ECON 445
Spring 2007
Professor Paul Rothstein

Midterm Exam
March 29

Please:

1. Write your name on all of your answer books.
2. The exam is worth 150 points. This is 25% of your grade (there are 600 points in the course overall).
3. There are 25 questions in total, each worth 6 points.

   Answer all questions.
4. Note the suggested times for each section. They total up to 80 minutes.

Section I: Definitions
(Suggested time 15 minutes)
(30 points: 5 questions each worth 6 points)

Define the following terms. Be precise.

1. Common factor (in empirical economics).
2. Moral hazard.
3. Consumption smoothing.
4. OASDI.
5. Prospective reimbursement.

SECTION II: True/False and Explain If False
(Suggested time 30 minutes)
(60 points: 10 questions each worth 6 points)

State whether each of the following statements is true or false. If false, explain your answer convincingly.

6. An implication of the Coase Theorem is that in the presence of externalities, the government can use subsidies to prevent market failure.
7. Under the cap-and-trade system (as explained in Gruber), some countries will find it in their self interest to reduce pollution emissions by more than their quotas and sell the difference to countries that reduce emissions by less than their quotas.
8. Television signals are both rival and excludable.
9. Suppose you go from being uninsured to buying a health insurance policy. You respond by jumping out of a perfectly good airplane for the first time (attached to a parachute, of course). This behavior is best characterized as adverse selection.
10. Moving from an inefficient allocation to an efficient allocation must make all agents better off.

11. If firm A can stop all other firms from entering its market, then firm A is not a price taker.

12. Self insurance is most feasible when the "bad" state is predictable and the economic consequences are small.

13. The greater the adverse selection problem, the stronger the rationale for having the government provide the insurance.

14. One clear correlation is that as social security spending as a share of GDP increased during the 1960s and 1970s, the elderly poverty rate rose.

15. Under current law, social security will only be able to pay about 25% of promised benefits once the trust fund is exhausted.

Section III: Problems to Solve
(Suggested time 20 minutes)
(30 points: 5 questions each worth 6 points)

Solve the following problems.

The following information is necessary for questions 16-18:

Suppose that Scott and Bob live on the same street. In the winter, both of them like the snow on their street to be plowed. Bob's demand is given by $Q = 40 - P$ and Scott's demand is given by $Q = 30 - 2P$.

(In this problem, the demand for ploughing is like the demand for apples. Forget about the fact that a half-ploughed street may not be worth anything at all. Also, assume that the price of all other goods is normalized to 1, so that P gives the quantity of all other goods each person would sacrifice for an extra unit of snow ploughing.)

Suppose that the marginal cost of plowing the snow is constant at \$35.

16. Compute and graph the social marginal benefit curve.

17. What is the socially efficient amount of plowing that should be done?

18. What is the socially efficient amount of plowing that should be done if the marginal cost of plowing were \$5?

The following information is necessary for questions 19-20:

Firm A and B each produce 80 units of pollution. The government wants to reduce pollution levels. The marginal costs associated with pollution reduction are $MC_a = 50 + 30Q_a$ for firm A and $MC_b = 20 + 60Q_b$ for firm B, where Q_a and Q_b are the quantities of pollution "reduced" by each firm. Society's marginal benefit from pollution reduction is given by $MB = 590 - 3Q$, where Q is the total reduction in pollution.

18. Compute and graph the socially optimal level of each firm's pollution reduction.

19. Explain how the social optimum can be achieved if firms are given equal numbers of pollution permits but are allowed to trade them.

SECTION IV: Short Answer Questions.
(Suggested time 15 minutes)
(30 points: 5 questions each worth 6 points)

21. Choose *ONE* of the following three programs: Unemployment Insurance, Disability Insurance, or Worker's Compensation. Briefly answer the following questions:

    (a) What justifies having a public program?

    (b) What kind of moral hazard problems come with the program?

22. Explain two ways that the Social Security (pension) program is redistributive.

23. Barthold gives a number of reasons that policy makers prefer regulations to taxes as a tool of environmental policy. Name one and explain it.

24. According to Stiglitz, potential Pareto improvements often do not occur because winners cannot compensate losers. What, according to Stiglitz, makes it so difficult for winners to compensate losers?

25. Explain how the buyer's offer curve is constructed in Joskow. Also, what determines how much each buyer actually pays for pollution permits, assuming his order is actually filled?