AS/ECON 4080 Mid–term Exam February 11 2004

time : 50 minutes

Do all 3 questions. All count equally.

1. What are **all** the efficient allocations in a two–person, two–good economy, in which good X is a pure **private** good and good Z is a pure **public** good, if person 1's preferences can be represented by the utility function

$$U^1(x_1, z_1) = x_1 + 20 \ln z_1$$

and person 2's preferences by the utility function

$$U^2(x_2, z_2) = x_2 + 30 \ln z_2$$

(where x_i and z_i are person i's consumption of the private and public good respectively), and where the production possibility frontier for the economy has the equation

$$X + Z = 300$$

where X and Z are aggregate quantities produced of the private good and public good respectively?

2. Suppose that 100 people are asked to contribute voluntarily to the provision of some pure public good, but that only the first 10 people choose to make a positive contribution.

If these people acted independently, and in their own self–interest, what can be concluded about each person's willingness to pay for a little more of the public good?

Would a person agree to contribute a little more, if she could be guaranteed that each of the other 99 people would also contribute the same amount? Explain briefly.

3. "It will not matter at all whether a firm is allowed to pollute as much as it wishes, or whether it cannot pollute at all without the permission of all affected parties." True, false, or uncertain? Explain.