

Name: **KEY**
ECON 202—Montgomery College
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EXAM 1

- There are 110 possible points on this exam. The test is out of 100.
- You have one class session to complete this exam, but you should be able to complete it in less than that.
- Please turn off all cell phones and other electronic equipment.
- You are allowed a calculator for the exam. This calculator cannot be capable of storing equations. This calculator cannot double as a cell phone.
- Be sure to read all instructions and questions carefully.
- Remember to show all your work.
- Try all questions! You get zero points for questions that are not attempted.
- *Please print clearly and neatly.*

Part I: Matching. Write the letter from the column on the right which best matches each word or phrase in the column on the left. You will not use all the options on the right and you cannot use the same option more than once.

2 points each.

- | | |
|--|--|
| 1. I Consumer surplus | A. Assumption of human behavior |
| 2. D Deadweight loss | B. If the maximum price for cars was \$1,000, this would happen. |
| 3. H Diminishing marginal utility | C. Market price – reservation price |
| 4. C Producer surplus | D. Never greater than zero in an efficient market |
| 5. A Rationality | E. Reservation price – opportunity cost |
| 6. B Shortage | F. Result of putting a price floor set above market price |
| 7. F Surplus | G. Result of putting a price floor set below market price |
| | H. Why demand slopes down |
| | I. You get this on most things you buy |

1. *Consumer surplus is defined as what's "extra." The difference between the most the consumer is willing to pay and what the price is. Now imagine the things you bought today, from breakfast to the water in your shower. Would you be willing to pay even just one penny more than what you actually paid? I imagine the answer is yes. Therefore, you got at least a penny of consumer surplus.*
2. *This is a gain that goes to no one. In an efficient market, such gains would not go unclaimed. Thus, there is no deadweight loss in an efficient market.*
3. *Demand is a bunch of marginal benefits, organized in decreasing order.*
4. *Producer surplus is the difference between how much the producer was paid (market price) and their reservation price, which equals the cost to produce (the supply curve). You can also think of it as profit.*
5. *Economists assume, among other things, that people are rational. It's a low bar, but it's an assumption.*
6. *If this price ceiling was put on cars, few people would want to make cars and many would like to buy them. There would be a shortage of cars.*
7. *Price floors set too high—above equilibrium—reduce the quantity demanded and increase the quantity supplied. This creates a surplus of the good or service in question.*

Part II: Multiple Choice. Choose the best answer to the following.

4 points each.

8. If the supply curve shifts up and its slope remains the same, what happens to consumer surplus?
- It increases
 - It decreases**
 - It stays the same
 - It is impossible to tell given the information provided
 - None of the above

If supply shifts up, then price increases. If price increases, and all other things remain the same, consumer surplus will decrease.

9. Suppose you were going to spend \$40 to buy a new video game you valued at \$60. Before you could buy it, a prankster friend of yours pours dirt in your gas tank. While the act results in \$10 worth of satisfaction from your prankster friend, it costs you \$40 to fix your car and as a result you do not buy the video game. Considering all people (including your prankster friend), what is the economic profit from having dirt poured in your tank versus it not being poured in your tank (i.e. was society better off that gas was poured in your tank)?
- \$10
 - \$60
 - \$100
 - There is not enough information to determine the answer
 - None of the above**

This one's tricky for a couple of reasons. First, you might have forgotten to include your prankster's friend satisfaction from damaging your car. Remember, economics is about everyone and we're asking if it was efficient that dirt was poured in your car. Second, you might have thought that since there's no information about the value of a working car, there's not enough information. But that value, regardless of what it is, is canceled out in the equation. Suppose it's X: $(X + 10 - 40) - (X + 60 - 40) = X + 10 - 40 - X + 40 - 60 = X - X + 40 - 40 + 10 - 60 = 10 - 60 = -50$, which was not an option.

10. Frank points out a puzzle concerning why people don't travel far to save \$10 on a laptop but will make the same trip to save \$10 on an alarm clock. According to Frank, what mistake are they making?
- They are looking at percent saved, not total savings.**
 - They are mistaking deadweight loss for productive activity.
 - They are not considering their comparative advantage.
 - B & C
 - None of the above

\$10 savings on a laptop is a small savings percent-wise compared to the same amount saved on an alarm clock. Frank emphasizes we should focus on the benefit to travel (the dollars in savings), not the percent saved, since that doesn't really matter.

11. An inferior good:
- Is an undesirable good.
 - Experiences a falling demand as incomes rise.**
 - Has few complements and many substitutes.
 - A & B
 - None of the above.

As incomes rise, fewer people will buy an inferior good, such as Ramen noodles.

12. In his classic essay, *I, Pencil*, Leonard Read illustrated which economic concept?
- Supply and demand
 - Opportunity cost
 - Emergent order**
 - Deadweight loss
 - None of the above

Read's essay is an application of Adam Smith's famous metaphor of the invisible hand and aptly describes order without a central planner, or emergent order (more often called spontaneous order). It's a nice complement to F.A. Hayek's [The Use of Knowledge In Society](#), where Hayek reminds us that though knowledge is disperse, society can utilize all that knowledge through the price system.

13. What's the difference between a shortage and scarcity?
- Scarcity is functionally unavoidable while a shortage is the result of inefficiency.**
 - Scarcity is when there's not enough of something to buy while a shortage is the result of people not having enough money.
 - Scarcity results from panic while a shortage creates panic.
 - There is no difference.
 - There is a difference, but not one listed here.

Economics defines scarcity as not being able to satisfy all possible wants; that will always happen because there will be some people who want something, but not enough to cover the costs of production. It is therefore efficient that they don't get what they want. A shortage occurs when people

are willing to pay for the cost of production but still can't get it; it thus reflects an inefficient result.

14. Arbitrage is a term that describes taking advantage of price differences to buy low and sell high. Profit made from arbitrage, including speculation, is not popular in the public's mind as such individuals are assumed to not "produce" anything. But that does not mean these individuals do not make the economy better off. What economic value does arbitrage add?
- It disincentivizes prices from being too high or too low.
 - It encourages people to move goods and resources from low value places/times to high value places/times.**
 - It allows entrepreneurs to break into an industry, giving them valuable experience they can leverage later into a value-creating company.
 - It creates opportunities for people who have few skills, thus preventing the government from having to support them while also giving them a sense of meaning in their lives.
 - None of the above

If the price is high, that means that good is scarcer at that time or place compared to where/when that good is cheap. By buying low, the arbitrageur (trader or speculator) moves that good out of a market that puts low value on it. By selling high, the arbitrageur moves that good into a market that puts a high value on it.

While I selected B as the answer, A isn't a bad answer. But B is more accurate.

Note that if you think arbitrage is a great deal, you'd be right. So right, that everyone thinks that and thus it's not as great as it may seem. There's a lot of competition. If you think you've found an arbitrage opportunity, be aware that other people might have already found it and the place you think you're about to sell it at a high price might about be swarmed with other arbitrageurs doing the same thing (causing the price to fall). The same goes with speculation. Arbitrageurs may not produce anything, but they do shoulder risk.

15. Which of the following is an example of positive economics?
- Price controls always result in deadweight loss.
 - The government spends money less efficiently than individuals.
 - If people recycle less paper, the market price of trees increases.**
 - B & C
 - None of the above

Answer C, while uncomfortable for some, is clearly true. Recycled paper decreases the demand for trees, thus resulting in a lower price for trees. The more you recycle paper, the lower value trees have. This doesn't mean recycling paper is bad—it makes people feel good and it sends signals as to your value—but if you wish to encourage people to plant trees, recycling paper is not the best strategy.

Answer B could be positive, but because it lacks context it sounds normative. We've discussed how centrally planned economies have knowledge and incentive problems for efficiently distributing resources. Yet there are circumstances, such as national defense and roads, which are hard for pure markets to provide. This is a topic we'll discuss in more detail later on in the semester. (If this question appeared in the Unit 1 test, I'd expect you to choose D though B would also be acceptable; if it appeared in the final, B would be the only right answer.)

Answer A is simply not true: a price control can be set such that it creates no deadweight loss (such as a high ceiling or a low floor).

16. If the price of plastic increases, what does that tell us about the market for plastic?
- a. The quantity of plastic bought and sold falls.
 - b. The quantity of plastic bought and sold rises.
 - c. Plastic has become harder to produce, which is why its price rose.
 - d. A & C
 - e. **None of the above**

The only thing we know for sure is that plastic is scarcer than it used to be. That scarcity might have happened because plastic is harder to produce, in other words the supply curve shifted up, in which case answer D would be correct, but it could have also occurred because consumers find plastic to be more valuable, in which case option B is correct.

17. Buying a book at \$8 when you would have paid \$10 creates:
- a. **Consumer surplus**
 - b. Producer surplus
 - c. Equilibrium
 - d. A & C
 - e. None of the above

Recall that consumer surplus is the area below the demand curve but above the price.

18. The demand for shoes would shift to the right if:
- a. A shoe factory was destroyed.
 - b. Tennis became more popular.
 - c. Gasoline prices continued to climb.
 - d. B & C**
 - e. None of the above.

Answer (a) is about the supply shifting to the left. But (b) and (c) represent changes in complements (b) and substitutes (c).

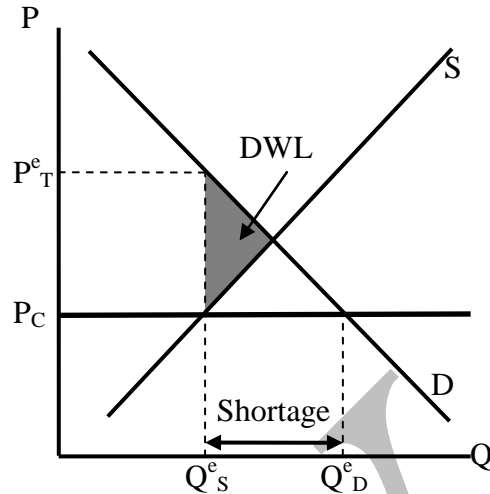
19. Which of the following is an example of emergent order?
- a. How much the Department of Defense spends per year.
 - b. How people don't skate into each other at an ice-skating rink.**
 - c. What time you decide to get up every day.
 - d. A & C
 - e. None of the above

The Department of Defense has a set budget, one that's negotiated on and determined by Congress. You personally decide what time to get up. Neither of these are emergent orders (though you could argue that the DoD's budget was the result of a compromise between various interests, it still involves very few people given how many people it affects). But the mutual coordination between ice-skaters means collisions are rare. No one decrees how far apart people have to be, no one micromanages speed. But coordination still emerges.

Part III: Short Answer. Answer the following.

16 points each.

20. The Californian state government makes it difficult to increase the price of water, effectively creating a price control below the equilibrium market price. Using the supply and demand graph for water below, illustrate the effects of this price control. Make sure to indicate the true price, the price control (labeled as a ceiling or floor, as appropriate), where there's a surplus or shortage, and the quantity supplied and demanded. Finally, illustrate the area of deadweight loss (if any).



First, note that this is a price ceiling: the Californian state government makes it difficult to increase prices, not lower them. And because this is a ceiling set below equilibrium, we get unfortunate side effects.

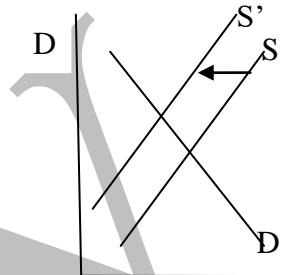
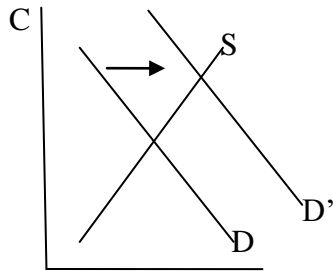
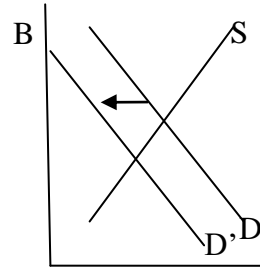
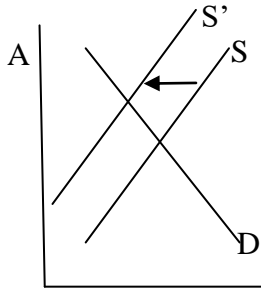
21. Suppose a tornado destroys a farmhouse. The family has no insurance and collectively values the house at \$250,000. It costs \$100,000—money that was sitting in their child’s college fund—to fix the house. Finally, suppose the family collectively values sending the child to college at \$200,000. Calculate the economic profit of having a tornado destroy the house. Remember to show your work.

Tornado disaster:

$$(250,000 - 100,000) - (250,000 + 200,000 - 100,000) = -200,000$$

Note the family loses out on their opportunity cost: sending their child to college.

22. Using a complete and fully labeled diagram, illustrate the effects of the following (4 points each). Remember: do **not** shift more than one curve.
- In the market for houses, what happens if the price of lumber rises?
 - In the market for books, what happens if video streaming services become cheaper?
 - In the market for bottled water, what happens if people exercise more?
 - In the market for laptops, what happens if the profitability of tablets rises?



- A. Since lumber is a key input into making houses, if the price of lumber increases, houses will be more expensive. Supply shifts up/left.
- B. Books and video are substitutes. If video is cheaper to purchase, people will read fewer books. Demand shifts down/left.
- C. Bottled water is often consumed with exercise (stay hydrated, especially if you're working out!). If people exercise more, they will consume more bottled water. Demand shifts up/right.
- D. Note this says profitability, not price. If you shifted demand, you're mistaken because consumers don't necessarily care how profitable a substitute is. But producers certainly care and since laptops and tablets are very similar, there's an opportunity cost story here. If tablets become more profitable, people will leave computer production to make tablets. Since it has become more costly to produce computers (it costs you the opportunity to make the more profitable tablet), supply shifts up/left.