

You have the full ninety minutes to complete this exam. You have been given five sheets: three (double-sided) list the questions, one is scratch paper, and the fifth (also double-sided) is your answer sheet. This is the only sheet you will turn in. **Only work on your answer sheet will be considered**, so be sure to transfer your most important work to that answer sheet. Write neatly and good luck.

Multiple choice (50 points total: 2 points each)

1. The marriage tax is an example of
 - A. how difficult it is to achieve horizontal equity in practice.
 - B. a tax structure that places more focus on efficiency than equity.
 - C. why income taxes are the most preferred way to implement social policy.
 - D. why vertical equity should be weighted more heavily than horizontal equity in determining the optimal tax structure.

2. Which political philosophy believes in balancing the gains from greater income for the poor against the losses from less income for the rich?
 - A. Utilitarianism
 - B. Liberalism
 - C. Libertarianism
 - D. None of the above is correct.

3. Which of the following best illustrates the concept of derived demand?
 - A. An increase in the wages of auto workers will lead to an increase in the demand for robots in automobile factories.
 - B. An automobile producer's decision to supply more cars will lead to an increase in the demand for automobile production workers.
 - C. An automobile producer's decision to supply more minivans results from a decrease in the demand for station wagons.
 - D. An increase in the price of gasoline will lead to an increase in the demand for small cars.

4. Simply asking people how much they value a highway is not a reliable way of measuring the benefits and costs because
 - A. those who stand to gain have an incentive to tell the truth.
 - B. those who stand to lose have an incentive to exaggerate their true costs.
 - C. answers to the survey questions will always be downwardly biased.
 - D. not everyone asked will be using the highway.

5. Sigfried and Roy are both in the same enclosed hotel room. Sigfried assigns a \$20 value to smoking his cigar. Roy values smoke-free air at \$10. Which of the following scenarios is a successful example of the Coase Theorem?
 - A. Roy offers Sigfried \$15 not to smoke his cigar. Sigfried accepts and does not smoke.
 - B. Sigfried pays Roy \$11 so that Sigfried can smoke his cigar
 - C. Sigfried pays Roy \$9 so that Sigfried can smoke his cigar
 - D. Roy offers Sigfried \$10 not to smoke his cigar. Sigfried accepts and does not smoke.

Use the following information to answer the next two questions. The information from #6 will not transfer on to #7.

Two firms, DuPont and Exxon, each currently dump 50 tons of chemicals into the local river. The government has decided to reduce the pollution and from now on will require a pollution permit for each ton of pollution dumped into the river. It costs DuPont \$100 for each ton of pollution that it eliminates before it reaches the river. The analogous cost for Exxon is \$50.

6. The government gives each firm 20 permits. Government officials are unsure whether to allow the firms to buy and sell the pollution permits to each other. What is the total cost of reducing pollution if firms are not allowed to buy and sell permits from each other? If such sales and purchases are allowed? You should assume that any firm buys a permit pays the highest price for that permit (i.e., the seller extracts all consumer surplus).

- A. \$3,000; \$1,500
- B. \$4,500; \$3,500
- C. \$4,500; \$4,000
- D. \$4,500; \$2,500

7. The government will sell 42 pollution permits for \$75 each. It is likely that after summing the costs of permits and the cost of additional pollution abatement,

- A. Exxon will spend \$3,550.
- B. DuPont will spend \$3,950.
- C. DuPont will spend \$4,400.
- D. Exxon will spend \$1,900.

8. An optimal tax on pollution would result in which of the following?

- A. Producers will choose not to produce any pollution.
- B. Producers will internalize the cost of pollution.
- C. Producers will maximize production.
- D. The value to consumers at market equilibrium will exceed the social costs of production..

9. People who grew up in the western part of Aquilonia have an accent distinct from those from the eastern part of the country. People from the west also receive lower wages than easterners.

Without information on the regions' productivities, we can conclude that

- A. discrimination against people from the west exists.
- B. discrimination against people from the east exists.
- C. no discrimination exists.
- D. We can conclude none of the above.

10. Suppose that the government taxes incomes in the following fashion: 30% of the first \$20,000, 50% of the next \$30,000, and 60% of all income over \$50,000. George earns \$40,000, and Elaine earns \$60,000. Which of the following statements is correct?

- A. George's marginal tax rate is 60%, and his average tax rate is 50%.
- B. Elaine's marginal tax rate is 50%, and her average tax rate is 45%.
- C. George's marginal tax rate is 50%, and his average tax rate is 40%.
- D. Elaine's marginal tax rate is 60%, and her average tax rate is 40%.

11. Which of the following statements is *not* correct?
- A. All states have state income taxes, but the percentages vary widely.
 - B. Sales taxes and property taxes are important revenue sources for state and local governments.
 - C. Medicare spending has increased because the percentage of the population that is elderly has increased, as has the cost of health care compared to the cost of other goods and services.
 - D. A budget deficit occurs when government spending exceeds government receipts.
12. The Samuelsonian Condition offers guidance regarding
- A. how the Tragedy of the Commons can be avoided.
 - B. the level of a public good that should be provided.
 - C. how the expense of public goods should be allocated among tax-payers.
 - D. None of the above.
13. The town of Soitenly does not have any public snow-plows. Anyone who wants his street cleared of snow must hire a private snow-plow company, which charges \$75 per street. Curly, Larry, and Moe all live on a dead-end street; Curly lives at the very end. Each one values snow removal at \$50. At present, the snow is never cleared from the street. We can conclude that
- A. there is no way to improve upon the current situation because the snow removal exceeds what each individual is willing to pay for it.
 - B. Larry and Moe should wait for Curly to pay for the service because Curly will have the snow cleared all the way to his house. Then Larry and Moe will get the service for free.
 - C. the fee charged by the snow removal company is unfairly high.
 - D. Curly, Larry, and Moe could all be better off if they acted collectively.
14. In designing a tax system, policymakers have two (often conflicting) objectives. They are
- A. maximizing revenue and minimizing costs to taxpayers.
 - B. efficiency and minimizing costs to taxpayers.
 - C. efficiency and equity.
 - D. maximizing revenue and reducing the national debt.
15. Moral hazard arises when
- A. insurers cannot observe their policyholders' actions.
 - B. people are bound by law to buy insurance.
 - C. insurers cannot observe the true "type" of their policyholders.
 - D. none of the above.
16. The Tragedy of the Commons for sheep grazing on common land can be eliminated by the government doing each of the following *except*
- A. assigning land property rights.
 - B. auctioning off sheep-grazing permits.
 - C. subsidizing sheep flocks.
 - D. taxing sheep flocks.

Exam 3: Questions

17. Both Jake and Bill are police officers. Jake is a patrolman, and Bill is a detective. Jake's job is inherently more dangerous than Bill's. Bill has passed a difficult exam in order to be promoted to detective. Bill earns more than Jake. This is likely because
- of a compensating differential.
 - of efficiency wages.
 - Jake is better looking.
 - Bill has more human capital.
18. Suppose medical research provides evidence that eating bananas provides far greater health benefits than was previously thought. The resulting increase in the demand for bananas
- increases the marginal product of banana pickers for any given number of banana pickers.
 - increases the value of the marginal product of banana pickers for any given number of banana pickers.
 - increases the supply of banana pickers.
 - All of the above are correct.
19. A competitive firm sells its output for \$90 per unit. The marginal product of the 30th worker is 4 units of output per day; the marginal product of the 31st worker is 3 units of output per day. The firm pays its workers a wage of \$300 per day. There are no non-labor costs.
- For the 31st worker, the marginal profit is \$270.
 - For the 30th worker, the value of the marginal product of labor is \$1200.
 - For the 30th worker, the marginal profit is \$360.
 - None of the above is correct.
20. The following jobs are ranked from *most* desirable to *least* desirable from a survey of college seniors: personal fitness trainer, financial analyst, insurance agent, and sales clerk. Which of the four jobs will pay the least?
- Personal fitness trainer because of compensating differentials in wages
 - Sales clerk, because it requires the least education
 - Insurance agent, because the supply of them is very high
 - Any of the above explanations could be correct.
21. The poverty line is NOT adjusted for
- regional cost of living differences.
 - food stamps.
 - the Earned Income Tax Credit.
 - all of the above.
22. Knowing only that your income is \$40,000 and your income tax liability is \$5,000, your marginal tax rate is
- 8%.
 - 12.5%.
 - 20%.
 - unknown. We do not have enough information to answer this question.

23. Suppose that Scooby owns a lighthouse, and Shaggy owns a nearby port. Scooby's lighthouse benefits only those ships that enter Shaggy's port. Which of the following statements is *not* correct?
- A. Scooby's lighthouse may be considered a natural monopoly.
 - B. Scooby can reduce the free-rider problem by charging Shaggy a usage fee.
 - C. Scooby can exclude Shaggy's port from benefiting from the lighthouse by simply turning the power off.
 - D. Scooby's lighthouse would be considered a common resource.
24. From *The Armchair Economist*, Landsburg does NOT claim which of the following as a possible explanation for the widening of the gap between the rich and the poor?
- A. As the highest marginal tax rates fell, the rich hid less of their income.
 - B. The underlying statistics are factually inaccurate.
 - C. Divorce (which has become more commonplace) can change a middle-class two-earner household into two lower-class one-earner households.
 - D. The statistics are based upon annual incomes rather than lifetime incomes.
25. The Earned Income Tax Credit
- A. is a wage-subsidy targeted at the working poor.
 - B. discourages labor force participation, like all income transfers.
 - C. is simple for recipients to understand since it immediately supplements their wages.
 - D. has been fought by economists since its inception in the Social Security Act of 1935.

Quantitative and short-answer: point values accompany each question (partial credit will be assigned for intermediate work, so show work you would like us to consider).

26. A question 31 years in the making (10 pts)

In "The Last Resort" (the least awesome songs from the Eagle's *Hotel California* in 1976), Don Henley croons his perspective about the demise of California. The last chorus is

They call it Paradise, I don't know why.
Call some place Paradise, Kiss it goodbye.

Using insights about the Tragedy of the Commons, under what conditions will Don's claim be correct? What policies might Don have advocated to suit his interests?

27. Why everyone under 40 will die poor (10 points)

Briefly discuss the fundamental structural and demographic issues with the current Social Security system. Choose and defend one of the reforms that were discussed in class.

Turn page over

28. The iPhone's impressive and insidious implications (30 points)

Some analysts predict that the iPhone (with its full Internet access) will have massive impacts on society. (It's not far off from having access to the Star Trek computer for information.) These analysts, however, are split on the nature of these impacts. Some say that, because users of Mac operating systems become nicer people, positive spillovers will arise. Perhaps passer-bys see someone with an iPhone and ask questions, which the iPhone owner is happy to answer. Other analysts say that this information overload will lead to more accidents, especially while driving. Because driving accidents typically occur involving other cars, the size of this negative spillover will depend upon the number of iPhone users (i.e., iPhone users are especially likely to be in accidents with other iPhone users). For what follows, you should assume that iPhones are provided by price-taking suppliers.

The marginal iPhone user values the gadget at $PMB = 1800 - 8Q$, while the marginal cost of providing that iPhone is $PMC = 480 + 4/5 * Q$. (Valuations are in \$, quantities are in 1,000,000s.) The external marginal benefit of all the friendly information-sharing is a constant 280. The external marginal cost because of increased accidents increases with the number of iPhone users and is $6/5 * Q$.

- A. Incorporating the external marginal cost into a social marginal cost and the external marginal benefit into a social marginal benefit, find the expressions of this market's social marginal cost and social marginal benefits.
- B. If the government takes no action, what will be the free-market price and quantity?
- C. What is the efficient quantity of iPhones? At that quantity, what is society's marginal valuation? Give a brief answer describing how the government might reach this efficient level.
- D. Using your numerical results from above, graph this market. (While it need not precisely match your numbers from above, it should be broadly consistent.) Label free-market outcomes as P^M and Q^M and welfare-maximizing quantity as Q^* . Point out the area of deadweight loss that arises under the free-market scenario.
- E. Government efforts to address this externality will cost additional resources. Find the maximum that society should be willing to pay to correct this market failure.