

Midterm 1
60 minutes
Econ 1101: Principles of Microeconomics
October 8, 2012

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,**
- **student ID number,**
- **recitation number**
- **Form A** (see the bottom part of the answer sheet for this bubble.)

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

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

There are 32 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 following four questions consider the market for widgets. For each of the following situations, determine what happens to the equilibrium quantity (Q^{widget}) and equilibrium price (P^{widget}) of *widgets*.

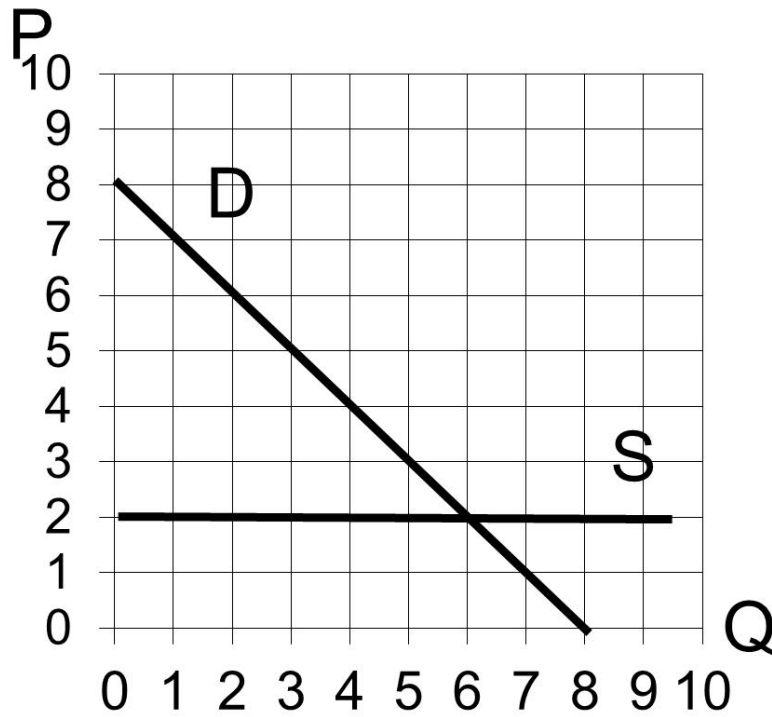
2. Income increases. Assume widgets are an inferior good.
- a) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \uparrow$.
 - b) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \uparrow$.
 - c) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \downarrow$.
 - d) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \downarrow$.
3. The price of smidgets increases. Assume smidgets and widgets are complements.
- a) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \uparrow$.
 - b) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \uparrow$.
 - c) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \downarrow$.
 - d) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \downarrow$.
4. The price of wood increases. Wood is an input in the production of widgets
- a) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \uparrow$.
 - b) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \uparrow$.
 - c) $Q^{\text{widget}} \uparrow$ and $P^{\text{widget}} \downarrow$.
 - d) $Q^{\text{widget}} \downarrow$ and $P^{\text{widget}} \downarrow$.
5. Two things happen: (i) the price of smidgets increases; (ii) the price of wood increases.
- a) $Q^{\text{widget}} \uparrow$ and we can't tell what happens to P^{widget} .
 - b) $Q^{\text{widget}} \downarrow$ and we can't tell what happens to P^{widget} .
 - c) $P^{\text{widget}} \uparrow$ and we can't tell what happens to Q^{widget} .
 - d) $P^{\text{widget}} \downarrow$ and we can't tell what happens to Q^{widget} .
6. Consider the widget industry. Suppose the price of an input increases, and as a consequence, Q^{widget} **decreases while** P^{widget} **remains unchanged**.. Which of the following is a possible explanation for why this happened?
- a) Demand is perfectly inelastic.
 - b) Supply is perfectly inelastic.
 - c) Demand is perfectly elastic.
 - d) Supply is perfectly elastic.
 - e) none of the above.

7. In an industry, (1) **demand is perfectly inelastic** 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.

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 |

8. The table above provides reservation prices and costs for the inhabitants of Econland. Suppose we have an allocation where S2, S3, S4, S5, S6 each produce a widget and D2, D3, D4, D5, D6 each consume a widget. This is not Pareto efficient because
- D2 can sell a widget to D7 for \$5 and both are better off.
 - S7 can sell a widget to D7 for \$5 and both are better off.
 - S1 can sell a widget to D1 for \$10 and both are better off.
 - S6 can pay \$3 to S1 to outsource production of the widget to S1, and both are better off.
 - None of the above.
9. Suppose there is a price ceiling of \$3. What inefficiency might result?
- D9 might end up consuming a widget while D1 does not
 - D6 might end up consuming a widget while D2 does not
 - S5 might end up producing a widget while S3 does not..
 - S2 might end up producing a widget while S1 does not.
 - None of the above



The above diagram gives information about demand and supply in a particular market. The next few questions ask you to determine the effects of a **tax** of \$4 per unit. To answer the questions, it is recommended that you first fill out the table below.

| Variable | Free Market | \$4 Tax | Change |
|---------------|-------------|---------|--------|
| Q | 6 | | |
| P^D | 2 | | |
| P^S | 2 | | |
| CS | 18 | | |
| PS | 0 | | |
| Gov't Surplus | 0 | | |
| TS | 18 | | |

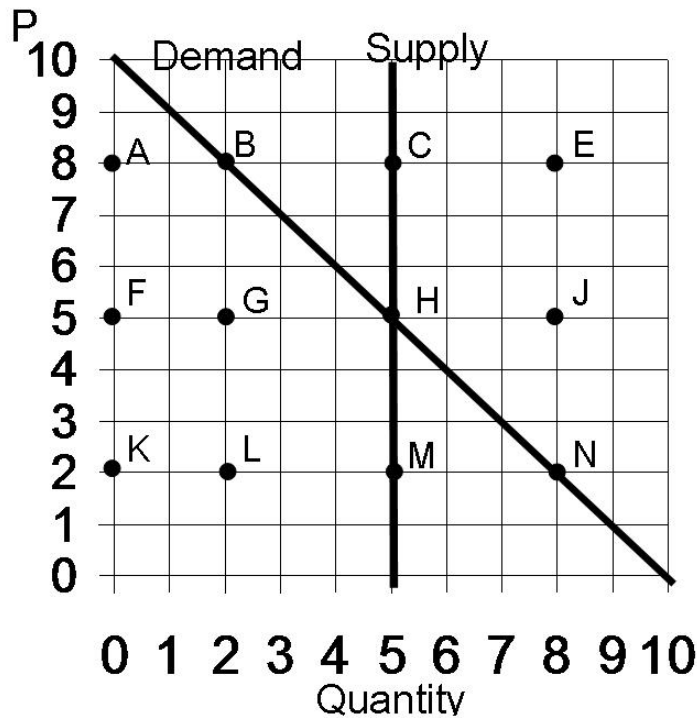
10. Suppose there are no externalities associated with this market and there is no monopoly. What is the efficient output level (the output that maximizes total surplus in this market)?
- a) 4
 - b) 5
 - c) 6
 - d) 7
 - e) 8

11. The equilibrium consumer price P^D under the \$4 **tax** is
- a) 4
 - b) 5
 - c) 6
 - d) 7
 - e) 8
12. Consumer surplus under the \$4 **tax** is
- a) 1
 - b) 2
 - c) 4.5
 - d) 8
 - e) 12
13. The **change** in total surplus from the \$4 **tax** is
- a) 0
 - b) -4
 - c) -6
 - d) -8
 - e) -12
14. Assume the same demand and supply curve in the diagram above, but consider a different policy. The government has implemented a supply management policy in the industry, limiting industry quantity to $Q = 4$. It does this by distributing 4 units total of **quota** and requiring that any firm producing output have quota equal to how much the firm produces. 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) 0
 - b) 1
 - c) 2
 - d) 4
 - e) 8
15. 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) $Q = 3$
 - c) $Q = 4$
 - d) $Q = 5$
 - e) $Q = 6$

16. Which of the following conditions are satisfied in a Pareto efficient allocation?
- (1) The consumer reservation value of the last unit consumed equals the marginal cost of the last unit produced
 - (2) Consumption is allocated to consumers with the highest willingness to pay.
 - (3) Production is allocated to producers with the lowest cost.
 - (4) Total surplus is allocated in an equitable way
- .
- a) (1).
 - b) (2) and (3)
 - c) (1), (2), and (3)
 - d) None of the above
17. Which of the following two statements are true about the deadweight loss of a tax, per dollar collected of a tax?
- (1) It tends to be large when taxes are small.
 - (2) It is zero when demand is perfectly elastic
- .
- a) (1).
 - b) (2)
 - c) (1) and (2)
 - d) Neither (1) nor (2).

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

- (1) All goods are normal goods
 - (2) Consumers and Producers split the surplus equally
 - (3) The market structure is perfect competition
 - (4) There are no externalities in the market.
18. 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) (3), and (4)
 - d) (1), (2), (3), and (4)
19. Suppose that when the price of a good falls from \$5 to \$3, the quantity demanded increases from 9 units to 11 units. From this information, we can say that
- a) demand is elastic
 - b) demand is inelastic
 - c) demand is unit elastic
 - d) the income elasticity is negative
 - e) the income elasticity is positive



20. If price equals \$8 in the above market there is excess supply. Consider a policy where the government buys up all the excess supply, to prevent the price from falling below \$8. What will be the total expenditures of the government on the program?
- \$8
 - \$16
 - \$24
 - \$32
 - \$40
21. Compared to the free market, the change in producer surplus from this policy equals
- ACHF
 - ACMK.
 - FHNK.
 - AEHF
 - BCHG
22. Now use the same graphs to consider a different policy. Suppose a price ceiling of \$2 is imposed on the original sellers. However, resales by consumers are legal. The change in total surplus (dead weight loss) of the policy equals
- BHG
 - FHMK.
 - FHNK.
 - ABHMK
 - There is no deadweight loss.

23. Consider the following facts: The widget price falls 10 percent while the price of smigets (a complement) falls 20 percent. Suppose the quantity of widgets demanded increases 5 percent, and there are no other changes in the determinants of widget demand. What can we conclude about the own price elasticity of demand for widgets?
- a) It equals 2.
 - b) It equals $\frac{1}{2}$.
 - c) It exceeds 2.
 - d) It is less than $\frac{1}{2}$.

Consider the following statements about income elasticity

- (1) For inferior goods, income elasticity is negative.
- (2) For necessity goods, income elasticity is between zero and one.
- (3) When income elasticity for a good is greater than one, the share of income spent on the good is higher with higher income.

24. 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)

25. 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.

26. The wholesale price of electricity in the United Kingdom tends to be expensive at 3 p.m. and cheap at 3 a.m. because

- a) Regulators require that prices vary that way.
- b) The demand for electricity is high at 3 p.m. and low at 3 a.m.
- c) The cost of running an oil-fueled generator is lower at 3 a.m. than at 3 p.m.
- d) More producers participate in the auction at 3 p.m. compared to 3 a.m.

27. Suppose we have an industry where demand is more elastic in the long run than the short run. Suppose the supply curve shifts and as a result, the equilibrium price increases and equilibrium quantity decreases. Relative to the initial price and quantity, in the long run, price increases _____ and quantity decreases _____, than in the short run. (Pick an answer to fill in the blanks.)
- a) less, less.
 - b) less, more.
 - c) more, less.
 - d) more, more.
28. To calculate the short-run demand elasticity in the US gasoline market, we use data on gasoline demand and prices in June 2007 and June 2008. Factor(s) that we are holding fixed by picking these dates include:
- a) The seasonal pattern of demand.
 - b) Gasoline supply in the market
 - c) Both (a) and (b)
 - d) Neither (a) or (b)
29. To estimate the long-run demand elasticity, we use data on gasoline consumption and prices from US and Norway in 2007. On account of what factor (or factors) would this approach tend to overestimate the long-run elasticity?
- a) Public transit access, a substitute, is better in Norway
 - b) Per capita income is substantially lower in Norway.
 - c) Gas prices are substantially higher in Norway due to high taxes.
 - d) All of the above
 - e) Both (a) and (c)
30. From gas consumption data and income data of various countries, we noticed a pattern where the richest European countries consume the most gasoline, this makes sense since gasoline is a ____ good, and if we expect income to increase substantially in the near future in China, their demand for gasoline will _____.
- a) normal, decrease
 - b) normal, increase
 - c) inferior, decreased
 - d) inferior, increase

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 \$) |
|-----------|------------------------------|---------|------------------------------|
| Aretha | 2 | Allie | 11 |
| Bill | 8 | Brett | 2 |
| Charles | 11 | Cindy | 1 |
| Dane | 9 | David | 4 |
| Elizabeth | 9 | Earl | 8 |

31. What price clears the market?
- a) 2
 - b) 11
 - c) 9
 - d) 4
 - e) 8
32. In the market clearing allocation, _____ buys and _____ sells.
- a) Aretha, Allie
 - b) Aretha, Brett
 - c) Bill, Allie
 - d) Dane, David