

Midterm 1
60 minutes
Econ 1101: Principles of Microeconomics
October 8, 2018

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 back of 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

Questions 2-4 consider the market for coal. For each of the following situations, determine what happens to the equilibrium quantity (Q^{coal}) and equilibrium price (P^{coal}) of coal.

2. New cheap sources of natural gas are discovered. Natural gas and coal are alternative sources of fuel to produce electricity.
- a) $Q^{\text{coal}} \uparrow$ and $P^{\text{coal}} \uparrow$.
b) $Q^{\text{coal}} \downarrow$ and $P^{\text{coal}} \uparrow$.
c) $Q^{\text{coal}} \uparrow$ and $P^{\text{coal}} \downarrow$.
d) $Q^{\text{coal}} \downarrow$ and $P^{\text{coal}} \downarrow$.
3. Unions successfully organize all the coal mines in the U.S., raising coal miner wages.
- a) $Q^{\text{coal}} \uparrow$ and $P^{\text{coal}} \uparrow$.
b) $Q^{\text{coal}} \downarrow$ and $P^{\text{coal}} \uparrow$.
c) $Q^{\text{coal}} \uparrow$ and $P^{\text{coal}} \downarrow$.
d) $Q^{\text{coal}} \downarrow$ and $P^{\text{coal}} \downarrow$.
4. Two things happen: (i) A new source of natural gas is discovered and (ii) unions raise coal miner wages.
- a) $Q^{\text{coal}} \uparrow$ and we can't tell what happens to P^{coal} .
b) $Q^{\text{coal}} \downarrow$ and we can't tell what happens to P^{coal} .
c) $P^{\text{coal}} \uparrow$ and we can't tell what happens to Q^{coal} .
d) $P^{\text{coal}} \downarrow$ and we can't tell what happens to Q^{coal} .
5. Suppose smidgets are an inferior good and incomes rise.
- a) $Q^{\text{smidget}} \uparrow$ and $P^{\text{smidget}} \uparrow$.
b) $Q^{\text{smidget}} \downarrow$ and $P^{\text{smidget}} \uparrow$.
c) $Q^{\text{smidget}} \uparrow$ and $P^{\text{smidget}} \downarrow$.
d) $Q^{\text{smidget}} \downarrow$ and $P^{\text{smidget}} \downarrow$.
6. Two things happen in the smidget market. (i) Incomes rise (smidgets are inferior) and (ii) there is a technological advance in the amount of labor needed to make smidgets.
- a) $Q^{\text{smidget}} \uparrow$ and we can't tell what happens to P^{smidget} .
b) $Q^{\text{smidget}} \downarrow$ and we can't tell what happens to P^{smidget} .
c) $P^{\text{smidget}} \uparrow$ and we can't tell what happens to Q^{smidget} .
d) $P^{\text{smidget}} \downarrow$ and we can't tell what happens to Q^{smidget} .

Reservation Prices and Costs in Econland for a Widget

Name of D Person	Reservation price for one widget (dollars)	Cost to make one widget (dollars)	Name of S Person
D1	9	1	S1
D2	8	2	S2
D3	7	3	S3
D4	6	4	S4
D5	5	5	S5
D6	4	6	S6
D7	3	7	S7
D8	2	8	S8
D9	1	9	S9
D10	0	10	S10

7. The table above provides reservation prices and costs for the inhabitants of Econland. Suppose we have an allocation where S7 and S9 each produce a widget and D9 and D10 each consume a widget. This is not Pareto efficient because
- S6 can produce a widget and give it to D6 in exchange for \$5, and both are better off.
 - D10 can hand over his widget to D6 in exchange for \$4.50, and both are better off.
 - S2 can produce a widget and give it to D3 in exchange for \$6.50, and both are better off.
 - S7 can outsource production of her widget to S8 in exchange for \$6.00 and both are better off.
 - S9 can outsource production of her widget to S8 in exchange for \$6.00 and both are better off.
8. Suppose there is a price **floor** of \$7. What inefficiency might result?
- D5 might end up consuming a widget while D3 does not..
 - D2 might end up consuming a widget while D1 does not.
 - S9 might end up producing a widget while S1 does not
 - S6 might end up producing a widget while S2 does not
 - None of the above
9. **True or False:** Consider the following allocation in Econland. Every S person with a cost equal to \$x produces a widget and gives it to a D person with reservation price equal to \$x. For example, S9 makes a widget and gives it to D1. S8 makes a widget and gives it to D2. Is this a Pareto efficient allocation?
- Yes
 - No
10. In an industry, (1) **demand is unit elastic** and (2) **supply is perfectly elastic**. If a tax is imposed in this industry, _____ bear the entire burden of the tax and equilibrium quantity _____. (Pick an answer to fill in the blanks.)
- Buyers, decreases.
 - Buyers, is unchanged.
 - Sellers, decreases.
 - Sellers, is unchanged.

Consider the following conditions that may or may not apply about a market:

- (1) The market structure is perfect competition.
- (2) All goods are normal
- (3) Demand and Supply are unit elastic.
- (4) There are no externalities in the market.

11. The First Welfare Theorem states that the unregulated market is Pareto efficient if which of the above conditions hold?

- a) (1) and (2)
- b) (2) and (4)
- c) (1) and (4)
- d) (1), (2), (3)
- e) (1), (2), (4)

You are the Independent System Operator (ISO) in an electricity market. You have received the bid information in the table below for a double auction. Each buyer's bid is an offer to buy one unit of electricity. Each seller's bid is an offer to sell one unit of electricity.

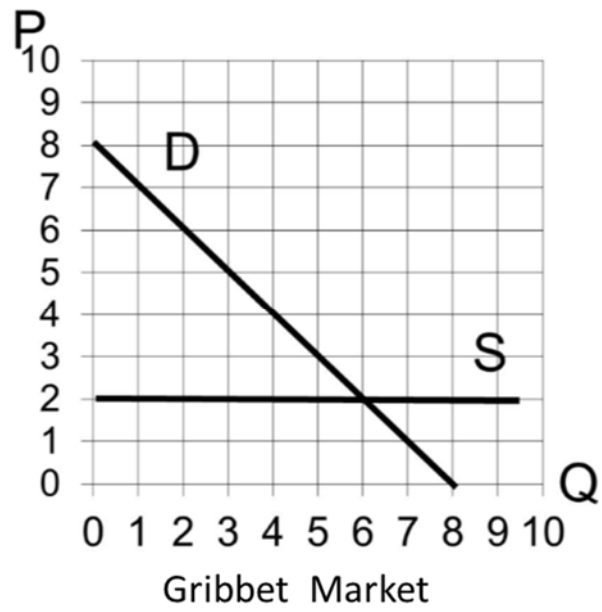
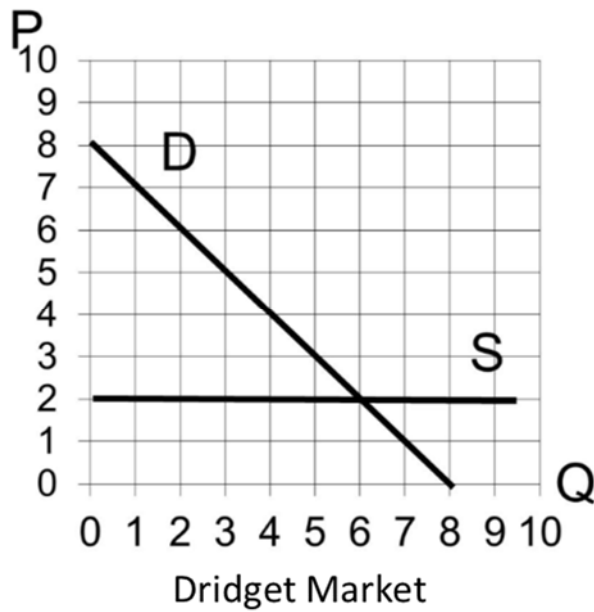
Buyers	Bid (Offer to buy in \$)	Sellers	Bid (Offer to sell in \$)
Grumpy	1	Mickeys	17
Sleepy	3	Minnie	15
Bashful	20	Daffy	5
Sneezy	10	Donald	10
Happy	3	Goofy	16

12. What price clears the market?

- a) 1
- b) 3
- c) 20
- d) 10
- e) 2

13. Who purchases electricity in the market clearing allocation?

- a) Grumpy
- b) Happy, Sleepy, Bashful and Sneezy
- c) Bashful
- d) Bashful and Sneezy
- e) Sneezy and Happy



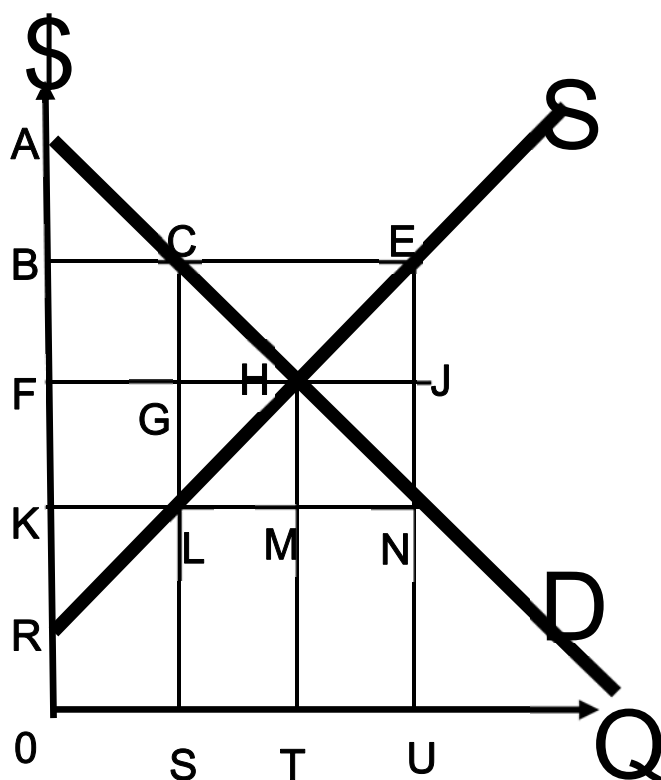
There are two markets in Funland: the dridget market (demand and supply on the left) and the gribbet market (demand and supply on the right). Suppose initially there is a **\$3 dridget tax** and **no tax** on gribbets.

14. Tax revenue collected with a \$3 dridget tax equals
 - a) 3
 - b) 4.5
 - c) 9
 - d) 12
 - e) 15

15. The deadweight loss in total surplus in the dridget market from the \$3 tax compared to total surplus with no taxes equals
 - a) 0
 - b) -3
 - c) -4.5
 - d) -6
 - e) -4

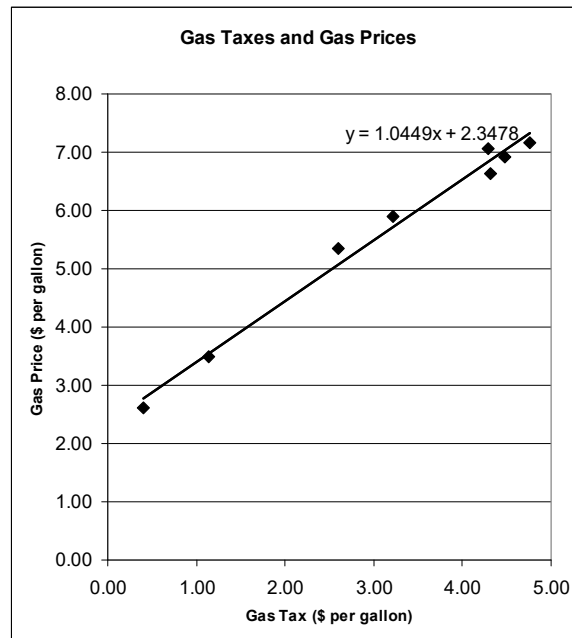
16. In the initial situation with no tax on gribbets, consumer surplus in the gribbet market equals
 - a) 18
 - b) 6
 - c) 12
 - d) 24
 - e) 10.

17. Economists in Funland propose a tax reform that **lowers** the dridget tax from \$3 to \$1, and raises the gribbet tax from \$0 to \$1. Under this plan, the combined deadweight loss of taxation across both markets equals
- a) -1
 - b) -2
 - c) -4.5
 - d) -5
 - e) -3
18. True or False regarding the new tax plan from the previous question: Now that two markets are being taxed under the new tax plan, the combined deadweight loss is actually **larger** in absolute value than in the original situation when only dridgets were taxed.
- a) True
 - b) False
 - c) There is not enough information
19. True or False again about the new tax plan: The new tax package will lower overall tax revenue collected, so Funland will have to cut government spending.
- a) True
 - b) False
 - c) There is not enough information
20. Go back to the initial case in Funland where gribbets are not taxed. Suppose the government implements a supply management policy in the **gribbet industry**, setting a total quota level equal to 2. Suppose it is possible to buy and sell quota on a **quota** exchange. The equilibrium price of quota at the quota exchange (per unit of quota) equals
- a) 1
 - b) 2
 - c) 3
 - d) 4
 - e) 5
21. The total market value of the quota equals the quantity of quota times the price of quota. Which of the alternative quota quantities below maximizes the total market value of quota?
- a) $Q = 2$
 - b) $Q = 1$
 - c) $Q = 4$
 - d) $Q = 5$
 - e) $Q = 3$



22. Suppose a **price ceiling** is set at point K in this market.
- There is excess supply equal to CE
 - There is excess demand equal to MN
 - There is excess supply equal to KL
 - There is excess supply equal to KN
 - There is excess demand equal to LN
23. Suppose the price ceiling only applies to the initial manufacturers (the S people in Econland). Consumers are allowed to resell goods at any price. In this case, total consumer surplus including scalping profit from resales equals
- The area ANK
 - The area AHF
 - The area ACB
 - The area ACLK
 - Impossible to answer because it depends on whether rationing is efficient or inefficient.
24. In the above figure, in a free market the price is F. Suppose the government raises the price to B by directly purchasing the good in the open market. Government spending on the program equals
- The area CEUS
 - The area BCS0
 - The area BENK
 - The area ACHLK

25. A new kind of consumption good, the “smidget” is invented in Econland. Suppose the impact of the invention on the widget market is that the price P^{widget} **increases** while the quantity Q^{widget} **remains unchanged**. A possible explanation for why this happened is that widgets and smidgets are _____ and the supply curve for widgets is _____. (Fill in the blanks.)
- complements, perfectly elastic
 - complements, perfectly inelastic
 - substitutes, unit elastic
 - substitutes, perfectly inelastic
 - substitutes, perfectly elastic
26. Suppose that when the price of a good falls from \$11 to \$9, the quantity demanded increases from 3 units to 5 units. From this information, we can say that
- demand is elastic
 - demand is inelastic
 - demand is unit elastic
 - the income elasticity is negative
 - the income elasticity is positive



27. The above figure plots average retail gasoline prices and gas tax rates in dollars per gallon for eight countries. Since the slope is approximately one, we can conclude:
- Demand must be unit elastic.
 - The income elasticity equals one.
 - The supply of gasoline is inelastic.
 - Consumers, not producers bear the primary burden of gas taxes.
 - None of the above.

28. Which statement is **true** about the possible effects of a binding **price ceiling** on total surplus in the market for widgets (compared to the free-market allocation)
- Quantity is inefficiently **high**.
 - Widgets won't necessarily be produced by the lowest cost producers and if not total surplus decreases.
 - Widgets won't necessarily be consumed by the highest reservation consumers and if not total surplus decreases.
 - None of the above

Gasoline Market in the US
June 2014 and June 2015

Time Period	Per Capita Daily Consumption of Motor Gasoline	Average Price Per Gallon in Dollars
June 2014	1.18	3.70
June 2015	1.25	2.78
Δ	0.07	-0.98
Average of Both Years	1.22	3.24
$\% \Delta$	$0.06 = 0.07/1.22$	-0.28

29. Consider the data in the above table. An estimate of the short-run elasticity of the demand for gasoline in the United States is
- 0.28/0.06
 - 0.06/0.28
 - 0.06/1.12
 - 1.22/3.24
 - 3.24/1.22
30. In estimating the elasticity of demand this way, the logic of comparing June 2014 with June 2015 is:
- There was a change in the price of a substitute over this period causing the demand curve to **shift**.
 - There were no changes in technology over this period so the change from June 2014 to June 2015 is a movement **along** a fixed supply curve.
 - The price change was small over this period, and this makes it possible to more precisely estimate elasticity.
 - Consumer tastes for driving vary with the season so comparing June to June holds tastes fixed.

Consider the following statements about income elasticity

- (1) For inferior goods, income elasticity is positive.
- (2) For necessity goods, income elasticity is above one.
- (3) When income elasticity for a good is less than one, the share of income spent on the good is higher with higher income.

31. Which of the above statements about income elasticity are true?

- a) (1) and (2) only
- b) (2) and (3) only
- c) (3) only
- d) (1), (2), and (3)
- e) None of the above

32. Recall the Aplia experiment with the \$30 price ceiling. Suppose you are a buyer in this game with a \$50 valuation for obtaining a book. Your optimal buying strategy is

- a) Wait until the high price books are sold, then buy a low price book at the very end, just before the bell ends the auction round.
- b) Submit an offer to buy a book for \$29.99 immediately at the start of the round.
- c) Submit an offer to buy a book for \$30 immediately at the start of the round.
- d) Submit the first bid approximately half way through the course of the auction.

33. As part of the new trade agreement between the United States and Canada, the amount of dairy exports from the United States allowed into Canada has been increased. If the amount of quota allocated to Canadian dairy farmers remains fixed, we expect that the new trade policy will

- a) decrease milk prices
- b) decrease the price of quota at the quota exchange
- c) both (a) and (b)
- d) raise the price of quota at the quota exchange
- e) none of the above

34. True or False: In the U.S., on average 1.3 gallons of gasoline is consumed per person, per day, while in Norway average consumption is .3 gallons. This consumption difference can primarily be explained by the better public transit options in Norway, because the retail price of gas at the pump is similar in the two countries.

- a) True
- b) False