Course name:	**Law & Economics 1**
Course code:	**EC2105**
Type of exam:	**Main exam**
Examiner:	**Lars Vahtrik**
Number of credits:	**7,5 credits**
Date of exam:	**Saturday 22 February 2020**
Examination time:	**3 hours (14:00- 17.00)**

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

Start each new question on a new answer sheet.

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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.
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.

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 only the score on the exam will be counted regardless of your score on the assignments!

Your results will be made available on your Ladok account (www.student.ladok.se)
within 15 working days from the date of the examination.

Good luck!

Question 1

a) A construction company has entered into a contract with the municipality regarding the construction of a new bridge in Stockholm. When bidding for the contract the company made certain assumptions about the geology in the area where the bridge was to be built, but when the construction work started it soon became clear that the geology was different than expected and that the construction costs would be much higher than what was agreed in the contract and possibly be delayed with five years. Please discuss, from an economical perspective, (i) whether the contract between the municipality and the company still should be enforceable, and (ii), if so, whether the company should be able to get compensation from the municipality for any increased costs due to the incorrect assumption made by the company or if the municipality should get compensation for the delays. **(10p)**

b) One of the construction company's trucks was stolen from the construction site. A few weeks later the truck was found at a different site in Stockholm, where the contractor claimed that it had bought the truck a week before. The contractor could show receipts and invoices and provided the contact details to the seller, but it was not possible to get in touch with the seller. Please discuss from an economic perspective whether the law should protect the original owner's or the buyer's ownership of the truck. **(5p)**

c) The construction company was also doing some work in connection with the new subway line in Stockholm. When removing a big rock with the help of explosives there unfortunately was an accident. A house very close to the new subway partly collapsed and a person got badly injured. The construction company declared that it was sorry for the accident, but that it had followed all applicable regulations. It also pointed out that a consultant had surveyed the area and not seen any risk of houses collapsing in connection with the construction work. Please discuss from an economic perspective whether the construction company, the consultant or anyone else should be liable for damages. **(10p)**

Question 2

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 can choose to invest before the entrepreneur chooses his performance. Draw the sequential (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 sequential (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 3

a) Analyze the problem of a rational accountant considering whether to embezzle money or not. Assume that our accountant is undeterred by the present level of punishment. State the accountant's maximization problem and explain the first order condition witth the help of a graph depicting the amount our accountant chooses to embezzle. **(7p)**

b) Let us now reinterpret the problem above as the number of embezzlements that our accountant will commit rather than the amount of money embezzzled. Interpret the following three changes and discusss their effect on our accountant and on the aggregate supply of embezzlements in society:

   i)   An increase in the slope of the expected cost of crime.
   ii) A constant shift upwards in the expected cost of crime (leaving the slope unchanged).
   iii) An increase in the the slope of the benefit of crime. **(9p)**

c) Discuss briefly why optimal punishment always includes the maximum fine and why imprisonment may still be necessary in the case of our accountant. Explain why a life sentence for embezzling may not be a good idea even if this is required to deter embezzlement and even if the marginal benefit for apprehending and convicting the criminal exceeds the marginal cost. **(9p)**

Question 4 (Credit question)

A plumber has a choice the choice of installing a budget pipe at a cost of 2200, a safe pipe at a cost of 3200 or an extremely safe pipe at a cost of 5000 in a private house. If the pipe should break the cost of the damage would be 600000. In the case of a budget pipe an accident will occur in one out of one hundred installations. In the case of a safe pipe an accident will occur in one out of two hundred installations. In the case of an extremely safe pipe an accident will occur in one out of three hundred installations. Extablish which pipe our plumber should choose to avoid negligence and liability for damages. Provide calculations and discuss the economic reasoning behind your findings. **(25p)**