GX374

National University of Ireland, Galway
Ollscoil na hÉireann, Gaillimh

Summer Examinations 1999

Environmental Economics I/II — EC314/EC324

Arts, Commerce, and Visiting Students

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Time allowed: THREE hours
Answer EIGHT questions in Part I (each worth 10 marks), FOUR questions in Part II (each worth 20 marks), and ONE question in Part III (worth 20 marks). Notice, there are 180 marks and 180 minutes.

Part I

Answer **EIGHT** of the following ten questions. Each question is worth 10 marks. Be brief, but to the point. Diagrams, when correctly used, are helpful.

I – 1. The following table shows three options, based on cost-benefit analysis, for establishing standards for lead in drinking water.

	Option		
	A	B	C
Total benefits	£68,957	£63,757	£24,325
Total costs	£6,272	£4,156	£3,655
Benefit to cost ratio	11.0	15.3	6.7
Marginal benefit (MB)	£5,192	£39,440	£24,325
Marginal cost (MC)	£2,117	£500	£3,655
MB to MC ratio	2.5	78.8	6.67

Option B was selected. Is that the economically efficient choice?

I – 2. Show diagrammatically the effects a landings tax will have on an open access fishery. Discuss the effects such a tax would have on (i) resource rent generation, (ii) income levels of fishermen, and (iii) employment.

I – 3. True or false? Marketable permits lead to deviations in pollution levels when the location of the abatement cost curve is uncertain, but if taxes are used in such a situation, pollution levels will not fluctuate at all.

I – 4. Evaluate the following statement: "Water pollution policies for Ireland must seek a goal of zero discharges. Less stringent policies are at best temporary palliatives."

I – 5. In a controversy over the clearing of forest land for agricultural purposes, proponents pointed out that agriculture contributed more to regional income and employment than did forestry. Is this a convincing argument that the change in land use is beneficial? Why or why not?

I – 6. Briefly explain the *Environmental Kuznets Curve*, (EKC). What implications does EKC have for the notion that economic growth causes environmental degradation?

I – 7. High real interest rates tend to reduce investment. Reduced investment leads to reduced use of natural resources. This in turn leaves more resources for future generations. If we take this as a fact, why are people that claim to be looking after the interests of future generations against the use of discount rates when evaluating costs and benefits of public projects?

I – 8. Could it be desirable to have a monopolist control an environmental resource? Why or why not?

I – 9. Biologists have often recommended harvesting fish stocks at stock levels that maximise the sustainable harvest from each stock (The MSY criterion). Would an economically efficient fishery ever operate at the MSY level? Why or why not?

I – 10. Why is it important for a policy to be cost effective? Can a *command-and-control* quota that is uniform for each emission source ever be cost effective? Why or why not?

Part II

Answer **FOUR** of the following six questions. Each is worth 20 marks. Answer these questions in an organised and structured manner. Try to use diagrams wherever possible. Remember to use economic analysis to draw your conclusions.

II – 1. Give a thorough discussion of how marketable permits can be used to reach a socially efficient level of pollution. In a world of perfect knowledge how do marketable permits compare with taxes? How do they compare if there is uncertainty about either marginal benefits from abatement or marginal costs of abatement?

II – 2. Compare and contrast what Tietenberg calls the pessimistic model and the optimistic model. Which one do you think describes the world better, or is there perhaps a third model that is more realistic?

II – 3. If the goal of a fisheries management is to maximise resource rent, how likely is a scheme of individual quotas to reach that goal? In your discussion, comment on some of the benefits and drawbacks of such quota schemes.

II – 4. Take a close look at the issue of recycling. Does an optimal level of recycling exist? Will a free market reach that level? Discuss in an organised manner using economic theory to guide your answer.

II – 5. Discuss some of the problems that population growth in developing countries causes to the environment. Use an economic model to suggest how economic incentives might be used to reduce population growth in these countries.

II – 6. How can environmental resources that are not traded in markets be valued in monetary terms? Describe at least three methods used for this purpose.

Part III

Answer **ONE** of the following three questions. It is worth 20 marks. These questions come from class presentations made by students. *You may not answer a question from your own presentation.*

III – 1. Discuss some of the reasons for deforestation in the developing world. What do you feel can be done to reverse the trend?

III – 2. Is it possible to blame governments in developing countries for the poor state of the environment in many of these countries? What other reasons can you offer?

III – 3. Does society realise how important water is? Discuss some issues relating to the value of water to society.