Examination paper for SØK1101

Environmental and Resource Economics

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Calculator: Casio fx-82ES PLUS, Casio fx-82EX Citizen SR-270x, SR-270X College or HP 30S.

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Informasjon om trykking av eksamensoppgave
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Answer all 4 questions. Weights are given next to each question.

Question 1 (30%)
   a. What is meant by the term externality? Provide examples of externalities.

   b. How do negative production externalities affect total economic surplus?

   c. Illustrate and discuss how assigning property rights can, in principle, solve problems related to negative production externalities. In practice, what are some of the difficulties in doing this?

Question 2 (20%)
   a. What is the difference between a stock pollutant and a flow pollutant?

   b. Discuss and demonstrate the societally optimal level of pollution? When would this level of pollution be zero?

   c. In the case of uniform pollutants, demonstrate how either pollution charges or emission permits can generate efficient reductions in pollution? Why might a regulator or government prefer either taxes or permits?

Question 3 (20%)
   a. How can a lack of property rights lead to over harvesting of natural resources?

   b. Why does freeriding make binding international climate agreements more difficult? How can ‘issue-linkage’, where access to other resources are tied to climate agreements, potentially reduce this problem?

Question 4 (30%)
Consider a depletable resource stock of Q=20 to be allocated across two periods. The marginal willingness to pay (demand curve) is given by \( P=10-0.5Q \)
Where P is the price and Q is the amount extracted.
The demand curve is identical in both periods
The marginal cost is constant and equal to 2
   a. Determine the extraction amount in two periods that maximises the present value for both periods. Set the discount rate equal to 0.10. Illustrate and explain graphically.

   b. Is this allocation fair? Why or why not?

   c. What is the market price in period 1? What is the marginal user cost in period 1?

   d. What is the market price in period 2? What is the marginal user cost in period 2?