

## Exercise session 6

1. Suppose that Veronika is the only producer of the Trdelnik in Brno. The (inverse) demand function for the Trdelnik is given by  $P(Q)=55-2*Q$ . Veronika's cost function is  $TC(Q) = 100 - 5*Q+Q^2$ .
  - a. Determine the marginal revenue as a function of  $Q$ .
  - b. If Veronika maximizes her profit, what price does she charge? How much profit she gets?
  - c. Calculate the consumer surplus.
  - d. If instead Veronika decides to maximize total social surplus, what price does she charge? Calculate the profit at this price.
  - e. Calculate the deadweight loss if profit is maximized.
  
2. Suppose that the distributor charges Cinema City 40 CZK per ticket sold to rent the movie "Johnny English Strikes Again". Suppose that the cinema can seat a maximum of 200 people. Suppose that the demand to see the movie is given by  $P(Q)=100-Q$  in the afternoon and  $P(Q)=200-Q$  in the evening.
  - a. calculate the profit maximizing price in the evening and the afternoon, and the number of people who attend each screening.
  - b. what is the amount of revenue paid to the movie distributor? Calculate the profit of the cinema.
  - c. suppose that the distributor instead asks the cinema owner for a flat fee of 10 000 CZK to show the movie (no charge per ticket). Determine whether or not the cinema owner would prefer this arrangement.
  - d. what is the efficient price for admission in the afternoon and the evening?
  
3. A monopoly firm can sell 150 units of output for \$10 per unit. Alternatively, it can sell 151 units of output for \$9.90 per unit. The marginal revenue of the 151st unit of output is
  - a. -\$5.10.
  - b. -\$0.10.
  - c. \$2.45.
  - d. \$5.90.
  
4. Why might economists prefer private ownership of monopolies over public ownership of monopolies? Explain.

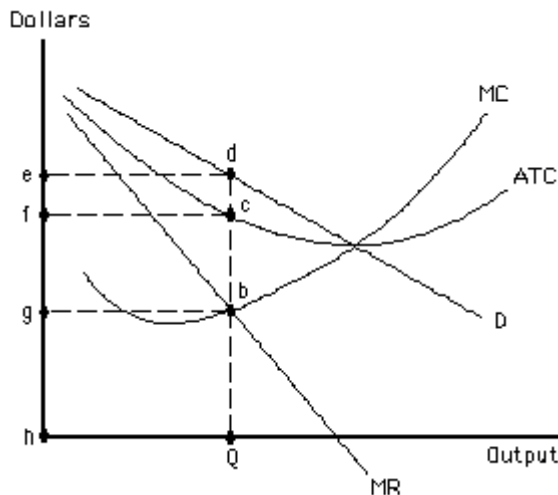
5. For each question, state clearly whether you find the statement to be true, false, or uncertain. Then provide a clear explanation.
  - (a) *Hockey is a public good.*
  - (b) *The free-rider problem tends to get worse as the number of beneficiaries from a public good rises.*
  - (c) *Because drivers of cars have their own life on the line, they will exert the efficient level of care when driving.*
  - (d) *Assuming you and I benefit from a public good, your marginal benefit for the last unit consumed must equal my marginal benefit from the last unit consumed, for efficiency to hold.*

6. A monopoly operated in a market with (inverse) demand  $P(Q)=20-\frac{Q}{5}$ . The marginal cost is 10.
  - (a) Find the monopoly's optimal output and price
  - (b) Compute the deadweight loss (DWL) due to the monopoly.

7. If a non-discriminating monopolist decides to lower its price to sell one more unit of its product, then
  - a. total revenue rises by an amount equal to the price
  - b. some revenue is lost to the extent that units previously sold at a higher price now sell for a lower price; however, the additional unit sold brings in new revenue
  - c. marginal revenue increases when total revenue increases
  - d. the net effect on total revenue is typically zero since the price must fall
  - e. the net effect on total revenue is typically negative since the price must fall

8. Suppose that a non-discriminating monopolist lowers its price from \$75 to \$70 in order to sell more output. Marginal revenue will
  - a. equal \$75
  - b. equal \$70
  - c. be between \$75 and \$70
  - d. be less than \$70
  - e. be greater than \$75

9. What is the total profit (or loss) for the (single-price) monopolist shown in Figure?



- a. profit of cbgf
- b. loss of fcbg
- c. profit of egbd

- d. loss of edcf
- e. profit of edcf

10. The Figure shows a single-price monopolist. The maximum level of profit that could be achieved is:

Price	Quantity	Total Cost
\$100	1	\$150
\$90	2	\$180
\$80	3	\$220
\$70	4	\$300
\$60	5	\$400
\$50	6	\$550

- a. -\$20
- b. \$20
- c. \$300
- d. \$280
- e. \$40

11. Suppose that for a monopolist,  $MR = MC = \$10$  and  $P = \$15$  at the profit-maximizing level of output. At this level of output, the firm

- a. is earning a profit
- b. will shut down if  $AVC > \$15$
- c. is making \$5 profit on each unit sold
- d. will shut down if  $ATC > \$15$
- e. is losing \$5 per unit produced

12. If a firm earns zero economic profit in the long run, then it

- a. must be in a perfectly competitive market
- b. must be in a monopolistically competitive market
- c. cannot be in a monopolistically competitive market
- d. could be in any of the four major market structures
- e. is not in an oligopoly

13. If a monopolistically competitive firm engages in a successful advertising campaign resulting in above positive economic profits then in the long run that firm will

- a. continue to earn positive economic profits because successful advertising is one of the barriers to entry
- b. earn zero economic profits because the government will begin to regulate the industry
- c. earn negative economic profits because it won't be able to advertise indefinitely
- d. earn zero economic profits because other firms will also begin to advertise
- e. continue to earn positive economic profits because most monopolistically competitive firms can earn economic profits in the long run

14. Consider the town of Springfield with only three residents, Sophia, Amber, and Cedric. The three residents are trying to determine how large, in acres, they should build the public park. The table below shows each resident's willingness to pay for each acre of the park.

Acres	Sophia	Amber	Cedric
1	\$10	\$24	\$6
2	8	18	5
3	6	14	4
4	3	8	3
5	1	6	2
6	0	4	1
7	0	2	0

- a) Suppose the cost to build the park is \$24 per acre. How many acres should the park be to maximize total surplus from the park in Springfield?
- b) Suppose the cost to build the park is \$9 per acre. How large should the park be to maximize total surplus from the park in Springfield?
- c) Suppose the cost to build the park is \$24 per acre and that the residents have agreed to split the cost of building the park equally. If the residents vote to determine the size of park to build, basing their decision solely on their own willingness to pay (and trying to maximize their own surplus), what is the largest park size for which the majority of residents would vote "yes?" Answer the same question when the cost per acre is 9\$.
- d) Suppose the cost to build the park is \$24 per acre and that the residents have agreed to split the cost of building the park equally. To maximize his own surplus, how many acres would Cedric like Springfield to build?
- e) Suppose the cost to build the park is \$24 per acre and that the residents have agreed to split the cost of building the park equally. If the residents decide to build a park with size equal to the number of acres that maximizes total surplus from the park, how much total surplus will Sophia receive? What about Amber?
15. The privately-owned school system in Smalltown has a virtually unlimited capacity. It accepts all applicants and operates on both tuition and private donations. Although every resident places value on having an educated community, the school's revenues have suffered lately due to a large decline in private donations from the elderly population. Since the benefit that each citizen receives from having an educated community is a public good, which of the following would *not* be correct?
- The free-rider problem causes the private market to undersupply education to the community.
  - The government can potentially help the market reach a socially optimal level of education.
  - A tax increase to pay for education could potentially make the community better off.
  - The private market is the best way to supply education.
16. Highway engineers want to improve a dangerous stretch of highway. They expect that it will reduce the risk of someone dying in an accident from 5.3 percent to 2.1 percent over the life of the highway. If a human life is worth \$10 million, then the project is worth doing as long as it does not cost more than
- \$53,000.
  - \$210,000.
  - \$320,000.
  - \$2.1 million.