €.
☐ c) 120 €.

26. Consider again the monopolistic setting as outlined in problem 23. If the firm implements its profit-maximizing choice then the resulting deadweight loss is equal to

☐ a) 800 €.
☐ b) 1600 €.
☐ c) an amount different from 800€ and 1,600 €.

27. Consider the market entry game described by the following strategic form where the cell entry (bottom, left) refers to firm 1's payoff and the cell entry (top, right) refers to firm 2's payoff:

		Firm 2		
		Low Price	**Medium Price**	**High Price**
Firm 1	**Entry**	**20** **-20**	**25** **0**	**5** **20**
	Non-entry	**30** **0**	**70** **0**	**100** **0**

Mark the correct statement.

☐ a) There exists no Nash equilibrium (in pure strategies).
☐ b) There exists one Nash equilibrium (in pure strategies).
☐ c) There exist two Nash equilibria (in pure strategies).

28. Consider the following strategic form in detail:

Player 1 \ Player 2	L	R
U	-1 | 1	- 1 | 1
D	1 | 1	1 | - 1

Utility of Player 2

Utility of Player 1

Mark the correct statement:

- [ ] a) There exists no Nash-equilibrium (in pure strategies).
- [ ] b) There exists a unique Nash-equilibrium (in pure strategies).
- [ ] c) There exist two Nash-equilibria (in pure strategies).

29. If all players have a dominant strategy in any well-defined game, then the individual rational outcome will

- [ ] a) sometimes be collectively rational.
- [ ] b) always be collectively rational.
- [ ] c) never be collectively rational.

30. Suppose that Helmut Newton's art collection is auctioned off using a second-price sealed-bid auction where the inventory list of the collection is incomplete at the time the auction is held. In this setting, rational bidders who estimate the collection's value should bid

- [ ] a) their estimate since this is a dominant strategy with private values.
- [ ] b) a lower amount than their estimate to avoid the Winners' Curse
- [ ] c) a higher amount than their estimate to maximize winning chances.

31. In the bankrupt city of Berlin, the city's senate decides to auction off some of its museums' fine art. In one of these auctions a Stradivarius is sold to one of four rational bidders. The employed auction format is first-price sealed-bid with a minimum price of 450,000 € that equals the city's valuation of the object. The next table summarizes the bidders' private valuations and bids:

bidder	A	B	C	D
valuation	500,000 €	200,000 €	250,000 €	400,000 €
bids	400,000 €	150,000 €	200,000 €	350,000 €

Mark the correct statement:

- [ ] a) There is a Pareto-inefficient sale.
- [ ] b) There is no sale, but this is Pareto-efficient.
- [ ] c) There is no sale, but this is Pareto-inefficient.

32. The market for diving eyeglasses in Atlantis is monopolized: the government has given only a single firm permission to produce eyeglasses. Since these are expensive, most citizens dive without these and, as a result, the public health cost from treating eye afflictions is very large. If the government approves a second firm to enter the eyeglass market, then it is most likely that

- ☐ a) the public health cost due to eye afflictions decreases since the number of eyeglasses produced and sold by the industry is likely to increase.
- ☐ b) additional competition doesn't influence the public health cost due to the stability of cartels though binding agreements are illegal.
- ☐ c) the price for diving eyeglasses increases according to the Cournot model.

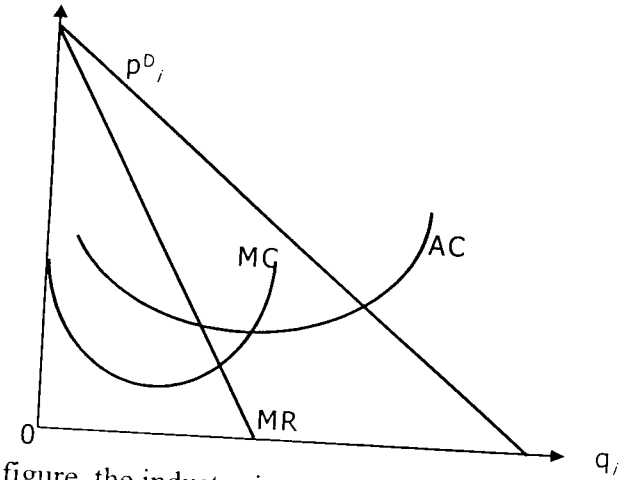
33. Consider the Bertrand model with four firms where the marginal cost of each firm is constant and equals 40€. If two firms charge a price of 40€ and two firms charge 70€ then

- ☐ a) this combination of prices constitutes a Nash-Equilibrium since no firm has an incentive to deviate.
- ☐ b) this combination of prices cannot be a Nash-Equilibrium since this requires all firms to charge a price equal to 40€.
- ☐ c) this combination of prices is a Nash-Equilibrium in dominant strategies.

34. A key feature of monopolistic competition is

- ☐ a) the efficiency of the long-run equilibrium since firms make zero-profits.
- ☐ b) the impact of the number of competitors and their supply decisions on any monopolistic competitor's individual demand-curve.
- ☐ c) the absence of market power.

35. Consider the next figure that illustrates a representative firm's cost structure and its inverse demand curve under monopolistic competition.



According to the figure, the industry is

- ☐ a) in its long-run equilibrium.
- ☐ b) not in a long-run equilibrium since new firms are likely to enter the industry
- ☐ c) not in a long-run equilibrium since some firms in the industry are likely to exit.

36. The firm Webdesign.biz produces websites and operates under perfect competition. The following information about the company's cost structure is available: $MC(q) = 50q$, $AVC(q) = 25q$, $AC(q) = 1{,}225/q + 25q$. The going market price is $P = 500$. Which level of website production, q^{SR}, maximizes Webdesign.biz' profit in the short run?

☐ a) $q^{SR} = 5$.
☐ b) $q^{SR} = 0$.
☐ c) $q^{SR} = 10$.

37. A price-taking firm that seeks to maximize its profits in the short run should supply a level of output such that

☐ a) the market price equals its marginal cost.
☐ b) the market price equals its marginal cost if its average variable cost does not exceed the market price, otherwise it should supply nothing.
☐ c) the market price equals its marginal cost if its average cost does not exceed the market price, otherwise it should supply nothing.

38. Daniel K. consumes 10 bars of chocolate priced at €1 per bar and 5 bags of peanuts priced at €2 per bag on a weekly base. He is willing to exchange two bars of chocolate for one bag of peanuts and vice versa while his utility remains unchanged. If he wants to maximize his well-being subject to his budget for sweets fixed at €20 then he should

☐ a) buy only chocolate and no peanuts.
☐ b) buy no chocolate and only peanuts.
☐ c) buy any mix of chocolate and peanuts since he is indifferent between arbitrary consumption patterns as long as his total budget is spent.

39. Consider the utility function $U(x_1,x_2,x_3) = x_1 + x_2 \cdot x_3$ and consumption bundles $A = (4,2,2)$ and $B = (2, 8, 2)$ where the i-th entry gives the quantity of the i-th commodity.
Mark the correct statement:

☐ a) Both bundles lie on the same indifference curve.
☐ b) Bundle A lies on a higher indifference curve than bundle B.
☐ c) Bundle B lies on a higher indifference curve than bundle A.

40. Suppose John's preferences are described by the utility function $U(x_1,x_2) = x_1 \cdot x_2$ and consider consumption bundles $A = (2,2)$ and $B = (2,4)$ where the i-th entry gives the quantity of the i-th commodity.
Mark the correct statement:

☐ a) John likes bundle B as much as he likes to have two bundles A.
☐ b) John likes bundle B less than he likes to have two bundles A.
☐ c) Comparisons of a single bundle to the doubled quantities of some other bundle in utility space are meaningless.