

Econ 2: Spring 2014: DRAFT Sample Midterm I ANSWERS

1. Identifications (20 minutes—if you are not through after 20 minutes, skip to the next question): Briefly, in one or two sentences, explain the terms set out and how they have been used in the course so far:

a. Demand Curves

A curve (or line) on a graph; an equation; specifying for each price the quantity of the commodity that demanders wish to purchase at that price. The value of the demand curve for any given quantity Q is the marginal willingness-to-pay at that quantity—what value the most eager potential purchaser who has not purchased one of the first Q units on offer places on the commodity...

b. Producer Surplus

The maximum amount that producers, if they could get together and costlessly bargain as to how to allocate the burden among themselves, would ever under any circumstances find themselves willing to offer up in payment for the privilege of opening up the market in this commodity.

c. Externalities

Costs (or benefits) to those not party to a transaction: the thing that makes markets fail and requires a Pigovian tax (or subsidy) to make the market work properly.

d. Market Failure

Any of a number of phenomena that would cause the outcome of a competitive market in equilibrium to fail to produce the maximum possible social welfare

2. (20 minutes—if you are not through after 20 minutes, skip to the next question): Go back to our first-run opening-week movie-industry monopoly example: 4000 people in the town; one movie theatre; ample capacity to seat everyone who might want to come to see this week's first-run movie. Demand Curve: $P_d = 20 - .01 Q$. No variable or marginal costs of showing the movie to more people: a non-rival good. Suppose that it costs \$1000 to make a movie.

a. How many people should see the movie if we are to maximize societal well-being? What price should be charged to moviegoers? How much consumer surplus is there? How much is there in the way of costs that must be covered somehow?

2000 people. A price of 0. Consumer surplus is then \$20,000—but there are \$1000 of movie-making costs that need to be covered.

b. Suppose people worry that government bureaucracies will produce lousy movies, so it is decided not to nationalize the movie industry but instead to let a monopoly make and show movies. What happens?

Monopoly sells 1000 tickets and charges \$10 a ticket. Consumer surplus is cut to \$5000. Monopoly profits are \$9,000

c. Suppose that other movie companies petition for the right to use the theatre, and get it. Suppose that if N movie companies make movies, each sells $2000/(N+1)$ tickets, and the price of tickets is the price at which that number of tickets satisfies demand. In equilibrium—where it is not worth another movie company's while to enter the market—how many movies will be made each week? What will the consumer surplus be? What will the producer surplus be?

One company prints 1000 tickets, sells them for \$10 each, with \$9000 profit and \$5000 consumer surplus...

Two companies print 667 tickets each, sell them for \$6.67 each, with \$3444.44 profit per company and \$8888.89 consumer surplus...

Three companies print 500 tickets each, sell them for \$5 each, with \$1500 profit per company and \$11250 consumer surplus...

Four companies print 400 tickets each, sell them for \$4 each, with \$600 profit per company and \$12800 consumer surplus...

Five companies print 333 tickets each, sell them for \$3.33 each, with \$110 profit per company and \$13889 consumer surplus...

Six companies print 285.71 tickets each, sell them for \$2.86 each, with -\$184 profit per company... so company 6 does not enter, and we are left with 5 companies...

3. (20 minutes—if you are not through after 20 minutes, skip to the next question): Let's go back to our six producers, Arya, Bran, Tegan, Taylor, Sarah, and Zedd, trying to decide whether they should go to work teaching yoga lessons or pulling lattes. In an hour the six workers could each teach at most the following number of yoga students: Arya 10; Bran 6; Tegan 4; Taylor 10; Sarah 2; and Zedd 0. In an hour the six workers could prepare at most the following number of lattes: Arya 60; Bran 10; Tegan 20; Taylor 30; Sarah 30; and Zedd 60. The government sets the value of its currency, the pound, so that £1 purchases one latte. Call the price paid to the yoga instructor by each yoga student £Y.

a. Suppose that the price £Y of a yoga lesson is £5.50. Who would rather teach yoga? Who would rather draw lattes?

Opportunity cost of teaching yoga: Arya £6, Bran £10, Tegan £5, Taylor £3, Sarah £15, Zedd £∞. So Tegan and Taylor would rather teach yoga; the rest would rather pull lattes

b. Suppose the price of a yoga lesson is £10. Who would rather teach yoga? Who would rather draw lattes?

Arta, Tegan, and Taylor would rather teach yoga, with Bran on the fence...

c. Suppose the price of a yoga lesson is £15. Who would rather teach yoga? Who would rather draw lattes?

Zedd would rather draw lattes, Sarah is on the fence, the others would rather pull lattes.

d. With the price of yoga lessons along the vertical axis and the quantity of yoga students taught on the horizontal axis, draw the supply curve for yoga lessons for the economy.

0 yoga lessons until the price hits £3, then 10 yoga lessons until the price hits £5, then 14 until the price hits £6, then 24 until the price hits £10, then 30 until the price hits £15, then 32

4. (20 minutes—if you are not through after 20 minutes, skip to the next question): Suppose that you find yourself the subject of some bizarre psychology experiment. You are seated in a locked room with a sociology or an anthropology major, and you have ten minutes to persuade him or her in ten minutes that it is broadly and on balance a good thing that we here today have a mixed and market-heavy economy rather than a centrally-planned economy like Stalin's Russia, Mao's China, Castro's Cuba, or (shudder) Kim Jong Un's North Korea. If you succeed, you win \$1000. If you fail, you get nothing.

Write down, in order of importance, the things you would say to try to convince your experiment partner that it is broadly and on balance a good thing that we here today have a mixed and market-heavy economy.

The most obvious thing to say is to offer them \$500 to say that they agree, and when they agree to say that they agree say: "See!"...