

Midterm 1
60 minutes
Econ 1101: Principles of Microeconomics
October 9, 2017

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 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

Questions 2-6 consider the global market for oil. For each of the following situations, determine what happens to the equilibrium quantity (Q^{oil}) and equilibrium price (P^{oil}) of *oil*.

2. The U.S. Government begins to offer subsidies on sport-utility vehicles (SUVs).

a) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \uparrow$.

b) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \uparrow$.

c) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \downarrow$.

d) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \downarrow$.

3. An earthquake in Saudi Arabia shuts down all production in that country.

a) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \uparrow$.

b) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \uparrow$.

c) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \downarrow$.

d) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \downarrow$.

4. Average income in China increases significantly.

a) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \uparrow$.

b) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \uparrow$.

c) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \downarrow$.

d) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \downarrow$.

5. A new technology is discovered which makes it easier to pump oil from deep-sea wells.

a) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \uparrow$.

b) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \uparrow$.

c) $Q^{\text{oil}} \uparrow$ and $P^{\text{oil}} \downarrow$.

d) $Q^{\text{oil}} \downarrow$ and $P^{\text{oil}} \downarrow$.

e) Can't tell

6. Two things happen: (i) Average income in China increases significantly and (ii) A new technology is discovered which makes it easier to pump oil from deep-sea wells.

a) $Q^{\text{oil}} \uparrow$ and we can't tell what happens to P^{oil} .

b) $Q^{\text{oil}} \downarrow$ and we can't tell what happens to P^{oil} .

c) $P^{\text{oil}} \uparrow$ and we can't tell what happens to Q^{oil} .

d) $P^{\text{oil}} \downarrow$ and we can't tell what happens to Q^{oil} .

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.)
- a) Buyers, decreases.
 - b) Buyers, is unchanged.
 - c) Sellers, decreases.
 - d) 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. **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?
- a) Yes
 - b) No
9. The table above provides reservation prices and costs for the inhabitants of Econland. Suppose we have an allocation where D1, D2, D3, D4, and D5 each consume a widget and S3, S5, S7, S9, and S10 each produce a widget. This is not Pareto efficient because
- a) S8 can make a widget instead of S9, and S9 can give \$8.50 to S8 and both are better off.
 - b) The quantity is above the socially efficient level.
 - c) S2 can make a widget instead of S7, and S7 can give \$1 to S2, and both are better off.
 - d) D3 can give his widget to D8, and D8 can give \$5 to D3, and both are better off.
 - e) None of the above.

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

- (1) Demand for all goods is elastic.
- (2) The market structure is perfect competition.
- (3) Consumers and Producers split the surplus equally.
- (4) There are no externalities in the market.

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

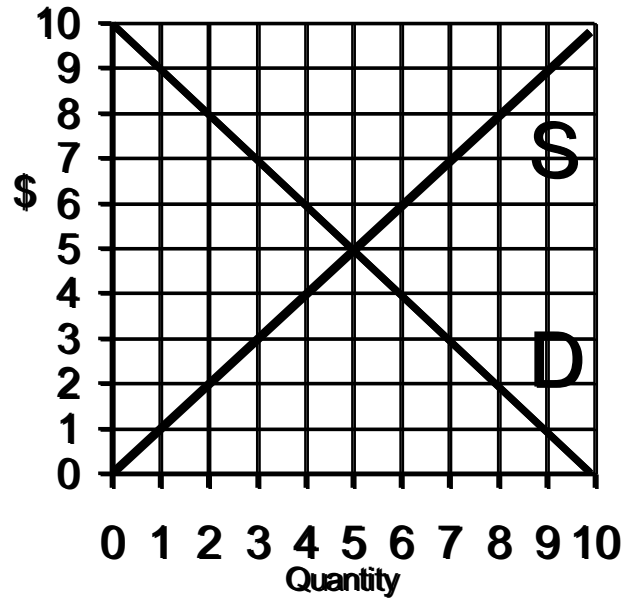
- a) (1) and (2)
- b) (2) and (4)
- c) (3) and (4)
- d) (1), (2), (3), and (4)

11. 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} **decreases** 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.)

- a) complements, perfectly elastic
- b) complements, perfectly inelastic
- c) substitutes, unit elastic
- d) substitutes, perfectly inelastic
- e) substitutes, perfectly elastic

12. 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 large.
 - (2) It is zero when supply is perfectly inelastic.
- a) (1)
 - b) (2)
 - c) (1) and (2)
 - d) Neither (1) nor (2)



The above diagram gives information about demand and supply for widgets in Econland.

13. Suppose the government imposes a **subsidy** of \$10 per widget. The equilibrium quantity equals

- a) 10
- b) 6
- c) 7
- d) 8
- e) 9

14. Continuing with the case of a **subsidy** of \$10, producer surplus equals

- a) 16
- b) 8
- c) 50
- d) 12.5
- e) 32

15. The change in total surplus (deadweight loss) of the \$10 **subsidy** policy compared to the unregulated market equals

- a) -9
- b) -.5
- c) -6
- d) -12
- e) -25

16. Suppose instead of a subsidy, there is a **price ceiling** equal to \$2. Producer surplus equals
- a) 8
 - b) 12.5
 - c) 0
 - d) 2
 - e) There is not enough information.
17. With a **price ceiling** equal to \$2, consumer surplus with perfectly inefficient rationing is
- a) 8
 - b) 12.5
 - c) 0
 - d) 2
 - e) There is not enough information.
18. 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 $Q = 2$. It does this by distributing 2 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) 6
 - b) 1
 - c) 2
 - d) 4
 - e) 8
19. 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) $Q = 6$

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 \$)
Jon	10	Daenerys	14
Gregor	28	Cersei	8
Petyr	38	Sansa	34
Bronn	30	Arya	12
Tyrion	14	Gilly	12

20. What price clears the market?

- a) 12
- b) 14
- c) 30
- d) 10
- e) 34

21. Who produces in the market clearing allocation?

- a) Cersei
- b) Daenerys, Cersei, Arya, Gilly
- c) Daenerys, Cersei, Sansa, Arya, Gilly
- d) Sansa, Arya, Gilly
- e) Cersei, Arya, Gilly

22. 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.

23. Suppose that when income rises from \$100 to \$200, the quantity demanded of a good increases from 20 units to 21 units. From this information, we can say that

- a) the good is normal
- b) the good is income inelastic
- c) the good is a necessity
- d) (a) (b) and (c) are all true
- e) None of the above.

Consider the following two situations that should be familiar from a reading in class.

(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.)

24. Which of the following estimates of the elasticity of demand for the two scenarios makes the most economic sense?

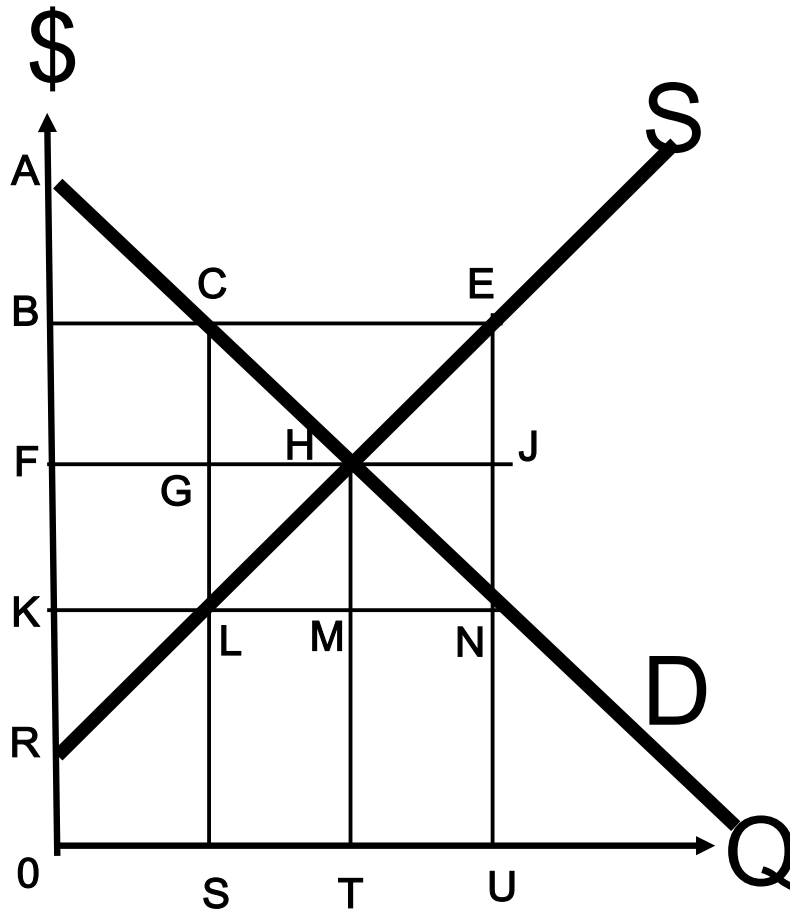
- a) 0.0 for (i), 0.0 for (ii)
- b) 0.2 for (i), 0.2 for (ii)
- c) 1.0 for (i), 1.0 for (ii)
- d) 0.2 for (i), 1.0 for (ii)
- e) 1.0 for (i), 0.2 for (ii)

25. Based on the estimates from the previous question, if the United States were to **reduce** the gas tax, then over a one year time period, the gasoline tax revenue collected per person would be expected to

- a) increase.
- b) stay the same.
- c) decrease.
- d) there is not enough information.

26. All of the following are examples of why the demand for gasoline is more elastic in the long-run than the short run **except**

- a) In the long run consumers can adjust fuel efficiency of the vehicles they drive but this is fixed in the short run.
- b) In the long run, consumer can adjust the number of cars they drive, since their original cars wear out eventually over time.
- c) In the long run, consumers can adjust their commuting time to work
- d) In the long run, oil producers can adjust the amount of oil reserves they have, but these are fixed in the short run.



27. Suppose a **price floor** is set at point B in this market.

- a) There is excess supply equal to CE
- b) There is excess demand equal to CE
- c) There is excess supply equal to LM
- d) There is excess demand equal to MN

28. Consumer surplus under the above price floor equals

- a) The area ANK
- b) The area AHF
- c) The area ACB
- d) The area ACGF
- e) The area ACLK

29. Producer surplus under the **price floor** depends on the rationing rule. If the producers with the lowest cost produce, producer surplus equals
- a) The area RKL
 - b) The area RFH
 - c) The area RFGL
 - d) The area RBCL
 - e) The area KFGL
30. All of the following are **true** about the possible effects of a **price ceiling** on total surplus in the market for widgets (compared to the free-market allocation) **except**
- a) Quantity is inefficiently low.
 - b) Widgets won't necessarily be produced by the lowest cost producers and if not total surplus decreases.
 - c) Widgets won't necessarily be consumed by the highest reservation consumers and if not total surplus decreases.
 - d) None of the above
31. 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. Factors that contribute to this difference in demand include:
- a) Public transit is a substitute for using gasoline to drive a car and public transit access is better in Norway.
 - b) Gas prices are substantially higher in Norway.
 - c) Per capita income is lower in Norway.
 - d) All of the above.
 - e) Both (a) and (b).
32. To estimate the long-run demand elasticity of gasoline, 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) Higher gas taxes in Norway compared to the U.S. are a recent phenomenon, so the calculation may be closer to a short-run elasticity than a long-run elasticity.
 - b) Public transit access, a substitute, is better in Norway.
 - c) Both (a) and b)
 - d) None of the above