RESOURCES ECONOMICS PRELIMINARY EXAMINATION
June 13, 1988

You have until 12:00 (four hours) to complete this examination. Exams will be collected promptly. Pace yourself in responding to questions so that you do not spend an undue amount of time on any one question at the expense of other questions. Write your student ID number at the top of each page of your answers and do not write your name anywhere on the answers.

A. Answer all of the following three questions.

1. The Senoj Aquifer is a groundwater resource which is replenished at a constant rate per unit of time. This water resource is used by an urban community for municipal and industrial use. It is also used in rural areas for the irrigation of agricultural crops. These two users, the community and agriculture, consume more water than replenished to the groundwater source when there is open access to the water and the only cost is drilling and operating a well.

   Explain the economic efficiency basis for allocating water between these user groups. Then, identify and describe in detail alternative policies which could be used to allocate water between these urban and agricultural user groups. Be careful to discuss economic efficiency and equity implications associated with each of the policies you identify.

2. The Endangered Species Act was passed by Congress and is to be implemented in 1988. This law affects a large number of crop and livestock production areas (counties) throughout the United States. Basically the law makes the use of insecticides and/or herbicides illegal in counties designated as containing endangered plant or animal species. Assume you were assigned the task of evaluating the economic impact of the ESA:
   A. Define and explain the specific economic impacts you would measure,
   B. Define data you would use and where you would obtain it,
   C. Explain how you would use the data to quantify the economic impacts,
   D. Indicate the types of economic impacts you would expect (Who would benefit and who would be damaged)?
   E. List limitations that would be associated with your study.

3. The average individual in a 100 person community has the following demand for a local recreational good,

$$x_1 = \frac{p_2 I^2}{p_1^2}$$

where the good x_1 has price p_1, I is annual income (thousands), and p_2 is the price of some other good. Currently, $p_1 = 2$, $p_2 = 1/3$, and average per capita income is $2,000 (use 2 in your calculations). City leaders are contemplating the desirability of increasing p_1 from 2 to 8 due to meet increased production costs.

Calculate the appropriate Hicksian measure corresponding to the "status quo ante" test for the community impact of this policy change.

B. Answer any one of the following two questions.

1. During a worldwide recession in 1983 the oil cartel began to lower their prices for oil sold to the United States and other countries. (a) Why would a recession make the cartel more vulnerable to price cutting? How would the reduced demand be shared between the competitive fringe and the cartel members in the absence of this price cutting. (b) Other things equal, what do you think would be the effect of this exogenous decrease in the price of imported oil in the United States on (i) the rents received by owners of domestic oil deposits (ii) of coal deposits (iii) of agricultural farmland (iv) of forest land (v) the relative prices of labor and capital (vi) the functional distribution of income?

2. Resource allocation decisions in the United States are increasingly made in the public arena through public service agencies, regulation, etc. Please characterize this decision process. Identify all actors and/or groups of actors and ways in which they interact with each other. Select some "public good" and trace the process with implications for efficiency in resource allocation.