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DEGREE EXAMINATION 2005

ENVIRONMENT DEPARTMENT

MSc in Environmental Economics and Environmental Management
MSc in Environmental Economics

ENVIRONMENTAL ECONOMICS

Time allowed: **two hours**

Instructions: Answer any **TWO** questions.
All questions are equally weighted. Answer all parts of the questions.

*Pay adequate attention to spelling, punctuation and grammar, so that your answers can
be readily understood*

Question 1

The World Bank's Genuine Savings Index (GSI) measures net change in a country's wealth taking into account changes in the value of the stock of all assets.

- a) Explain the biases in existing measures of economic performance, and how the genuine savings index tries to address these biases. (10 marks)
- b) Discuss the relation between genuine savings, wealth and sustainable development. Be sure to connect your answer to the literature on the Environmental Kuznets curve (15 marks).

Question 2

The first and second theorems of welfare economics implicitly assume that all goods can be assigned property rights.

- a) Explain the importance of property rights for efficiency and equity in the first and second theorems of welfare economics. Explain how the absence of well-defined property rights to environmental resources leads to inefficiency (10 marks)
- b) Taking the case of unidirectional negative environmental externality, show how the problem might be addressed through the assignment of property rights. Identify the conditions in which this will yield an efficient outcome, and assess the importance of the distributional implications of different assignment of rights. (15 marks)

Question 3

Consider a congestible public good, y , which enters into the decision-problem in the following way:

$$\text{Max}_{x, y^i} U^i = U^i(x, y^i, (y^1 + y^2 + \dots + y^n))$$

- a) Give examples of this kind of public good. Explain its features and show how the behaviour of individual users of such goods gives rise to a loss of social welfare (10 marks).
- b) Suppose that the environmental authority can enhance the capacity of a congestible public good by investing in congestion control measures. What conditions have to be satisfied for the level of congestion control to be optimised? Compare this option to congestion charges. (15 marks)

Question 4

The conservation of biodiversity is a global public good. Conservation and development decisions taken in one country have implications for all others.

- a) Discuss the special features of transboundary environmental externality that make it difficult to find solutions. What are the conditions that favour cooperation?(10 marks)
- b) Considering the particular problem of biodiversity loss, explain how the public good nature of mitigation affects the level of national investment in mitigation actions. Discuss the role of international agreements, such as the Convention on Biological Diversity, and international funding mechanisms, such as the Global Environment Facility, in addressing this problem (15 marks)

