

Midterm 2
60 minutes
Econ 1101: Principles of Microeconomics
November 16, 2015

Exam Form A

Name _____ Student ID number _____

Signature _____

Teaching Assistant _____ Section _____

The answer form (the bubble sheet) **and** this question form will both be collected at the end of the exam. Fill in the information above and then on the answer form, please write the following information

- **NAME**
- **X.500 username** (= email without “@umn.edu”)
- **Identification Number**,
- **Section (recitation number)**
- **Exam Form** (This is given above and can be A, B, D, C, or E.
Fill this in under “Form/Version.”)

Fill in the corresponding bubbles. Sign your name on the back of the answer form.

You will be awarded 1.5 bonus points for filling the correct name, x500, ID, and form number on the answer form.

There are 34 questions. All questions are multiple choice. Each question has a single answer. Select the **best** answer for each question and fill in the corresponding bubble on the answer sheet.

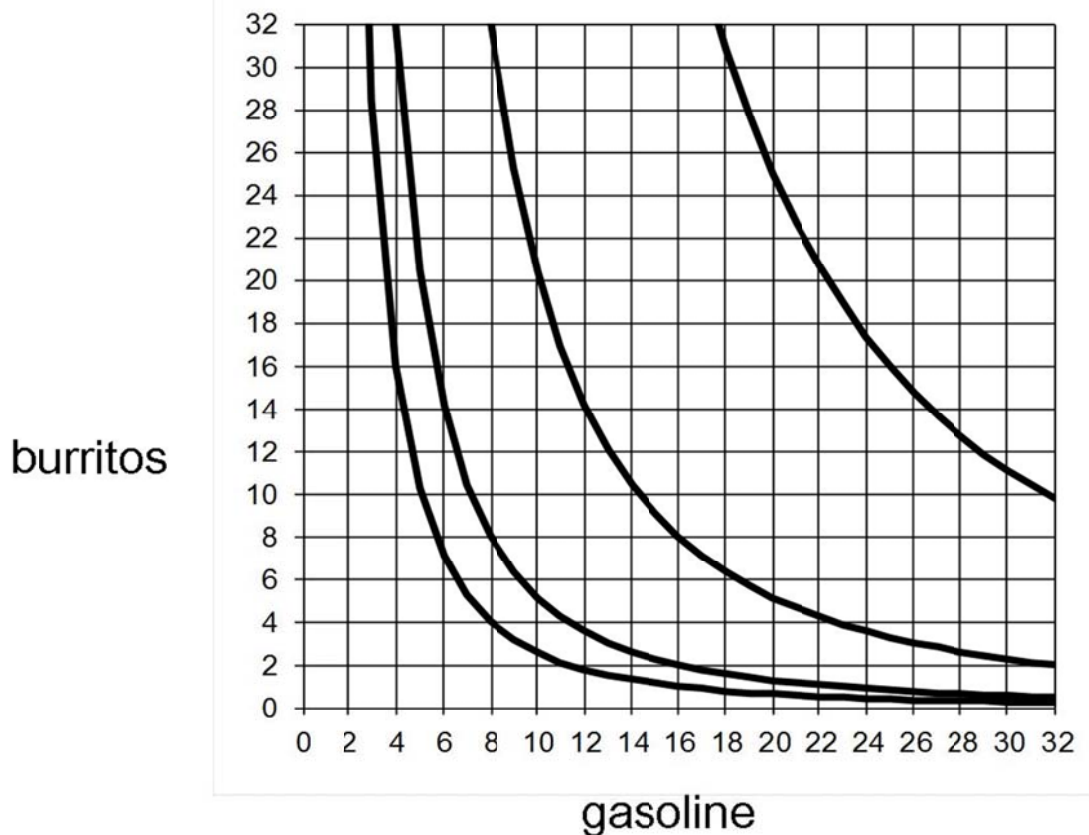
Use a **Number 2** pencil to fill in your answer.

You are not permitted to use calculators or to open books or notes.

1. For question 1, please fill in (a) on your bubble sheet, as this is exam form A. (We are using this question to verify the exam form.)

a) Form A

The questions on this page and the next page refer to the graph below. Cornhusker consumes gasoline and burritos and the graph illustrates his indifference curves.



2. From Cornhusker's indifference curves, we can determine that Cornhusker is indifferent between having (16 gasoline, 8 burritos) and

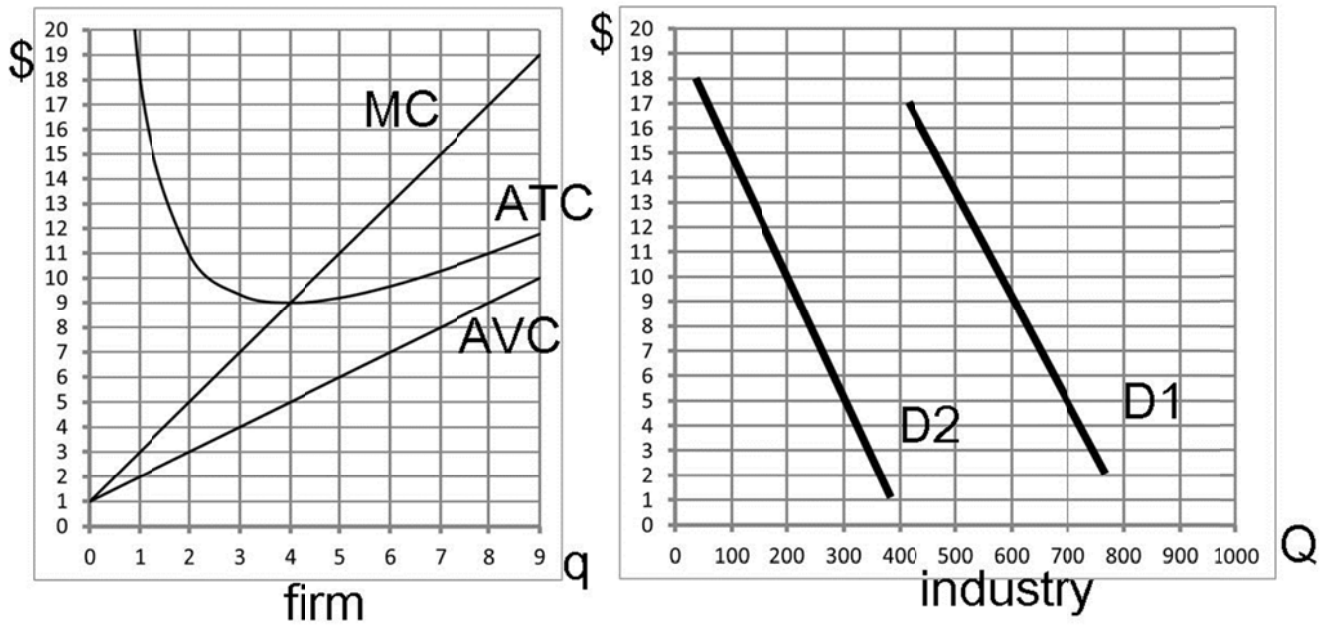
- a) (8 gasoline, 16 burritos)
- b) (12 gasoline, 14 burritos)
- c) (12 gasoline, 18 burritos)
- d) (20 gasoline, 8 burritos)
- e) (32 gasoline 10 burritos)

3. Suppose Cornhusker has an income of \$120, that $P^{\text{gasoline}} = \$10$, and that $P^{\text{burritos}} = \$5$. Draw Cornhusker's budget constraint in the above figure. From this we can see that the opportunity cost of one unit of gasoline equals

- a) $\frac{1}{2}$ burrito
- b) 1 burrito
- c) 2 burritos
- d) 3 burritos
- e) 4 burritos

4. At this income and prices of gasoline and burritos, the optimal consumption bundle for Cornhusker is
- a) (9 gasoline, 6 burritos)
 - b) (7 gasoline, 10 burritos)
 - c) (10 gasoline, 10 burritos)
 - d) (8 gasoline, 8 burritos)
 - e) (6 gasoline, 12 burritos)
5. Suppose the price of gasoline falls from \$10 to \$5, with income and P^{burritos} staying the same. The **change** in the demand for gasoline (the **total** effect of the price decrease) equals
- a) 0
 - b) 4
 - c) 8
 - d) 10
 - e) 12
6. Again assuming the price of gasoline falls from \$10 to \$5, we can see in the graph that the **substitution** effect of the price decrease on the demand for gasoline is approximately
- a) 0
 - b) 2
 - c) 5
 - d) 6
 - e) 8
7. Suppose that Cornhusker owns some mineral rights in North Dakota and when the gasoline price falls from \$10 to \$5, his income also falls from \$120 to \$60. Taking into account both the price change and the income change, is Cornhusker better or worse off in the new situation?
- a) better off
 - b) worse off
8. Under what assumptions will the long-run supply curve for the widget industry be perfectly elastic (i.e. perfectly flat)?
- (i) Marginal cost is less than average total cost at every quantity level.
 - (ii) The same technology is available to all firms.
 - (iii) There are no barriers to entry in the industry.
 - (iv) The supply curve has unit elasticity
 - (v) Input prices do not change as the industry expands
- a) (i) and (ii)
 - b) (iii) and (iv)
 - c) (i), (iii), and (iv)
 - d) (ii), (iii), and (v)
 - e) (i), (ii), (iv), and (v)

Suppose the required assumptions from the previous question hold for the widget industry. Each widget firm has the cost structure illustrated in the left graph below. The right graph illustrates two different possible demand curves, D1 and D2.



9. Fixed cost equals

- a) 9
- b) 4
- c) 8
- d) 12
- e) 16

For the next four questions, assume demand is given by **D1**, and the industry is in **long-run** equilibrium. (Note D1 is the demand curve on the **right**.)

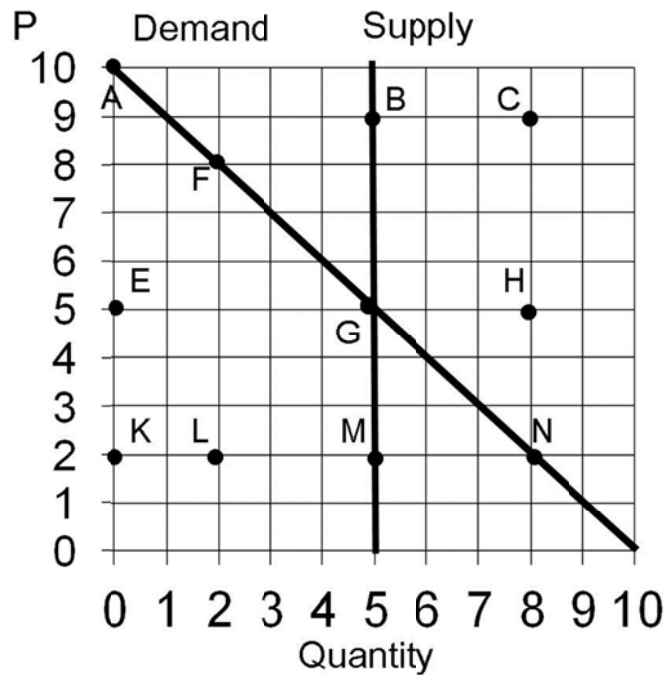
10. The price P^{LR} is

- a) 8
- b) 5
- c) 12
- d) 4
- e) 9

11. Long-run output per firm q^{LR} equals

- a) 2
- b) 3
- c) 4
- d) 5
- e) 6

12. Long-run industry quantity Q^{LR} equals
- a) 500
 - b) 700
 - c) 300
 - d) 400
 - e) 600
13. Long-run number of firms N^{LR} equals
- a) 50
 - b) 100
 - c) 150
 - d) 200
 - e) 300
14. Suppose the industry is initially in long-run equilibrium at demand D_1 and the number of firms equals the number in the previous question. Demand then shifts to D_2 . In the **short-run**, the equilibrium price will be
- a) 4
 - b) 5
 - c) 6
 - d) 7
 - e) 8
15. Continuing the previous question, after demand shifts to D_2 , in the short run, the profit of each firm will be
- a) -12
 - b) -4
 - c) -8
 - d) 4
 - e) 9
16. When demand shifts like in the previous question, price changes _____ in the short run than the long run, and quantity changes _____ in the short run than the long run.
- a) less, more
 - b) less, less
 - c) more, more
 - d) more, less



17. The next three questions use the above figure to go over an international trade example. Suppose when Econland cannot trade with the rest of the world, the supply and demand curves for the domestic industry are given in the above figure, where the equilibrium price is \$5. Next suppose Econland opens to trade with the rest of the world at a world price of \$2. Then Econland's _____ of widgets equal ____.
- exports, 2
 - exports, 3
 - exports, 4
 - imports, 1
 - imports, 3
18. Continuing with the international trade example from the previous question, the **change** in Econland **consumer surplus** when Econland opens up to international trade at the world price equals.
- EGMK
 - EHNK
 - EGNK
 - GNM
 - AGMK
19. Continuing the international trade example with a world price of \$2, and using the previous graph, suppose the government imposes a quota on imports equal to 2 widgets. Under the quota, the equilibrium widget price inside Econland will be
- 5
 - 4
 - 3
 - 1
 - 2

20. Which of the following are rivalrous in consumption?

- (i) A banana
- (ii) Premium TV channels (e.g. HBO)
- (iii) FM radio
- (iv) Timber from an unregulated forest

- a) (i) and (ii)
- b) (i) and (iii)
- c) (i) and (iv)
- d) (ii) and (iv)
- e) (ii) and (iii)

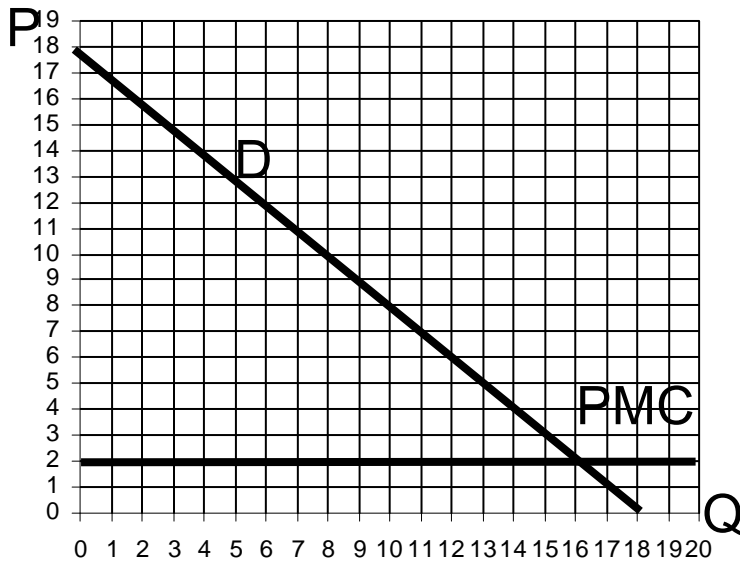
21. A public good is

- a) rivalrous in consumption and excludable
- b) nonrivalrous in consumption and excludable
- c) rivalrous in consumption and nonexcludable
- d) nonrivalrous in consumption and nonexcludable

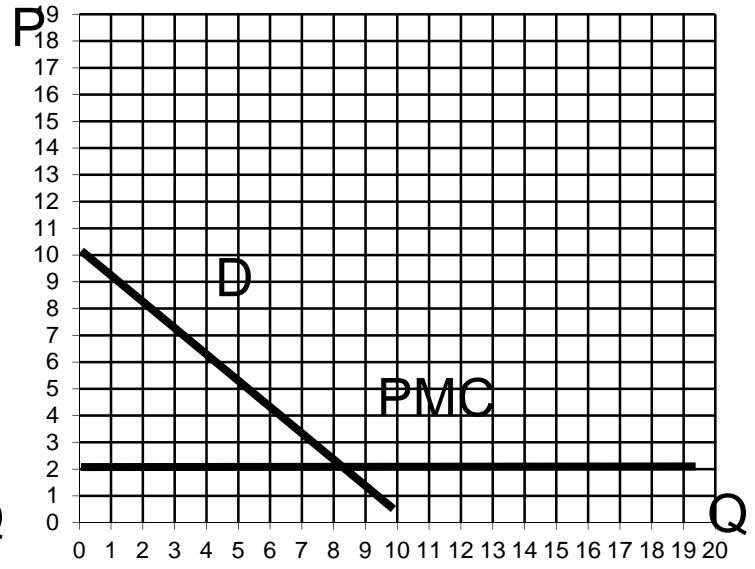
22. Which of the following statements regarding “cap and trade” policies is **not** true?

- a) The policy is more politically feasible than a carbon tax because industry groups that might block a tax can be potentially bought off by being given allowances.
- b) The European Union has already adopted such a policy to limit carbon.
- c) The policy has been used in the United States to address the problem of sulfur dioxide pollution.
- d) It is an example of a “command and control” policy where government regulators make the decision of how a given cutback in carbon production will be achieved rather than through the use of a market mechanism.

Rich Country



Poor Country



The next four questions refer to the above graphs and the following scenario:

There are two countries, the rich country and the poor country. The graphs above illustrate the demand for oil in both countries. Suppose the private marginal cost for oil is \$2 a gallon and that there is perfect competition in the oil market. Then with no government intervention, the market price of oil is \$2 a gallon. You can see in the above graphs that in this case, the rich country consumes 16 gallons and the poor country 8 gallons. Total world consumption is then 24 gallons in the free market allocation. (There are no other countries.)

Suppose science shows world consumption needs to be cut by **25 percent**, from 24 to 18 gallons, to avoid a catastrophe. The questions discuss various policies that will attain this goal.

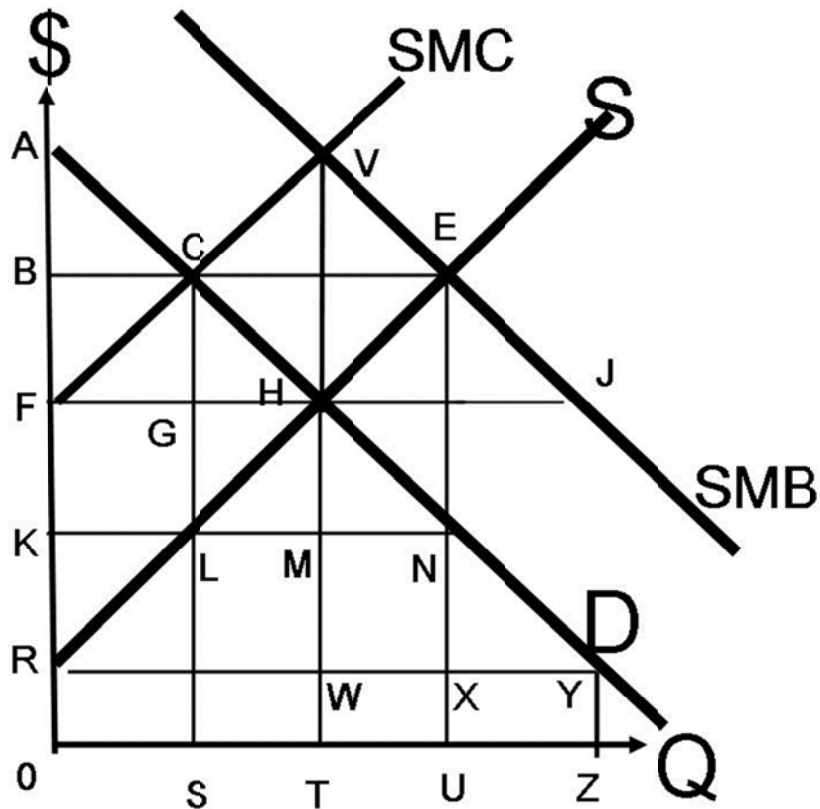
23. Suppose the two countries agree to each cut consumption by 25 percent and each country sets a tax on oil to do it. What does the tax on oil in the poor country have to be, to cut consumption from 8 to 6 gallons in the poor country?

- a) 10
- b) 8
- c) 6
- d) 4
- e) 2

24. What does the tax on oil in the rich country have to be, to cut consumption from 16 to 12 gallons in the rich country?

- a) 12
- b) 10
- c) 8
- d) 6
- e) 4

25. Suppose that instead of each country setting their own tax rates, the same tax on oil is imposed in both countries. What does this same tax have to be in order that total world consumption of oil decrease from 24 to 18 gallons?
- a) 12
 - b) 10
 - c) 8
 - d) 4
 - e) 3
26. Suppose that instead of taxes, a cap and trade system is set up. Total world consumption of oil is capped at 18, and 12 tradable allowances are given to consumers in the rich country, while 6 tradable allowances are given to consumers in the poor country. Suppose it is possible for consumers in one country to buy allowances from, or sell allowances to, consumers in the other country. The equilibrium price of one allowance will be
- a) 2
 - b) 3
 - c) 4
 - d) 6
 - e) 8



27. Suppose there is an industry that has **two** externalities. There is a **negative externality** on the production side, so the social marginal cost (SMC in the figure) exceeds private marginal cost (S in the figure). There is a **positive externality** on the consumption side so the social marginal benefit (SMB in the figure) exceeds private marginal benefit (D in the figure). The market equilibrium quantity equals _____ and the socially efficient quantity equals _____ (fill in the blanks)
- T, U
 - T, S
 - S, S
 - T, T
 - U, U
28. Continuing with the example of the above graph, suppose on account of technical change, the negative externality is completely eliminated. However, the positive externality remains. The policy that results in the socially efficient quantity is
- a subsidy of EN.
 - a tax of zero and a subsidy of zero.
 - a tax of HT.
 - a subsidy of FK.
 - a tax of CL.

29. **Peter and James both work 2 hours a day.** Peter can make ten doughnuts per hour or five pizzas per hour. James can make four doughnuts per hour or two pizzas per hour. _____ has the absolute advantage in making doughnuts and _____ has the absolute advantage in making pizzas.
- Peter, Peter
 - Peter, James
 - James, Peter
 - James, James
 - None of the above
30. We see that _____ has the comparative advantage in making doughnuts and _____ has the comparative advantage in making pizzas.
- Peter, Peter
 - Peter, James
 - James, Peter
 - James, James
 - None of the above
31. Suppose now **James** discovers a technology that allows him to make pizzas at a rate of 10 pizzas per hour. The production rates of doughnuts for James and doughnuts and pizzas for Peter remain the same as in question 29. With this new information, _____ has the comparative advantage in making doughnuts and _____ has the comparative advantage in making pizzas.
- Peter, Peter
 - Peter, James
 - James, Peter
 - James, James
 - None of the above
32. Using the new rates (Peter making 10 doughnuts per hour or 5 pizzas per hour, and James making 4 doughnuts per hour or 10 pizzas per hour), the opportunity cost for Peter in making one pizza is _____ doughnuts and the opportunity cost of James in making one doughnut is _____ pizzas.
- $\frac{1}{2}$, $\frac{1}{2}$
 - 2, $\frac{2}{5}$
 - 2, $\frac{5}{2}$
 - $\frac{1}{2}$, $\frac{5}{2}$
 - 2, 2

33. When trade is based on _____, trading partners must be _____ in terms of their production possibility frontiers, in order for there to be gains from trade. (Fill in the blanks.)
- a) comparative advantage, the same
 - b) comparative advantage, different
 - c) increasing returns, different
 - d) none of the above
34. At present, the United States uses a system of quotas to limit the amount of sugar imported into the country. Which of the following statements is most likely true?
- a) The quotas are probably the result of lobbying from U.S. consumers of sugar. The quotas increase consumer surplus for the United States, reduce producer surplus for the United States, and harm foreign sugar producers.
 - b) The quotas are probably the result of lobbying from U.S. producers of sugar. The quotas increase producer surplus for the United States and reduce consumer surplus for the United States.
 - c) The quotas are probably the result of lobbying from foreign producers of sugar. The quotas reduce producer surplus for the United States, increase consumer surplus for the United States, and benefit foreign sugar producers.
 - d) U.S. lawmakers did not need to be lobbied to impose the quotas because total surplus for the United States is higher with the quotas than without them.