

## Competition, Surplus and Efficiency

*Multiple Choice (MC) questions usually have only one correct answer, although you may be able to defend different answers. Other kinds of questions often have more than one correct answer. Having good reasons for your answers is more important than what your answer is. If you don't understand the meaning of a question, you may write to [your own TF](#), but do not expect him/her to give you answers. The problem set will not be graded, but the way you discuss the problems in your discussion section will affect your discussion-section participation score. You are allowed to work on the problem sets with other students.*

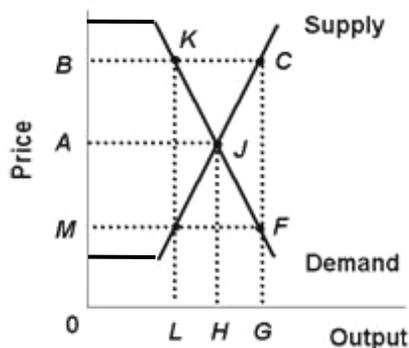
\*EC101 D/E Lectures and discussion sections normally scheduled for Tuesday, Oct 12, are canceled, because Oct 12 is a BU Monday. Your TF will email you alternatives for the Tuesday discussion sections.

1. Suppose your mother tells you to go to the store to buy milk. You take some money from her purse, go to the store, and return with a bottle of cheap milk, which cost \$1. Your mother gets upset because she wanted you to buy the organic milk, which costs \$5. She is an economist, so she tells you her willingness to pay is \$2 for the cheap milk and \$10 for the organic milk.
  - i. How much consumer surplus did your mother obtain from the transaction you made for her?
  - ii. How much consumer surplus would she have obtained if you had bought the organic milk?
2. [MC] Why does marginal utility usually diminish?
  - a. Because the last units are assigned to less essential uses
  - b. Because additional units cost more than the first units
  - c. Because large quantities are more useful than small quantities.
  - d. **ALL** of the above
3. Bob buys a basketball for \$30. What can you conclude about his willingness to pay (WTP) for it?
4. Usually, WTP is decreasing as you obtain more units of the same good. Can you think of a good or service for which WTP could be increasing with the quantity you have? Explain.
5. [MC] Betty loves sandwiches. Suppose that the price of a sandwich doubles. Then Betty will buy \_\_\_\_\_ sandwiches and her marginal utility from sandwiches will \_\_\_\_\_.
  - a. fewer; decrease
  - b. fewer; increase
  - c. the same number; remains the same
  - d. more; decrease
6. At the equilibrium of a perfectly competitive market, discuss whether the following statements are true or false:
  - i. Consumer surplus is maximized and so is producer surplus.
  - ii. Consumer surplus is equal to producer surplus.
  - iii. No consumer could be made better off.

The following table gives information about costs and benefit of an activity. Please answer Q8 and Q9 using this table.

Amount	Total Cost	Marginal Benefit
1	\$ 8	\$18
2	16	14
3	25	8
4	36	7
5	50	3

7. [MC] In the table above, the total benefit of three units is:
- \$9
  - \$24
  - \$30
  - \$40
8. [MC] In the table above, the marginal cost of the fourth unit is:
- \$7
  - \$9
  - \$11
  - \$36
9. [MC] Refer to the diagram below. In this competitive market, combined consumer and producer surplus is maximized at:



- Price M
  - Price B
  - Output G
  - Output H
10. [MC] When the allocation of resources is Pareto efficient,
- consumer surplus is maximized
  - society is providing the greatest good to the greatest number.
  - no consumer would prefer someone else's consumption bundle to his or her own.
  - it is not possible to make someone better off without making someone worse off.
11. Can producer surplus ever be negative? If yes, can you think of an example? If no, why not?

12. Fill in the blanks:

- i. The total cost of 10 potatoes is the sum of the \_\_\_\_\_ (price/variable costs/marginal costs/WTP) of each potato plus the \_\_\_\_\_ (total cost/WTP/fixed cost).
- ii. The marginal cost of the 10th potato is the \_\_\_\_\_ (total cost/WTP/fixed cost/variable cost) of 10 potatoes minus the \_\_\_\_\_ (total cost/WTP/fixed cost/variable cost) of 9 potatoes.

13. [MC] Suppose Mike and John are two brothers who are given \$110 to divide between them. Given this information, which of the following is an example of Pareto efficiency?

- a. They each get \$55
- b. Mike is older, so they decide Mike should get a bigger share. Mike gets \$70 while John gets \$40.
- c. Mike takes the whole \$110 and John gets nothing.
- d. **ALL** of the above

14. Suppose Napoleon is the only producer of high-heeled men's shoes.

- i. Is Napoleon a price taker or a price setter in the market for shoes?
- ii. Does Napoleon have a supply curve? Explain



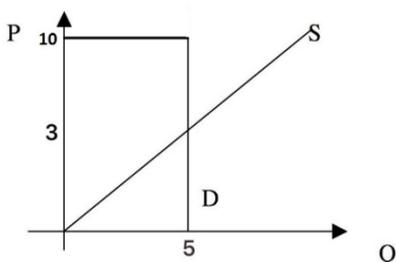
15. Suppose Fantine finds a very pretty satin shoe in a garbage bin (only the left shoe). A few feet away, Cosette finds the matching right shoe. Fantine is willing to pay \$20 for a pair of satin shoes, while Cosette is only willing to pay \$10. A single shoe is useless to anyone.

- i. Each girl has one shoe. Is this Pareto efficient?
- ii. What situation(s) would be Pareto efficient?
- iii. What situation(s) would maximize economic surplus?

16. [MC] Suppose there are three identical vases available to be purchased. Andres is willing to pay \$30 for a vase, Beatriz is willing to pay \$25 for a vase, and Carlos is willing to pay \$20 for a vase (no one wants more than one vase). If the price is \$25, how many vases will be sold and what is the value of consumer surplus in this market?

- a. One vase will be sold, and consumer surplus is \$30
- b. One vase will be sold, and consumer surplus is \$5
- c. Two vases will be sold, and consumer surplus is \$5
- d. Three vases will be sold, and consumer surplus is \$0

17. In the market described below, calculate the producer surplus and the consumer surplus.



18. The table on the right lists the total costs a firm will pay at different production levels. How much will the firm produce (supply) and what will the producer surplus be when the price is \$8? 7? \$6? \$5? \$4? (Answer it for each price.)

Units (\$)	Total Cost (\$)
0	20
1	25
2	30
3	36
4	43
5	50
6	58
7	69
8	82

19. True or false? Discuss.

- i. Marie sells potatoes in a perfectly competitive market. The cost of bringing 10 potatoes to sell to the market is higher than the cost of bringing just 2. Therefore the 10th potato will be sold at a higher price than the 2nd potato.
- ii. Every type of firm (competitive and noncompetitive) has a supply curve.
- iii. Buying or selling a quantity greater than the equilibrium quantity reduces welfare.

20. In the free city of Karalis, the evil Zaru controls the access to the public beach, and demands a payment to pass through his dominion. The government, worried about the effect of the payment on tourism, passes a law that forces Zaru to let people access the beach for free.

- i. Is the new law a Pareto improvement? Explain on your answer.
- ii. What can you say about the total surplus of all the people in Karalis before and after the new law is passed?