Practice Final Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PPA 897, Spring 2010

Professor John McPeak

The total exam is worth 25 points. Each numbered question is worth 2 ½ points, and each sub question within a numbered question is worth an equal share of the 2 ½ points.

1. Taxes
   1. Show the impact of a specific tax of size τ placed on consumers. Note the price paid by consumers, the price received by producers, the equilibrium quantity and the tax revenue, and contrast this to the pre-tax price quantity pair.
   2. Show the impact of a specific tax of size τ placed on producers. Note the price paid by consumers, the price received by producers, the equilibrium quantity and the tax revenue, and contrast this to the pre-tax price quantity pair.
   3. Show the impact of an ad valorem tax rate α placed on consumers. Note the price paid by consumers, the price received by producers, the equilibrium quantity and the tax revenue, and contrast this to the pre-tax price quantity pair.
   4. Explain the concept of incidence in reference to your answer to part c of this question.
2. Monopoly.
   1. Illustrate on a graph the difference between a monopoly outcome and a perfectly competitive market outcome. Identify areas corresponding to producer surplus, consumer surplus, and deadweight loss.
   2. Contrast the monopoly outcome with the perfectly competitive outcome in terms of the transfer of economic benefit and the creation of economic benefit.
   3. What is a natural monopoly?

3) The own price demand elasticity for plane tickets to JFK from the Syracuse airport is -1.2.

* 1. Is the own price demand elasticity for tickets infinitely inelastic, inelastic, perfectly inelastic, elastic, unit elastic, or infinitely elastic?
  2. Over the past six months, the price of tickets to JFK has gone up by 15%. By what percent (and in a positive or negative direction) has quantity changed according to the elasticity given above?
  3. Assume the supply elasticity is 0.75. If we impose a specific tax on plane tickets to JFK, who will bear a higher share of the tax incidence, producers or consumers? Why?

4) The demand curve is given to you as q=200-20\*p.

* 1. Fill out the following table (use the relatively higher price / relatively lower quantity pair for the elasticity calculation)

|  |  |  |
| --- | --- | --- |
| Price | Quantity | Elasticity |
| 1 |  | ------------------------ |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |

* 1. Draw this demand curve with price on the y-axis and quantity on the x – axis. Identify the range over which this curve is elastic or inelastic.

5) The price per month of home security services has gone up by 12% from last year to this year. Assume each explanation listed below is hypothesized to be the sole cause of this price increase. Which of the following explanations can you rule out, and which can you not rule out.

|  |  |
| --- | --- |
| Explanation | Rule out Not Rule Out (circle) |
| Consumers’ income in this area has gone down significantly since last year. | Rule out Not Rule Out |
| New rules require all home security personnel enroll in a two year course teaching firearm operation, software programming, and ballroom dancing that costs $12,000 per year. | Rule out Not Rule Out |
| The Syracuse City Police Department has had to lay off 58% of the police force due to the budget crisis over the past year. | Rule out Not Rule Out |
| Technological innovation has reduced the cost of the home monitoring systems that are installed in home by area home security services. | Rule out Not Rule Out |
| A federal law has passed over the past year that allows new homeowners to start deducting the cost of home security services from their income taxes. | Rule out Not Rule Out |
| New York state has implemented a matching grant program for home security costs after finding that the benefits of these services in terms of deterring crime outweigh the costs of the grant. | Rule out Not Rule Out |

1. Circle the correct answer.

|  |  |
| --- | --- |
| **Statement** | **The statement is**  **(circle the correct answer)** |
| The expansion path traces out all points that are economically efficient. | True False |
| Producer surplus is calculated as the area below the demand curve and above the price line. | True False |
| The slope of an indifference curve is called the marginal rate of transformation. | True False |
| The income elasticity of demand for a normal good is a positive number. | True False |
| The internal rate of return is the value at which present value benefits equal present value costs for a project. | True False |
| Increasing the discount rate increases the present value of future costs and benefits. | True False |
| A monopolist is a single supplier of a good for which there is no close substitute. | True False |
| The cross price elasticity for a complement is negative. | True False |
| The free rider problem leads to under-provision of a public good. | True False |
| As the Gini coefficient for the distribution of income increases, this indicates inequality is decreasing | True False |

1. Budget Constraints. There are two goods, food (f) and other (o). The price of food is pf, the price of other is po. Income is Y. Hence the budget constraint is pf\*f+po\*o=Y.
   1. Draw the budget constraint and indifference curves for a consumer showing the optimal bundle with the original budget line and after the consumer has received food stamps of cash value FS.
   2. Draw the budget constraint and indifference curves for a consumer showing the optimal bundle with the original budget line and after the consumer has received a matching grant of size S for each unit of food purchased at price pf.
   3. Contrast and explain the consumption levels of food and other before and after the matching grant was given in question b.

8) Briefly describe how each of the following can justify government policy response, and identify a potential policy response that addresses the problem.

a. Information asymmetry about pricing in the case of taxis.

b.The moral hazard problem in selling people fire insurance.

c.The positive externality conferred on neighboring properties when an individual homeowner improves a property.

d.The negative externality imposed on society by fertilizer runoff from agricultural production.

9.Benefit cost.

The cost of the Valdez oil spill cleanup was around 1,300,000,000 billion dollars. From the EPA website, we find “In the aftermath of the Exxon Valdez incident, Congress passed the Oil Pollution Act of 1990, which required the Coast Guard to strengthen its regulations on oil tank vessels and oil tank owners and operators. Today, tank hulls provide better protection against spills resulting from a similar accident, and communications between vessel captains and vessel traffic centers have improved to make for safer sailing.”

To make life simple, assume a four year planning horizon (t=0, t=1,t=2, and t=3) with year zero being 1990, the undiscounted year and assume yourself back in time (poof!) to 1990 before the act was passed. Assume before the act was implemented, there was a (1/1,000) chance of such a spill occurring each year. So the pre-act expected cost of a clean-up per year was (probability of a spill)\*$1.3 billion + (probability no spill)\*$0. Assume the impact of the act is to reduce the chances of a spill to 1/100,000.

1. What is the size of the economic benefit of the act as measured by a reduction in expected spill cleanup costs?
2. If the cost of implementing the act is 3 million dollars in 1990, and 1 million dollars in each year 1991, 1992, 1993 (t=1,t=2, t=3) and the discount rate is 5%, do the benefits found in part (a) of the act outweigh the costs?

|  |  |  |
| --- | --- | --- |
|  | Benefits | Costs |
| T=0 |  |  |
| T=1 |  |  |
| T=2 |  |  |
| T=3 |  |  |

c) From the encyclopedia of the earth, “Economists tried to estimate the damage to so-called non-use or existence value of the Prince William Sound region in the wake of the spill. This is an attempt to measure what cannot be observed in the market: the value to the public of a pristine Prince William Sound. They estimated existence value using contingent valuation, a survey approach designed to create the missing market for public goods by determining what people would be willing to pay (WTP) for specified changes in the quantity or quality of such goods…. ”. The results of the survey put total societal willingness to pay in the range of 4.9 to 7.2 billion dollars. Would using the lower range of this measure of the benefits change your answer if this is the annual amount people are willing to pay the costs are as outlined in part b?

|  |  |  |
| --- | --- | --- |
|  | Benefits | Costs |
| T=0 |  |  |
| T=1 |  |  |
| T=2 |  |  |
| T=3 |  |  |

d. Compare your answers and discuss the merits and problems of each of the benefit measures proposed.

10) Voting on the funding for the Syracuse City School District. Syracuse faces a substantial decline in state funds due to the economic crisis. It is voting on how many teachers to cut. It can issue bonds to earn some money to fill the funding gap. We are voting on the budget and bond strategy. Our options are:

Low Budget, No bonds – low cost budget, 500 teacher jobs lost

Medium Budget, Low Bonds – medium cost budget, 250 jobs lost

High Budget, High Bonds– highest budget, no teacher jobs lost

Four groups in society:

Moderates, who prefer Medium, to High, to Low (30%)

Fiscal Conservatives, who prefer Low, then Medium, then High (35%)

People with kids enrolled in the city schools, who prefer High, to Low, to Medium (25%)

Teachers, who prefer High, to Medium, to Low (10%)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Preferences over Budget Levels | | | | | |
|  | First Choice | Second Choice | Third Choice | | Percent of the vote |
| Moderates  Fiscal Conservatives  Effective Schoolers  Teachers | Medium  Low  High  High | High  Medium  Low  Medium | Low  High  Medium  Low | 30%  35%  25%  10% | |

For each agenda, describe the voting in each round and the final outcome.

1. **Agenda A: Compare High to Low, then winner takes on Medium**

1. **Agenda B: Compare Medium versus Low, winner takes on High**
2. **Agenda C: Compare High versus Medium, winner takes on Low**
3. Describe how this illustrates the power of agenda setting in a democracy.

Work Page: