Review Questions for the Final Exam

The following pages contain a list of questions that I think you should be able to answer given the readings and the material we have gone over in class. In preparing for the exam I recommend focusing on these questions, the reading guides, notes from class and the text. If you can easily answer all of the questions presented here, you should be in good shape.

Copies of previous exams are on the class home page. However, the material has changed substantially due to the change in textbook.

You will be allowed to bring to the exam TWO 3x5 inch note cards with notes on both sides. You may want to bring a ruler and colored pencils.

It is important that you understand the concepts, not simply be able to reiterate the answers to questions you’ve already seen. Hence, it is very important that you attempt to answer these questions before you see the answers.

There will be one clippings question on the exam.

Review guides from previous exams
You should look over the review questions from exams 1 and 2. In addition to reviewing the exams, I recommend focusing on the following questions.
Review #1: 2, 5, 7, 9, 11, 12, 13, 16, 18, 21, 22, 24, and 25
Review #2: 1, 2, 8, 9, 10, 11, 12, 13, 14, 15, 16, 07, 18, 21, 22, 24, 25, 29, 30, 33, and 34

Climate change policy

1. Give two reasons that are made in favor of establishing a US policy to address climate change.

2. Give two reasons that are made by those who do not question the scientific evidence on climate change but do not believe that the US should at this time develop a policy to address climate change. (hint: international and adaptation instead of abatement)

3. In the context of the current climate policy debate, define what is meant by an “offset” and give an example. What is one attractive feature of allowing offsets and one problem with them.

4. What is meant by “grandfathering” in a climate change policy? What is a problem that arises when rights to emit CO\textsubscript{2} are grandfathered? What is an economic argument in favor of grandfathering? What is a political argument in favor of grandfathering?

Fisheries and renewable resources
Questions submitted during class
• What is sustainable yield
• What is the “tragedy of the commons”
• Explain biological equilibrium
• Describe 3 ways to address the tragedy of the commons.
5. The graph below presents the sustainable yield curve for a fishery as a function of the number of effort at work in the fishery. Effort is measured in terms of fishing-weeks=#boats fishing × # of weeks per boat.

![Graph of sustainable yield curve]

- **a.** Assuming a fixed price of $100 per ton, draw the associated sustainable revenue curve.
- **b.** Assuming that the price of operating each boat is $10 per week, draw the corresponding total cost curve.
- **c.** Indicate on the graph the effort level that leads to the maximum sustainable yield, the economically efficient level of effort and the open-access equilibrium.
- **d.** Explain why, in the absence of restrictions on entry the fishery will not achieve the efficient level of effort.
- **e.** Show how a tax on effort could lead to the economically efficient level of effort. Since this is efficient, would the fishermen be better off? Who would be better off?

**Discounting**

You should understand and be able to use the equations in Box 15.1 on page 570-571. The questions on the reading guide would be an excellent review. The following questions from page 602-604 from the textbook would be good review of the use of discounting: 2, 3, and 4.

6. What is the difference between real and nominal interest rate.

7. What is the market rate of interest and why do banks charge a higher interest rate on risky loans?

**Cost-benefit analysis**

8. List the 8 steps in the “cookbook of benefit-cost analysis” presented in class.

9. From the perspective of a government planner, why is it that we need to take into account whether workers in a project have other employment opportunities?

10. Suppose that you are tasked with evaluating a project that will restore an archeological site at a national park. The site is important to people all over the nation and will lead to an increase in visitors to the park.
a. What values would you want to capture in your analysis and what method(s) would you propose using?
b. How would you use discounting in your benefit-cost analysis? Would a higher discount rate tend to make the project look more or less attractive (in terms of the present value of the project)? Explain.

11. You should be to provide reasonable answers to all of the questions on the “dam removal” case study handout circulated in class on 12/1/2009. (available on the notes page of the class web site)

Non-renewable resource
Questions submitted during class
• Will prices of numerable resources keep rising
• What is Hotelling’s rule?
• Is there a market failure such that we need government to interfere in nonrenewable resource management

12. In equilibrium, the price of a nonrenewable resource should increase roughly at the rate of interest.
   a. Suppose the price is likely to increase slower than the rate of interest. Explain why the price is likely to increase slower than the rate of interest that the supply in the short run will explode.
   b. Explain why if the price is likely to increase faster than the rate of interest that the supply in the short run fall sharply.

13. In the simple model of nonrenewable natural resources, does the market lead to a socially efficient use of the resource over time? Explain.

14. The graph below presents the real (inflation adjusted) price of oil from 1986 to the present. During which periods does the theoretical model of Hotelling seem to apply? Overall, do you think Hotelling’s rule is a good guideline for predicting the price of oil? Explain why or why not.

15. What is a backstop technology and how does it affect the price path of a non-renewable natural resource. Explain.

Sustainability

16. What is the difference between weak and strong sustainability?
17. What are three indices used to measure sustainability?

18. How does “Hartwick’s rule” relate to the national income accounts?

19. In chapter 3 of textbook, the authors indicated that one type of market failure was the inability of markets to provide for the future: “If people put inadequate weight on the effects of present activities for the future, the future may end up without sufficient resources” (p. 69). So is sustainability simply a market failure issue?