Midterm 1
60 minutes
Econ 1101: Principles of Microeconomics
October 12, 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 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 33 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 next four questions are about the market for widgets. For each scenario, determine what happens to the equilibrium quantity (Q^{widget}) and equilibrium price (P^{widget}) of *widgets*.

2. The price of **smidgets** increases. Assume smidgets and widgets are **complements**.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

3. Income decreases. Assume the income elasticity for widgets is negative.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

4. There is technological change that increases labor productivity in the widget industry.
   a) $Q^{widget} \uparrow$ and $P^{widget} \uparrow$.
   b) $Q^{widget} \downarrow$ and $P^{widget} \uparrow$.
   c) $Q^{widget} \uparrow$ and $P^{widget} \downarrow$.
   d) $Q^{widget} \downarrow$ and $P^{widget} \downarrow$.

5. Two things happen: (i) The price of **smidgets** increases and (ii) labor productivity increases..
   a) $Q^{widget} \uparrow$ and we can't tell what happens to P^{widget}.
   b) $Q^{widget} \downarrow$ and we can't tell what happens to P^{widget}.
   c) $P^{widget} \uparrow$ and we can't tell what happens to Q^{widget}.
   d) $P^{widget} \downarrow$ and we can't tell what happens to Q^{widget}.

6. Consider the figget industry. Suppose income increases, and as a consequence, Q^{figget} **remains unchanged while** P^{figget} **increases.**. Which of the following is a possible explanation for why this happened?
   a) Figgets are inferior and supply is perfectly elastic.
   b) Figgets are inferior and supply is perfectly inelastic.
   c) Figgets are inferior and demand is perfectly elastic.
   d) Figgets are normal and supply is perfectly elastic.
   e) Figgets are normal and supply is perfectly inelastic.

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 D3, D4, D5, D6, and D7 each consume a widget and S1, S2, S3, S4, and S5 each produce a widget. This is not Pareto efficient because
   a) S10 can produce a widget for D2, and D2 can give $8.50 to S10, and both are better off.
   b) the quantity is below the socially efficient level.
   c) D4 can give his widget to D2, and D2 can give $7 to D4, and both are better off.
   d) D7 can give his widget to D1, and D1 can give $9.5 to D7, and both are better off.
   e) None of the above.

8. Suppose we have an allocation where S1,S2,S3,S4,S5, S6, S7 each produce a widget and D1,D2,D3,D4,D5,D6, D7 each consume a widget. This is not Pareto efficient because
   a) we can have S9 sell to D1 for $9, S8 sell to D2 for $8, S7 sell to D3 for $7, and so on up to S1 sell to D9 for $1, and this will maximize output.
   b) S8 can sell a widget to D8 for $8 and both are better off.
   c) S5 should outsource production to S10.
   d) the condition for efficient allocation of consumption is not satisfied.
   e) S7 can give $5 to D7, instead of making a widget and giving it to D7, and both are better off.

9. Suppose in Econland there is a **price floor** of $7. Which of the possible alternatives are true?

   (1) D1, D2, D3 will consume.
   (2) We don't know who is going to consume.
   (3) S1, S2, S3, S4, S5, S6, S7 will produce
   (4) S1, S2, S3 will produce.
   (5) We don't know who is going to produce

   a) (1) and (4)
   b) (2) and (3)
   c) (2) and (4)
   d) (1) and (5)
   e) (2) and (5)

10. **True or False:** Suppose an allocation in Econland is Pareto efficient. This implies that consumer surplus is equally divided among all the D people who consume, and producer surplus is equally divided among all the S people who produce.
    a) True
    b) False

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

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

11. The First Welfare Theorem states that the unregulated market is Pareto efficient if which of the above conditions hold?
    a) (1) and (4)
    b) (2) and (3)
    c) (1) and (3)
    d) (3) and (4)
    e) (1), (2), (3), and (4)

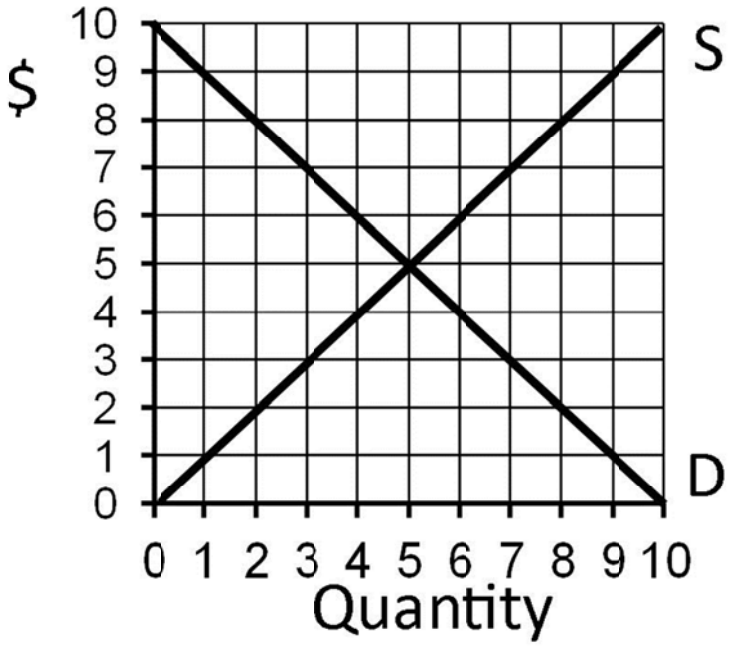
You are the Independent System Operator (ISO) in an electricity market. You have received the bid information in the table below for a double auction. Each buyer's bid is an offer to buy one unit of electricity. Each seller's bid is an offer to sell one unit of electricity.

Buyers	Bid (Offer to buy in $)
Ronald	5
Percy	14
Fred	19
Ginny	15
Molly	7

Sellers	Bid (Offer to sell in $)
Hagrid	7
Snape	4
Dobby	17
Bellatrix	6
Draco	6

12. What price clears the market?
    a) 6
    b) 7
    c) 15
    d) 5
    e) 17

13. Who produces in the market clearing allocation?
    a) Dobby
    b) Hagrid, Snape, Dobby, Bellatrix, Draco
    c) Draco, Bellatrix
    d) Snape, Bellatrix,Draco
    e) Hagrid, Snape, Bellatrix, Draco



While it wasn't mentioned in lecture, there is actually a taxi industry in Econland. The above diagram illustrates the supply and demand for taxi rides in Econland.

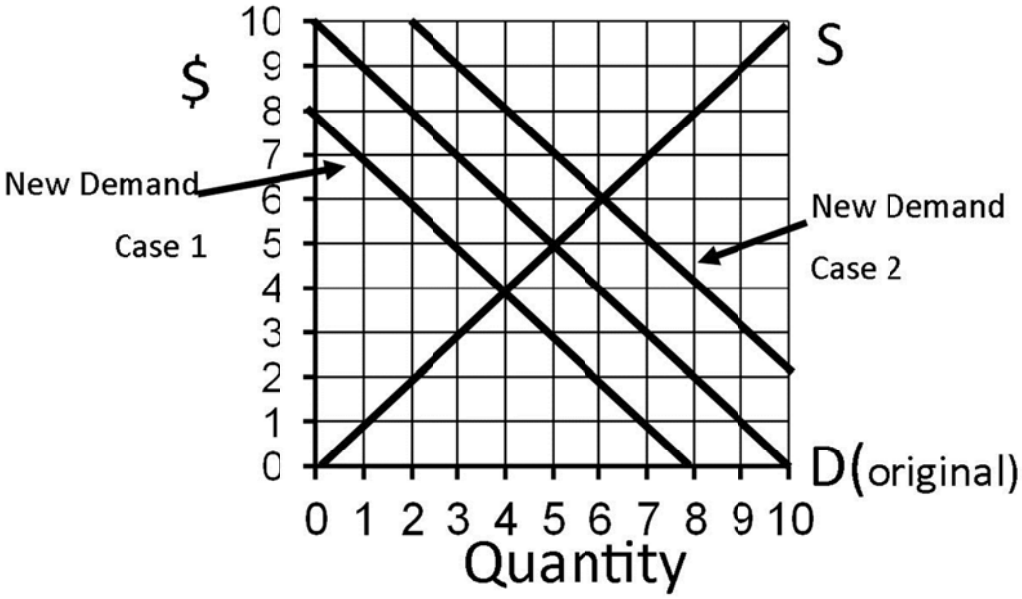
14. Suppose the government imposes a **tax** of $8 per taxi ride. **Total tax revenue** collected equals
    a) 8
    b) 32
    c) 40
    d) 16
    e) 24

15. Suppose instead of a tax, the government offers a **subsidy** of $2 per taxi ride. **Producer surplus** equals
    a) 18
    b) 12.5
    c) 8
    d) 16
    e) 20

16. Suppose instead of the other policies, there is a **price ceiling** of $2. Suppose the rationing is **perfectly inefficient**. The total of **producer** and **consumer** surplus equals
    a) 10
    b) 2
    c) 4
    d) 6
    e) 12

17. Suppose instead of the other policies, there is a cap and trade system. One unit of quota is required per one unit of taxi rides. Suppose the total number of quota units made available is 2. The equilibrium price of a unit of taxi **quota** equals

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



Suppose Uber enters Econland. It is a convenient car service that riders access with their cell phones. Suppose the government does not classify Uber cars as taxis, so the quota policy does not apply to Uber. The above diagram illustrates the taxi market **after** Uber enters. Two possibilities are listed for the new demand curve for taxis, "case 1" and "case 2." To answer the next two questions, you first need to decide which demand shift is the relevant case.

18. Assume total quota in the taxi market remains at 2 units after Uber enters. The equilibrium price of a unit of taxi **quota** after Uber enters is ____.

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

19. **True or False**. Suppose S1 is a taxi driver in Econland. She doesn't initially own any quota, so if she wants to be in the taxi business, she needs to go to the quota exchange to buy quota. For S1, it makes no difference whether Uber enters or not.

    a) True
    b) False

20. Suppose that when the price of a good rises from $4 to $6, the quantity demanded decreases from 20 units to 18 units. From this information, we can say that
    a) demand is elastic
    b) demand is inelastic
    c) demand is unit elastic
    d) the good is a luxury good
    e) the good is a necessity

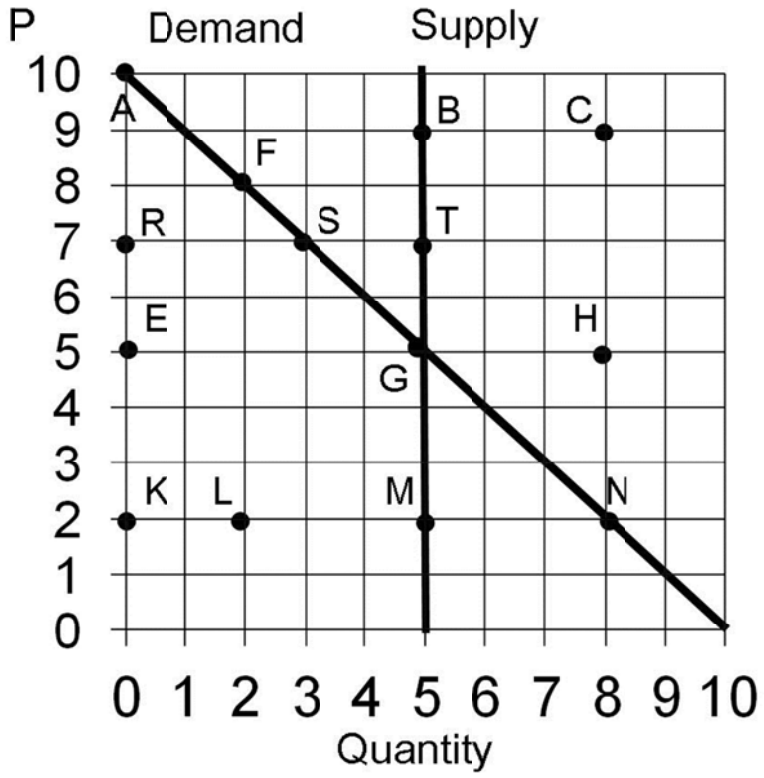
Consider the following two scenarios.

(i) Suppose that on account of shifts in the supply curve, the price of gasoline in the United States falls by about $1 per gallon between June 2014 and June 2015. Suppose we use per capita consumption data to construct an estimate of the elasticity of demand for gasoline.

(ii) Suppose two countries have similar incomes, population densities, and similar public transit options, but differ in tax policy towards gasoline. The first country sets a gas tax that is $3 per gallon higher than the gas tax in the second country, and this differential has existed for over thirty years. Suppose the P^D for gasoline is about $3 higher in the first country. (P^D is the price consumers pay that includes taxes.)

21. Which of the following estimates of the elasticity of demand for the two scenarios makes the most economic sense?
    a) 0.0 for (i), 0.0 for (ii)
    b) 0.2 for (i), 0.2 for (ii)
    c) 1.0 for (i), 1.0 for (ii)
    d) 0.2 for (i), 1.0 for (ii)
    e) 1.0 for (i), 0.2 for (ii)

22. Based on the estimates from the previous question, if the United States were to raise the gas tax by $1, then compared to June 2015, the gasoline tax revenue collected per person in June 2016 would be expected to
    a) increase.
    b) stay the same.
    c) decrease.
    d) there is not enough information.



The next three questions refer to the above graph and the following scenario. When price equals $7 in the above market there is excess supply. Suppose the government has a buyout program where it purchases all the excess supply needed to prevent the price from falling below $7.

23. What will be the total expenditures of the government on the program?
    a) $7
    b) $14
    c) $35
    d) $21
    e) $28

24. Compared to the free market, the change in consumer surplus from the policy is a loss equal to
    a) RSGE
    b) AGE
    c) ASR
    d) EGMK
    e) EGNK

25. Compared to the free market, the change in producer surplus from the policy is a gain equal to
    a) RSGE
    b) RTGE
    c) EGMK
    d) EGNK
    e) RTMK

26. Suppose that fine dining is a luxury good and imagine your income increases. Which statement is the most accurate?
    a) your total spending on fine dining goes down
    b) your quantity of fine dining goes down.
    c) the share of income you spend on fine dining decreases
    d) the share of income you spend on fine dining increases
    e) not enough information

27. Consider the following statements, which may or may not be true, about the cap and trade system used in the dairy industry in Canada.

    (1) The policy consists of extensive subsidies that are funded by the Canadian government.

    (2) The policy results in a reduction of P^D, the price consumers pay for milk, compared to no government regulation.

    a) Only (1) is true.
    b) Only (2) is true.
    c) (1) and (2) are both true
    d) (1) and (2) are both false.

28. In an industry, (1) **demand** is **perfectly inelastic** and (2) **supply** is **perfectly elastic.** When there is no tax, the equilibrium price is $10 and the equilibrium quantity is 100 units. Suppose a tax of $6 per unit imposed on the industry. After the tax, the seller price P^S =___, the buyer price P^D = __, and the quantity ___
    a) 7, 13, and "is less than 100."
    b) 10, 16, and "equals 100."
    c) 4, 10, and "is equal to or greater than 100."
    d) 8, 14, and "equals 50."
    e) There is insufficient information to answer the question.

29. In Econland, we defined a **head tax** as a fixed levy on every resident that did not depend upon whether someone bought or sold a widget. Choose the best answer below.
    a) A head tax is a progressive tax because individuals with high incomes pay a larger share of their income in tax.
    b) If the number of residents in Econland does not depend on the level of the head tax, then there is no dead weight loss from the tax.
    c) A head tax is **less** efficient than a widget tax, precisely because widgets respond to taxes, but heads do not.
    d) None of the above.

30. 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.

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.

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)

32. 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)

33. 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.