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Department of Economics

Course name:	**Law and Economics**
Course code:	**EC 2105**
Type of exam:	**RETAKE**
Examiner:	**Lars Vahtrik**
Number of credits:	**7,5 credits**
Date of exam:	**Sunday 7 April 2013**
Examination time:	**3 hours [09:00-12:00]**

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Use one cover sheet per question. Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. Question 4 is a credit question. If you have handed in assignments during the course you may choose to answer this question anyway if you aim at a higher score. Note that in this case the score on the exam will be counted regardless of your score on the assignments!
No aids are allowed.

The exam consists of 4 questions. Each question is worth 25 points, 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

Your results will be made available on your "My Studies" account (www.mitt.su.se) on Thursday April 25 at the latest.

Good luck!

Question 1

Consider an investor who is able to choose between investing 16 million $ or not to invest at all in a project that is carried out by an entrepreneur. The entrepreneur can then either cooperate, resulting in a net profit of 8 million $ for each party, or appropriate the investment in which case the investor looses all the money to the entrepreneur. When the investor does not invest the profit is zero for both agents. The game looks as follows:

		Entrepreneur	
		cooperate	appropriate
Investor	Invest	8,8	-16 , 16
	Don't invest	0,0	0,0

a) Assume that the investor invests before the entrepreneur chooses his performance. Draw the extensive form game and find the subgame perfect equilibrium. Will the equilibrium be Pareto efficient? Will the outcome of the game be cooperative? **(8p)**

b) Suppose that an enforceable contract gives the investor compensation from the entrepreneur amounting to the investment plus the expected profit foregone in case of breach/appropriation. (Perfect expectation damages in C&U) Write down this new extensive form game and find the subgame perfect equilibrium. Will the outcome of the game be Pareto efficient? **(8p)**

c) Suppose that there is an uncertainty regarding the cost of carrying out the contract at the time of writing the contract. The entrepreneur can incur a cost of either zero or 20. Will damages amounting to 30 million $ lead to an efficient outcome in this case? If not, how large should the damages be to ensure an efficient outcome? Draw the extensive form game and analyze the result. **(9p)**

Question 2

There is a criminal JACK that contemplates robbing a drug store. He knows that there is $1,000 in the cash register. To break in to the drug store JACK needs to break a door with a value of $75. There is only one person, the owner, working in the drug store and it does not have an alarm so the probability that JACK is caught by the police and arrested is quite low, 0.30. If he is caught he has to return the $1,000 to the owner.

a)   If perfect compensation was possible in this case, to perfectly compensate the drug store owner, what sum would JACK need to pay? Discuss the reasons why perfect compensation is not possible in criminal suits.   **(5 p)**

b)   What sum is equal to perfect disgorgement?   **(3 p)**

c)   What is JACK's net expected benefit from committing the robbery? How big should the punishment (fine) be to deter JACK from committing robbery (assume that JACK is risk neutral)? If JACK instead needs to perfectly compensate the drug store owner, what is his net expected benefit now and how big should the fine in this case be to deter JACK from committing robbery?   **(9 p)**

d)   Assume now that JACK is risk loving. How does his incentives to commit robbery change with fewer resources put into police, decreasing the probability of being arrested (p), and a higher fine (f)? Discuss how different combinations of p and f affect individuals differently depending on their attitudes towards risk. **(8 p)**

Question 3

a)   The value of intellectual property is ever increasing in the modern society. Please discuss economic benefits and disadvantages of patent rights, copyrights and trademarks and the way those rights are protected. Please also discuss the factors affecting the owners' possibility to protect intellectual property and potential ways to improve the economic efficiency by changing the current rules (if any).   **(15 p)**

b)   Please discuss the concept of simplified legal proceedings and arbitration. What are the benefits and drawbacks of the different solutions to resolve disputes?   **(10p)**

Question 4 (Credit Question)

The vaccine manufacturer ACME (A) pollutes a nearby commercial greenhouse TOMATOES (T). A could eliminate their pollution by installing special scrubbers (cleaning equipment) at acost of 200. Similarly, T can eliminate pollution by installing filters on its ventilation system at a cost of 300. A's profit without scrubbers is 1000. T's profit is 500 with no pollution (and not installing filters), and 100 with pollution (no filters or scrubbers). Hence, in the absence of filters and scrubbers A's pollution reduces T's profits by 400.

a) The situation is illustrated in the payoff matrix below. A and T simultaneously choose between installing scrubbers or not and between installing filters or not respectively. Suppose A has the right to pollute and assume that high transaction costs precludes a cooperative solution. What is the non-cooperative equilibrium? Indicate the solution in the payoff matrix. Is it efficient? Explain! (A's payoffs is the first in each cell) **(5p)**

		T	
		No filter	Filter
A	No Scrubbers	1000, 100	1000, 200
	Scrubbers	800, 500	800, 200

b) Suppose a court entitles T compensatory damages from A if A pollutes without installing scrubbers (A only has to pay damages if A does not install scrubbers and T does not install filters). Redraw the above payoff matrix and find the new noncooperative equilibrium. Compare the efficiency of this equilibrium to that under a). If it is different, explain why and what this implies for efficiency.

(10p)

c) Let us now assume that transaction costs are low and that A and T can cooperate. Find the cooperative solutions for the cases where i) A has a right to pollute, ii) T has a right to compensatory damages (as in b)). How does efficiency differ between i) and ii) (if at all)? How does the distribution of payoffs between A and T differ between cases i) and ii) (if at all)? Explain your results and relate them to the Coase theorem.

(10p)