

Economics 101	Name _____
Fall 2012	TA Name _____
11/27/12	Discussion Section # _____
Second Midterm	Student ID # _____

Version 1

DO NOT BEGIN WORKING UNTIL THE INSTRUCTOR TELLS YOU TO DO SO  
READ THESE INSTRUCTIONS FIRST

You have 75 minutes to complete the exam. The exam consists of 30 multiple choice questions. Each multiple choice question is worth 3.3 points for a total of 99 points.

- We reserve the right to deduct one point for failing to fill out the scantron completely and accurately and the exam booklet completely and accurately! If you provide this information accurately you will get the one point: making the exam a 100 point exam.
- Answer all questions on the scantron sheet with a #2 pencil

NO CELL PHONES, CALCULATORS, OR FORMULA SHEETS ARE ALLOWED.  
PICK THE BEST ANSWER FOR EACH QUESTION.

How to fill in the scantron sheet:

1. Print your last name, first name, and middle initial in the spaces marked "Last Name," "First Name," and "MI." Fill in the corresponding bubbles below.
2. Print your student ID number in the space marked "Identification Number." Fill in the bubbles.
3. Write the number of the discussion section you've been attending under "Special Codes" spaces ABC, and fill in the bubbles. You can find the discussion numbers below on this page.
4. Write the version number of your exam booklet under "Special Codes" space D, and fill in the bubble. The version number is on the top of this page.

If there is an error on the exam or you do not understand something, make a note on your exam booklet and the issue will be addressed AFTER the examination is complete. No questions regarding the exam can be addressed while the exam is being administered.

When you are finished, please get up quietly and bring your scantron sheet and this exam booklet to the place indicated by the instructors.

Discussion sections are as follows:

Brandon Hoffman Thur 3:30 301 Thur 4:35 306	Alexander Clark Thur 4:35 307 Fri 9:55 312 Fri 12:05 315 Fri 1:20 319	Josephine Xu Th 3:30 304 Fri 11:00 310 Fri 1:20 314 Fri 2:25 313	Tzu-Chi Lin Fri 11:00 309 Fri 12:05 316 Fri 8:50 318	Vedant Bhatnagar Fri 2:25 302 Fri 1:20 305 Fri 9:55 311 Fri 8:50 317
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**Honor Code Statement for Exam:**

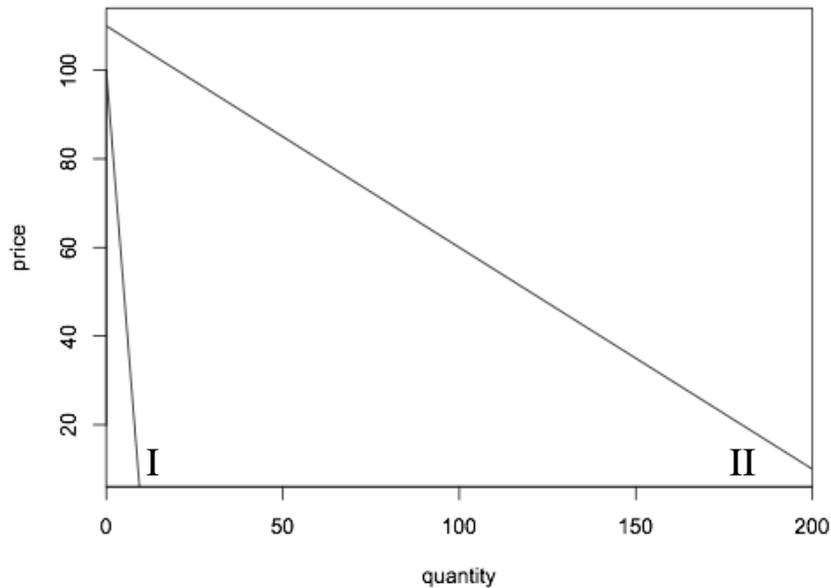
I, \_\_\_\_\_, agree to neither give nor receive any help on this exam from other students. I understand that use of a calculator on this exam is an academic misconduct violation. I also understand that providing answers to questions on this exam to other students is an academic misconduct violation as is taking or receiving answers to questions on this exam from other students. It is important to me to be a person of integrity and that means that ALL ANSWERS on this exam are my answers.

Signed \_\_\_\_\_

**MULTIPLE CHOICE QUESTIONS (30 QUESTIONS EACH WORTH 3.3 POINTS)**

1. The demand curve for rhubarb pie is given by the equation:  $P = 10 - 3.1415926*(Q)$ . At what price is total revenue maximized?
  - a.) \$3.14
  - b.) \$1.12
  - c.) \$5.00
  - d.) \$6.28
  
2. Suppose the supply for Justin Bieber albums is  $Q_s = P_s - 5$  and the demand for Justin Bieber albums is linear. Additionally, suppose that we know total revenue is maximized at a price of \$15. If the government wants to impose a tax that will reduce demand for these albums to zero, what excise tax would be necessary?
  - a.) \$10/album
  - b.) \$15/album
  - c.) \$25/album
  - d.) \$30/album
  
3. The demand curve facing a firm in perfect competition in the long run is
  - a.) downward sloping
  - b.) perfectly elastic
  - c.) perfectly inelastic
  - d.) upward sloping

Use the following graph for the **next** question.



4. Which of the two demand curves above is more elastic at a price of \$80? At a price of \$20?
- a.) The elasticities of the two demand curves are the same at each price.
  - b.) Demand curve I is more elastic than demand curve II at each price.
  - c.) Demand curve II is more elastic than demand curve I at each price.
  - d.) Demand curve I is more elastic than demand curve II at a price of \$80, and demand curve II is more elastic than demand curve I at a price of \$20.

Use the following information for the next **two (2)** questions.

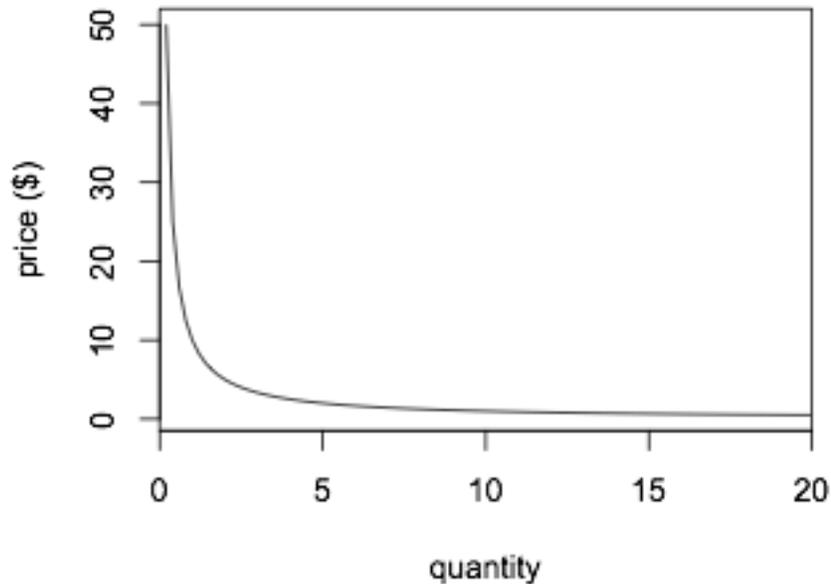
Let a firm's  $TC = q^2 + 16$ . The firm's  $MC = 2q$ . The market demand is  $P_d = 55 - Q_d$ .

5. At what quantity is the average total cost minimized?
- a.) 2
  - b.) 4
  - c.) 8
  - d.) 16
6. What is the break-even price for this firm?
- a.)  $P = \$4$  per unit of output
  - b.)  $P = \$8$  per unit of output
  - c.)  $P = \$32$  per unit of output
  - d.)  $P = \$51$  per unit of output

Use the following information for the next **two (2)** questions.

Suppose demand is given by the equation  $P = \frac{10}{Q}$ . This equation is graphed below.

The slope of this demand curve is  $= \frac{-10}{Q^2}$ .



7. Compare the price elasticities of demand at  $P = \$20$ ,  $P = \$10$ ,  $P = \$2$ . Given this information and these prices, which of the following statements is true?
- a.) The price elasticities of demand are the same at these three prices.
  - b.) The price elasticity of demand is highest at a price of \$20.
  - c.) The price elasticity of demand is highest at a price of \$10.
  - d.) The price elasticity of demand is highest at a price of \$2.
8. Given the above information, at what price(s) is total revenue maximized for this demand curve?
- a.) \$50
  - b.) \$20
  - c.) \$5
  - d.) At any price above zero.

9. Suppose the equation for the demand curve is one of the following:

I:  $P_d = 10 - 5Q_d$

II:  $Q_d = 30 - 2P_d$

III:  $P_d = 10 - Q_d$

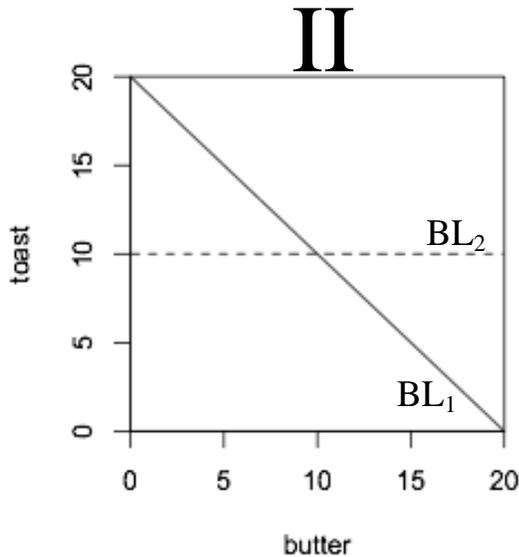
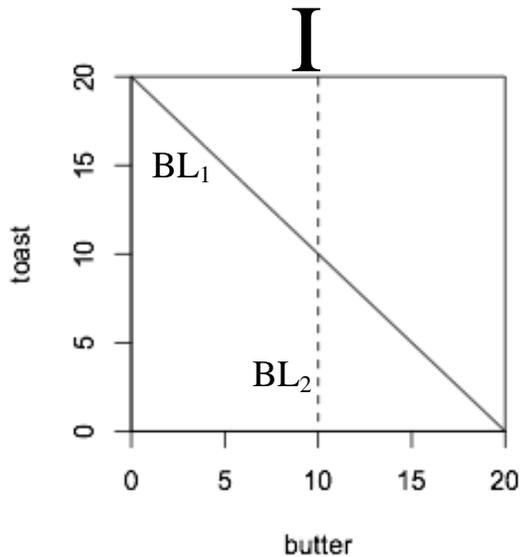
IV:  $Q_d = 40 - 4P_d$

Which of the above demand curves has the smallest price elasticity of demand at  $P = 5$ ?

- a.) I
- b.) II
- c.) III
- d.) IV

Use the following information to answer the **next** question.

Debbie spends her money on only two things, butter and toast, which she considers perfect complements in a 1:1 ratio (left and right shoes are perfect complements in a 1:1 ratio). Her income is \$20 and the per unit price is \$1 for both butter and toast ( $BL_1$ ). Suppose she gets a new job at the local dairy. As a perk, she can now have all the butter she wants at no cost to her. However, her new income is \$10 ( $BL_2$ ).



10. Which of these graphs shows the old and new budget lines? Is she better or worse off or indifferent with her new job?

- a.) I, indifferent
- b.) I, better off
- c.) II, better off
- d.) II, indifferent

Use the following information for the next **four (4)** questions.

In a perfectly competitive industry, all the potential firms are identical with the following total cost curve and marginal cost curve for a representative firm:

$$TC = 2q^2 + 4q + 8$$

$$MC = 4q + 4$$

The market demand curve is given by the equation:

$$P_d = 28 - Q_d$$

- 11.** If there are only 2 firms in the market in the short run, what is the short-run equilibrium quantity ( $Q_{SR}$ ) in this market?
- a.)  $Q_{SR} = 0$  units of output
  - b.)  $Q_{SR} = 6$  units of output
  - c.)  $Q_{SR} = 8$  units of output
  - d.)  $Q_{SR} = 12$  units of output
- 12.** What are the short-run profits ( $\Pi$ ) for a firm in this market if there are only 2 firms in the market?
- a.)  $\Pi = \$0$
  - b.)  $\Pi = \$24$
  - c.)  $\Pi = \$30$
  - d.)  $\Pi = \$104$
- 13.** What is the long-run equilibrium price when firms are allowed to freely enter or exit this market?
- a.)  $P_{LR} = \$0$
  - b.)  $P_{LR} = \$6$
  - c.)  $P_{LR} = \$8$
  - d.)  $P_{LR} = \$12$
- 14.** What is the long-run number of firms in this industry?
- a.) The industry will be served by an infinite number of firms since it is a perfectly competitive industry in long-run equilibrium.
  - b.) 2 firms
  - c.) 4 firms
  - d.) 8 firms

15. Suppose that a perfectly competitive firm finds that its MC when it produces the tenth unit of output is equal to \$4. The firm's average variable cost when it produces 10 units of output is greater than its average variable cost when it produces 9 units of output. Which of the following statements is true about average variable cost for this firm when it produces 10 units of output?
- a) It is less than \$4 per unit of output.
  - b) It is greater than \$4 per unit of output .
  - c) It is equal to \$4 per unit of output.
  - d) There is not enough information to answer this question.

Use the following information for the next **three (3)** questions.

On the planet of Mars, the demand and supply equations for Paper are:

$$P_d = 1000 - 2Q_d$$

$$P_s = 100 + Q_s$$

16. Suppose the governor of Mars wants to implement an excise tax that reduces the equilibrium quantity to 200. What is the excise tax required?
- a.) \$100 per unit of paper
  - b.) \$200 per unit of paper
  - c.) \$300 per unit of paper
  - d.) \$600 per unit of paper
17. What is the arc elasticity of demand between the initial equilibrium in this market and the new equilibrium in this market once the excise tax described in the last question is implemented?
- a.)  $e = 1/3$
  - b.)  $e = 2/3$
  - c.)  $e = 1$
  - d.)  $e = 15/11$
18. Suppose the government implements the excise tax described earlier in this set of questions. Given this tax, which curve is the more elastic curve and who pays more of the tax?
- a.) The supply curve is more elastic at the equilibrium. Consumers pay more of the tax.
  - b.) The demand curve is more elastic at the equilibrium. Suppliers pay more of the tax.
  - c.) The supply curve is more elastic at the equilibrium. Suppliers pay more of the tax.
  - d.) The demand curve is more elastic at the equilibrium. Consumers pay more of the tax.

Use the following information for the next **two (2)** questions.

High school student Yoshi can time travel between 1550 and 2012. During his travels, he collected the following information:

Year	CPI	Cost of Market Basket
1550	100	\$750
2012		\$3,000

**19.** What is the CPI of 2012 if the base year is 1550?

- a.) 150
- b.) 200
- c.) 350
- d.) 400

**20.** What is the inflation rate between 1550 and 2012 using 1550 as the base year?

- a.) 50 %
- b.) 150 %
- c.) 300 %
- d.) 400 %

Use the following information for the **next** questions.

Year	CPI	Nominal Wage
1980	100	\$5/hr
1990	160	\$10/hr
2000	240	\$18/hr

**21.** Which of the following statements is **TRUE**?

- a.) The real wage increased from 1980 to 2000.
- b.) The real wage decreased from 1980 to 1990.
- c.) The real wage in 1990 is \$6.00/hr.
- d.) The real wage in 2000 is higher than the nominal wage in 2000.

**22.** If prices and nominal wages are both rising at 5% per year, then the

- a.) Real wage will be increasing at 5% per year.
- b.) Real wage will be increasing at more than 5% per year.
- c.) Real wage will remain the same.
- d.) Real wage will be increasing at less than 5% per year.

23. Suppose Iris only buys purses and coats. Her marginal utility of purses is 320 for every purse and her marginal utility of coats is 440 for every coat. The price for purses is \$80. To make Iris indifferent between buying purses and coats, what must be the price of a coat?

- a.)  $P_{\text{Coat}} = \$60$
- b.)  $P_{\text{Coat}} = \$80$
- c.)  $P_{\text{Coat}} = \$110$
- d.)  $P_{\text{Coat}} = \$120$

24. Which of the following conditions is necessary for a firm to exit in the short run?

- a.)  $P > ATC$
- b.)  $P < MC$
- c.)  $P > AVC$
- d.)  $P < AVC$

Use the following information to answer the next **two (2)** questions.

Andrew wants to buy football tickets (F) and Badger sweaters (B) at the stadium.

One football ticket costs half as much as a Badger sweater.

The marginal utility of a Badger sweater is:  $MU_B = 9 - B$ .

Andrew maximizes his utility by purchasing the optimal bundle of 5 badger sweaters and 8 football tickets.

25. What is the marginal utility of the 8<sup>th</sup> football ticket?

- a.) 1 util
- b.) 2 utils
- c.) 4 utils
- d.) 5 utils

26. Suppose the price of a Badger jersey (J) is twice as much as a football ticket. If Andrew's optimal bundle is 5 badger sweaters, 8 football tickets and 3 Badger jerseys, what is the marginal utility of the 3<sup>rd</sup> Badger jersey?

- a.) 1 util
- b.) 2 utils
- c.) 4 utils
- d.) 5 utils

**27.** Suppose Sherlock Holmes only purchases Persian slippers and deerstalker hats. Suppose his income changes from 2000 to 3000 sterling pounds a year while at the same time the price of Persian slippers increases from 40 to 60 sterling pounds a pair and the price of deerstalker hats increases from 24 to 36 sterling pounds. What will happen to Sherlock Holmes' consumption bundle compared to his optimal bundle before the changes in his income and the prices of these two goods?

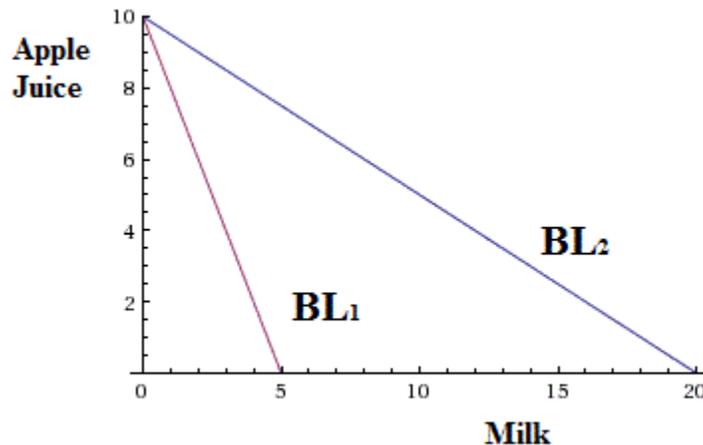
- a.) He will buy more deerstalker hats and fewer Persian slippers now.
- b.) He will buy fewer deerstalker hats and more Persian slippers now.
- c.) He will buy the same number of hats and the same number of slippers as before.
- d.) He will buy more of both goods now.

**28.** The total cost function for a firm is given by:  $TC = 7q^2 + 5q + 7$ . What is the average variable cost (AVC)?

- a)  $AVC = 14q + 5$
- b)  $AVC = 7q^2 + 5q$
- c)  $AVC = 7/q$
- d)  $AVC = 7q + 5$

Use the following information to answer the next **two (2)** questions.

Apple juice and Milk are perfect substitutes. Every glass of **milk** makes Adam as happy as every glass of **apple juice**. Every glass of apple juice gives Adam a utility of 7. Every glass of milk gives Adam a utility of 7. Adam has \$20 to spend on milk and apple juice. Initially, apple juice costs \$2 and milk costs \$4 ( $BL_1$ ). The creation of a new dairy farm causes the price of milk to decrease to \$1 ( $BL_2$ ), apple juice prices remain the same. The graph below depicts the change.



29. What is Adam's optimal consumption bundle given the new prices and his income of \$20?
- a.) 10 glasses of milk and 5 glasses of apple juice.
  - b.) 10 glasses of apple juice and 0 glasses of milk.
  - c.) 20 glasses of milk and 0 glasses of apple juice.
  - d.) 10 glasses of apple juice and 20 glasses of milk.
30. What is the income effect on Adam's consumption of milk given the price of milk decreases from \$4 to \$1?
- a.) Income effect = 10 glasses of milk
  - b.) Income effect = -10 glasses of milk
  - c.) Income effect = 15 glasses of milk
  - d.) Income effect = 20 glasses of milk

Solutions:

- 1 C
- 2 C
- 3 B
- 4 B
- 5 B
- 6 B
- 7 A
- 8 D
- 9 B
- 10 D
- 11 C
- 12 B
- 13 D
- 14 D
- 15 A
- 16 C
- 17 C
- 18 A
- 19 D
- 20 C
- 21 A
- 22 C
- 23 C
- 24 D
- 25 B
- 26 C
- 27 C
- 28 D
- 29 C
- 30 A