

Final Exam
(100 points)

- (5 pts) 1. Producers of y use a number of inputs, including x , in a manufacturing process. You could compute ΔR for a policy-induced increase in p_y using either of the following supply specifications:

$$(A) \ y = \alpha_0 + \alpha_1 p_y \quad \text{or} \quad (B) \ y = \beta_0 + \beta_1 p_y + \beta_2 p_x$$

Interpret the following two welfare measures. (i) ΔR_A and (ii) ΔR_B .

- (12 pts) 2. Describe each of the 3 major welfare theorems starting with the most important one and ending with the least. Omit the technical assumptions. Justify your ranking.
- (12 pts) 3. Accurately illustrate equivalent surplus and the change in consumer surplus on the same graph for the same policy proposal. Clearly indicate what is changing in the policy you are illustrating and the direction of the policy change.
- (12 pts) 4. In what way(s) is the Coase Theorem relevant to externality policy? Fully define the important concepts you utilize in your discussion.
- (18 pts) 5. Some economists argue that if market rates of interest indicate that the opportunity cost of current funds is $x\%$, then $x\%$ should be used as the discount rate in cost-benefit analysis. Your reaction?
- (12 pts) 6. Suppose you possess an appropriate Marshallian demand function and you wish to calculate CV for a proposed price change. Enumerate (number them) and describe each of the steps you will follow.
7. In a 2-output economy, material (M) is produced using land (L) and capital (K). The material-producing sector has the aggregate production function

$$M = 24L^{0.5}K^{0.25}.$$

The 2nd output, atmospheric quality (Q), is produced as a consequence of idle land according to $Q = L$.

Overall, the economy's resources are $L=80$ and $K=16$. All four commodities are traded in competitive markets, and everything is privately owned to the extent possible. In market equilibrium Q is 3 times more valuable than M. However, analysts consider Q to be a nonrival and nonexcludable good, and they suspect that its true social value is 4 times greater than the social value of M.

- (8 pts) a. Find the economy's production possibility frontier.
- (15 pts) b. Recommend, justify (relative to other possible policies), and quantify a specific policy measure.
- (6 pts) c. Perform an economic analysis fully quantifying the value of your recommended policy.