



YLIOPISTOTENTTILOMAKEPOHJA / UNIVERSITY EXAM TEMPLATE

Koskee tiedekuntia LuTK, OyKKK, KaTK, TTK, TST ja BMTK (Linnanmaan tentit) /
Concerns Faculties SCI, OBS, OMS, TECH, ITEE and BMM (Linnanmaa campus)

Tentin päivämäärä / Date of exam: 23.5.2016	Tentin kesto tunteina / Exam in hours: 4h
Tiedekunta / Faculty: Oulun yliopiston kauppakorkeakoulu / Oulu Business School	
Opintojakson koodi, nimi ja tentin numero / The code and the name of the course and number of the exam: 721345S, Environmental Economics, 1 st Retake Exam	
Tentaattori(t) / Examiner(s): Enni Ruokamo, Artti Juutinen	Sisäinen postios. / Internal address 60yKKK
Sallitut apuvälineet / The devices allowed in the exam:	
<input checked="" type="checkbox"/> Nelilaskin / Standard calculator	<input checked="" type="checkbox"/> Funktiolaskin / Scientific calculator
<input type="checkbox"/> Muu materiaali, tarkennettu alla / Other material, specified below:	<input type="checkbox"/> Ohjelmoitava laskin / Programmable calculator
Tenttiin vastaaminen / Please answer the questions:	
<input checked="" type="checkbox"/> Suomeksi / in Finnish	<input checked="" type="checkbox"/> Englanniksi / in English
Kysymyspaperi on palautettava / Paper with exam questions must be returned:	
<input checked="" type="checkbox"/> Kyllä / Yes	<input type="checkbox"/> Ei / No

Exam instructions (in English):

This exam has 5 main exam questions. Answer to all 5 questions.

Note that you should not use more than one answer sheet (i.e. concept paper) for each main question (one answer sheet/one main question).

Same in Finnish

Tenttiohjeet:

Tässä kokeessa on viisi pääkysymystä. Vastaa jokaiseen viiteen pääkysymykseen.

Vastaustila on rajoitettu kunkin pääkysymyksen kohdalla yhteen koepaperiin (yksi konsepti/pääkysymys).

1. Answer the below questions about different pollutants and efficient level of pollution.
 - a) What do we mean by flow pollutant and stock pollutant? Explain and give an example of both. (1p)
 - b) Suppose now that we want to determine the efficient level of flow pollutant. Draw the typical shapes of pollution benefit and damage functions (both total and marginal) for flow pollutant. Explain the intuition behind these functions. (2p)
 - c) Explain the efficient level of flow pollutant and identify it with a graph. Also show on your graph the quantity of flow pollutant an unregulated market would be expected to achieve. (3p) Note: Full credit requires graphs plus explanation.

2. Consider the following questions relating to pollution control.
 - a) Coase theorem gives a bargaining solution to a pollution problem. Explain the idea of the Coase theorem and its implications. What are the limitations of bargaining solutions in reality? (3p)
 - b) How is the efficient level of pollution achieved with emission taxes? Note that full credit requires graph plus explanation. What are the strengths of emission taxes? (3p)

3. Consider the following questions relating to economy-wide modelling.
 - a) Describe the basic idea of an input-output model. What kind of analysis can we do with environmentally extended input-output model? Give some examples. (3p)
 - b) What are the basic assumptions of computable general equilibrium (CGE) models? As compared to input-output models and their application to environmental problems, what are the benefits of CGE modelling? Are there some disadvantages? (3p)

4. Consider the following questions relating to non-renewable resources.
 - a) Derive the Hotelling rule by using two-period model and interpret the result (4p)
 - b) Describe graphically the optimal price and extraction paths for minerals (2p)

5. Describe how different policy instruments can be used to solve the open access problem in fishery. (Hint: use graphs) (6p)