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Student Number: _____

Midterm Exam 2 SOLUTIONS
ECO 1104 F: Introduction to Microeconomic Theory

Monday, March 12th, 2018

Prof. Catherine Deri Armstrong

Instructions:

There are **29** questions on the exam – points for each question are in brackets beside the question number. Total marks = **55**.

For the multiple choice questions, please use the SCANTRON sheet provided to record your answers.

Please answer all short answer questions in the space provided. Be sure to show all your work. **Graphs should be clearly labeled (axes, curves and intercepts where relevant) and explained.**

You have 1 hour and 15 minutes to complete the test.

No cellular phones are permitted.

Non programmable calculators are permitted.

Good luck.

Multiple Choice Questions (1 mark each)

1. A binding price ceiling causes
 - a. a shortage, which cannot be eliminated through market adjustment.
 - b. a surplus, which cannot be eliminated through market adjustment.
 - c. a shortage, which is temporary, since market adjustment will cause price to rise.
 - d. a surplus, which is temporary, since market adjustment will cause price to rise.

ANS: A

2. Over time, housing shortages caused by rent control
- increase, because the demand and supply curves for housing are more elastic in the long run.
 - increase, because the demand and supply curves for housing are more inelastic in the long run.
 - decrease, because the demand and supply curves for housing are more inelastic in the long run.
 - change very little since price is not allowed to adjust.

ANS: A

3. Which of the following is NOT a mechanism of rationing used by landlords in cities with rent control?
- waiting lists
 - race
 - price
 - bribes

ANS: C

4. A minimum wage will
- alter both the quantity demanded and quantity supplied of labor.
 - affect only the quantity of labor firms will demand at the higher wage, but does not affect the quantity supplied of labor.
 - have no effect on the quantity demanded or quantity supplied of labor since the equilibrium wage will not change.
 - cause only temporary unemployment, since the market will adjust and eliminate the surplus of workers.

ANS: A

5. In general, advocates of the minimum wage
- believe that there are no adverse effects of minimum-wage laws.
 - believe that adverse effects are small, and generally a higher minimum wage makes the poor better off.
 - believe that the minimum wage is the answer to society's economic problems.
 - are socialists who want to replace the market system with central economic planning.

ANS: B

6. Which is the most correct statement about the burden of a tax imposed on buyers of sugar?

- a. Buyers bear the entire burden of the tax.
- b. Sellers bear the entire burden of the tax.
- c. Buyers and sellers share the burden of the tax.
- d. The government bears the entire burden of the tax.

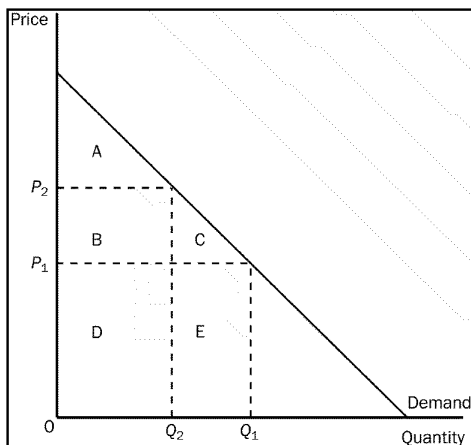
ANS: C

7. With respect to welfare economics, the equilibrium price of a product is considered to be the best price because it
- a. maximizes total revenue to firms and total utility to buyers.
 - b. maximizes the total welfare of buyers and sellers.
 - c. minimizes costs and maximizes profits of sellers.
 - d. minimizes the level of welfare payments to those who no longer live below the poverty line.

ANS: B

8. Suppose Lauren, Leslie and Lydia all purchase bulletin boards for their rooms for \$15 each. Lauren's willingness to pay was \$35, Leslie's willingness to pay was \$25, and Lydia's willingness to pay was \$30. Which of the three receives the most consumer surplus from her purchase?
- a. Lauren
 - b. Leslie
 - c. Lydia
 - d. They each received the same consumer surplus since they each paid the same for the bulletin board.

ANS: A



9. Refer to Figure 7-1. Area C represents

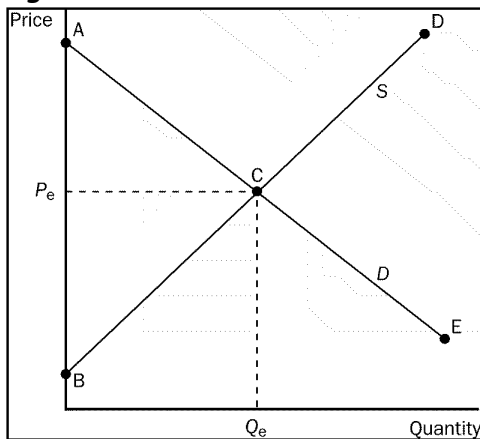
- a. the decrease in consumer surplus that results from a downward-sloping demand curve.
- b. consumer surplus to new consumers who enter the market when the price falls from P_2 to P_1 .
- c. an increase in producer surplus when quantity sold increases from Q_2 to Q_1 .
- d. a decrease in consumer surplus to each consumer in the market.

ANS: B

10. Suppose the demand for nachos increases. What will happen to producer surplus in the market for nachos?
- a. It increases.
 - b. It decreases.
 - c. It is unaffected by this change in market forces.
 - d. It decreases briefly, then increases.

ANS: A

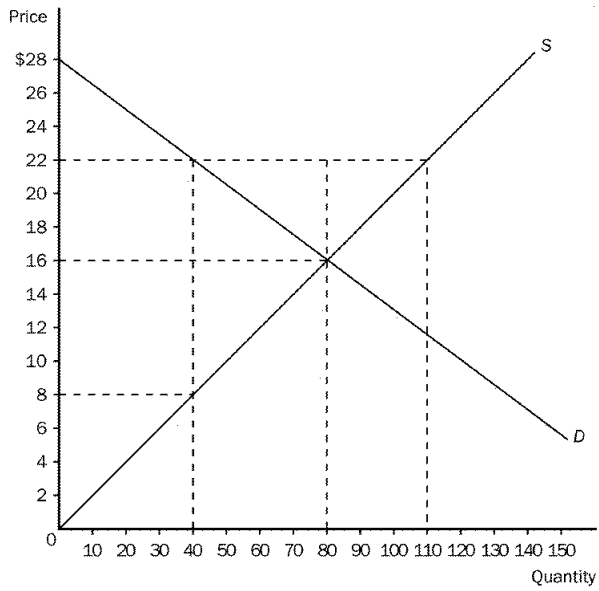
Figure 7-6



11. Refer to Figure 7-6. Buyers who value this good less than price are represented by segment
- a. AC.
 - b. CE.
 - c. BC.
 - d. CD.

ANS: B

Figure 7-7



12. Refer to Figure 7-7. At the equilibrium price, producer surplus would be
- \$480.
 - \$640.
 - \$1,120.
 - \$1,280.

ANS: B

13. The benefit received by the government from a tax is measured by
- deadweight loss.
 - tax revenue.
 - equilibrium price.
 - total surplus.

ANS: B

14. Market failure can be caused by
- foreign competition.
 - externalities.
 - low consumer demand.
 - scarcity.

ANS: B

15. When negative externalities are present in a market
- producers will be affected, but not consumers.
 - overproduction will occur.
 - demand will be too high.
 - the market will still maximize total benefits.

ANS: B

16. Dog owners do not bear the full cost of the noise their barking dogs create and, therefore, tend to take too few precautions to prevent their dogs from barking. Local governments address this problem by
- making it illegal to "disturb the peace."
 - having a well-funded animal control department.
 - subsidizing local animal shelters.
 - encouraging people to buy cats.

ANS: A

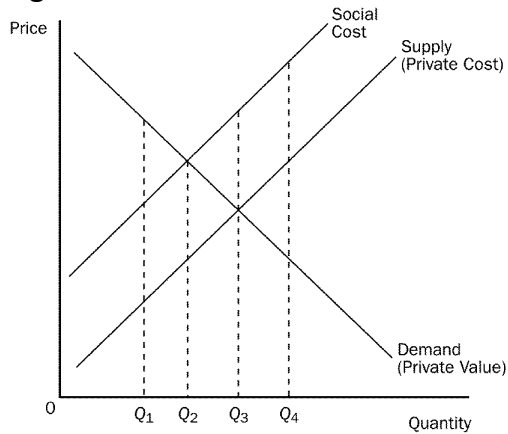
17. The height of the supply curve at any given quantity of coal shows the
- value to the consumer of the last unit of coal bought.
 - consumer's willingness to pay for coal at each quantity.
 - cost to the producer of the last unit of coal sold.
 - total quantity of coal exchanged in the market.

ANS: C

18. When the social cost curve is above a product's supply curve we know that
- government has intervened in the market.
 - a negative externality exists in the market.
 - a positive externality exists in the market.
 - the market reached equilibrium on its own.

ANS: B

Figure 10-3



19. Refer to Figure 10-3. The equilibrium quantity would be at
- Q_1 .
 - Q_2 .
 - Q_3 .
 - Q_4 .

ANS: C

20. Refer to Figure 10-3. The optimum amount of this product from society's standpoint would be
- Q_1 .
 - Q_2 .
 - Q_3 .
 - Q_4 .

ANS: B

21. Refer to Figure 10-3. At Q_3
- The marginal consumer values this product less than the social cost of producing it.
 - every consumer values this product less than the social cost of producing it.

- c. The cost to society is equal to the value to society.
- d. The marginal consumer values this product more than the private cost.

ANS: A

22. According to the Coase theorem, private markets will solve externality problems and allocate resources efficiently as long as
- a. private parties can bargain without cost.
 - b. government assigns property rights to the harmed party.
 - c. the externalities that are present are positive and not negative.
 - d. businesses determine an appropriate level of production.

ANS: A

23. Chad's maple tree hangs over Amy's fence and drops leaves into her yard each autumn. The benefit to Chad of lower utility bills is about \$300. The cost to Amy of having her lawn cleaned and reseeded is \$350. Based on the Coase theorem
- a. Amy should pay Chad \$325 to cut down the tree.
 - b. Chad should pay Amy \$350 to have her lawn repaired and cleaned.
 - c. Chad should pay Amy \$400 to keep the tree.
 - d. Amy should build a higher fence.

ANS: A

24. In Singapore, littering fines are strictly enforced. This is an example of a policy
- a. in which moral codes and social sanctions reduce the pollution externality.
 - b. that relies on the Coase Theorem.
 - c. that discriminates against foreigners.
 - d. in which private incentives are used to reduce the pollution externality in Singapore.

ANS: D

25. A Pigovian tax
- a. places a price on the right to pollute.
 - b. assigns a legal pollution limit for firms.
 - c. causes each factory to reduce pollution by the same amount.
 - d. causes higher cost to society than pollution regulations.

ANS: A

Short Answer Please answer the following questions in the space below.

26. The cost of producing flat-screen TVs has fallen over the past decade. Let's consider some implications of this fact.

- Use a supply-and-demand diagram to show the effect of falling production costs on the price and quantity of flat-screen TVs sold. **(2 marks)**
- In your diagram, show what happens to consumer surplus and producer surplus. **(4 marks)**
- In a new diagram, suppose the supply of flat-screen TVs is perfectly elastic. Who benefits most from falling production costs—consumers or producers of these TVs? Explain. **(3 marks)**

- The effect of falling production costs in the market for flat-screen TVs results in a shift to the right in the supply curve, as shown in Figure 11. As a result, the equilibrium price of these TVs declines and the equilibrium quantity increases.

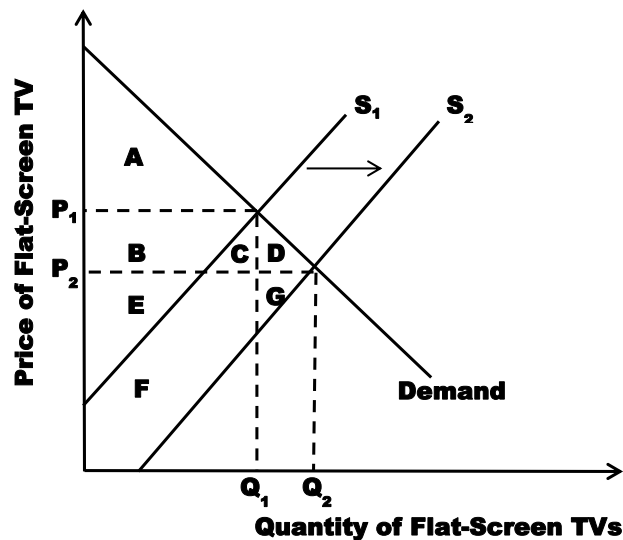
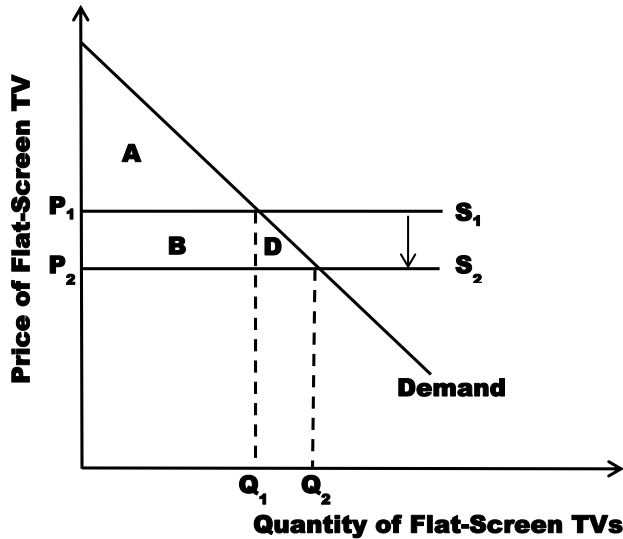


Figure 11

- The decline in the price of TVs increases consumer surplus from area A to $A + B + C + D$, an increase in the amount $B + C + D$. Prior to the shift in supply, producer surplus was areas $B + E$ (the area above the supply curve and below the price). After the shift in supply, producer surplus is area $E + F + G$. So producer surplus changes by the amount $F + G - B$, which may be positive or negative. The increase in quantity increases producer surplus, while the decline in the price reduces producer surplus. Since consumer surplus rises by $B + C + D$ and producer surplus rises by $F + G - B$, total surplus rises by $C + D + F + G$.

- c. If the supply of TVs is very elastic, then the shift of the supply curve benefits consumers most. In the extreme case of perfectly elastic supply there is no producer surplus at all, either before or after the fall in the cost of production. Consumers capture all the benefits of falling production costs, with consumer surplus rising from area A to area A + B + D (see Figure 12).



27. Hotel rooms in Smalltown go for \$100, and 1000 rooms are rented on a typical day.
- To raise revenue, the mayor decides to charge hotels a tax of \$10 per rented room. After the tax is imposed, the going rate for hotel rooms rises to \$108, and the number of rooms rented falls to 900. Calculate the amount of revenue this tax raises for Smalltown and the deadweight loss of the tax. (Hint: The area of a triangle is $\frac{1}{2} \times \text{base} \times \text{height}$.) **(3 marks)**
 - The mayor now doubles the tax to \$20. The price rises to \$116, and the number of rooms rented falls to 800. Calculate tax revenue and deadweight loss with this larger tax. Do they double, more than double, or less than double? **(2 marks)**
 - Draw the Laffer Curve - remember to carefully label your axes - and indicate where on the Laffer Curve the market from parts a and b is located. **(4 marks)**
- a. Tax revenue = $\$10 \times 900 = \9000 . The deadweight loss arises from the difference in the number of rooms rented: deadweight loss = $(1/2) \times \$10$

$$\times (1000 - 900) = \$500.$$

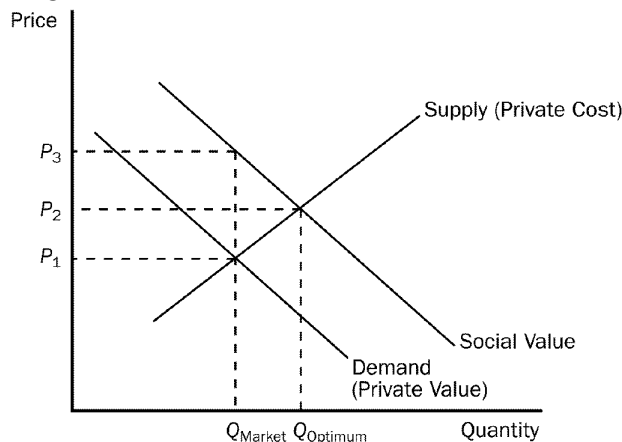
- b. Tax revenue = $\$20 \times 800 = \$16,000$. Deadweight loss = $(1/2) \times \$20 \times (1000 - 800) = \2000 . Although the tax has doubled, tax revenue has increased by less than double. The deadweight loss has more than doubled. The increase in taxes was partially offset by the decrease in the equilibrium quantity.
- c. This result shows that the market is on the increasing-at-a-decreasing rate-side part of the Laffer curve.

28. After economics class one day, your friend suggests that taxing food would be a good way to raise revenue because the demand for food is quite inelastic. In what sense is taxing food a “good” way to raise revenue? In what sense is it not a “good” way to raise revenue? **(4 marks)**

Since the demand for food is inelastic, a tax on food is a good way to raise revenue because it does not lead to much of a deadweight loss; thus, taxing food is less inefficient than taxing other things. But it is not a good way to raise revenue from an equity point of view, since poorer people spend a higher proportion of their income on food, so the tax would hit them harder than it would hit wealthier people.

- 29.
- a. Using a supply and demand diagram, demonstrate how a positive externality leads to market inefficiency. **(4 marks)**
- b. Name two positive externalities and suggest how the government might help to eliminate the inefficiencies? **(3 marks)**

ANS:



A positive externality leads the market to exchange a smaller quantity than is socially desirable. The government could help eliminate this inefficiency by subsidizing the product.

DIF: Average REF: 210