This exam has 67 points. There are eight questions on the exam; you should work all of them. Questions 1, 3, and 6 are worth 9 points each, while the other five questions are worth 8 points each.

Put your answers to the exam in the blue books you have brought. The figures and attachment for the exam appear after the questions.

Answer the questions using as much precision and detail as the time allows. Correct answers which are unsupported by explanations will not be awarded points.

You have two hours (that is, until 11:15AM) to finish this test.
Answer all of the following eight questions.

1. [9 points] Give a graphical explanation of the Coase Theorem.

2. [8 points] How could you use the hedonic pricing approach to value a potential change in the characteristics of “National Park X” (for example, building ten more miles of hiking trails there)?

3. [9 points] How can one start from Figure 1 and \( H = E X \) to obtain Figure 2? Explain the meanings of \( X, \dot{X}, F, H, H = E X \), and \( H_{ss} \).

4. [8 points] Suppose an exhaustible resource firm’s graph of instantaneous profit \( \pi_t \) versus instantaneous quantity \( Q_t \) looks like Figure 3. Why is \( Q_1 \) not the firm’s optimal quantity? Tell me everything you know about the firm’s optimal quantity or quantities.

Hint: You may use the following formula without any mathematical explanation of how it was derived:

\[
\tau = \frac{-C_X}{M\Pi_7} + P_8' \frac{M\Pi_8}{M\Pi_7} + \frac{M\Pi_8 - M\Pi_7}{M\Pi_7}.
\]

5. [8 points] Explain the McKelvey Box. What are the implications of the McKelvey Box for the debate on resource scarcity?

6. [9 points] Discuss the potential negative consequences of deforestation in developing countries.

7. [8 points] Nicholas Georgescu-Roegen described economic life as being characterized by an “irreversible unidirectional flow.”

   (a) What did he mean by this? (Hint: it has something to do with the Second Law of Thermodynamics.)

   (b) How does this conception contrast with the viewpoint of most professional ecologists, who emphasize cycles?

8. [8 points] Put the enclosed newspaper article (labeled “Attachment 1”) into an economic context.
Figure 1:

Figure 2:

Figure 3:
Attachment I

Bush's Turn on Climate Treaty Breeds New Greens

The Salt Lake Tribune  NATION  Sunday, April 8, 2001

If it is not clear from Bush's State of the Union address, it was made clear in his speech on July 2, 2001, that the new administration is committed to reducing greenhouse gas emissions. But the key question remains: How will this be done?