Econ 200
Spring 2019
Midterm 2

Name:

TA Name/Section:

115 Points, 80 minutes. *You may use any non-graphing calculator, but no notes or scratch paper. Scratch paper is attached. Please write legibly, show your work, and round answers to 2 decimal places, if necessary.*

Anyone suspected of cheating may receive a zero for the exam and for the course.

1. (30 points) Externalities
    a. (5 points) Explain why negative externalities produce overconsumption of goods? How does this overconsumption result in deadweight loss?

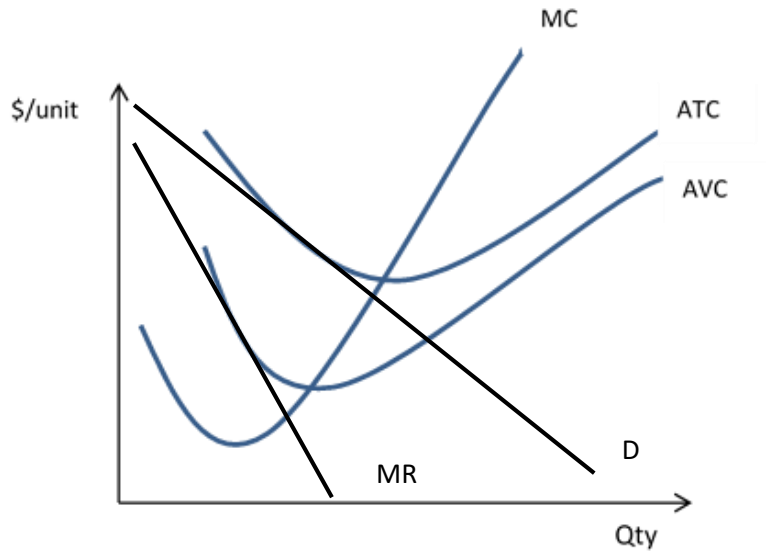
    b. (10 points) The weekly supply of cigarettes is given by $P = 10 + \frac{1}{3}Q$ and the demand is given by P=30-Q. Cigarette smoking causes a $2/pack external cost on non-smokers, resulting in a marginal social cost of cigarettes equal to $MSC = 12 + \frac{1}{3}Q$. Find the private market equilibrium for cigarettes if no externalities are considered and the socially efficient quantity and price once the externality is considered.

c. (5 points) Draw the relevant curves and equilibria from b due to the externality on the graph below. Be sure to identify each curve and the relevant prices and quantities.

d. (5 points) Identify the deadweight loss on the graph above and calculate its magnitude.

e. (5 points) Suppose that non-smokers wanted to convince smokers to smoke less. What would the Coase theorem suggest they do to achieve this? Name one assumption of the Coase theorem that must be true in order for private bargaining to produce an efficient solution.

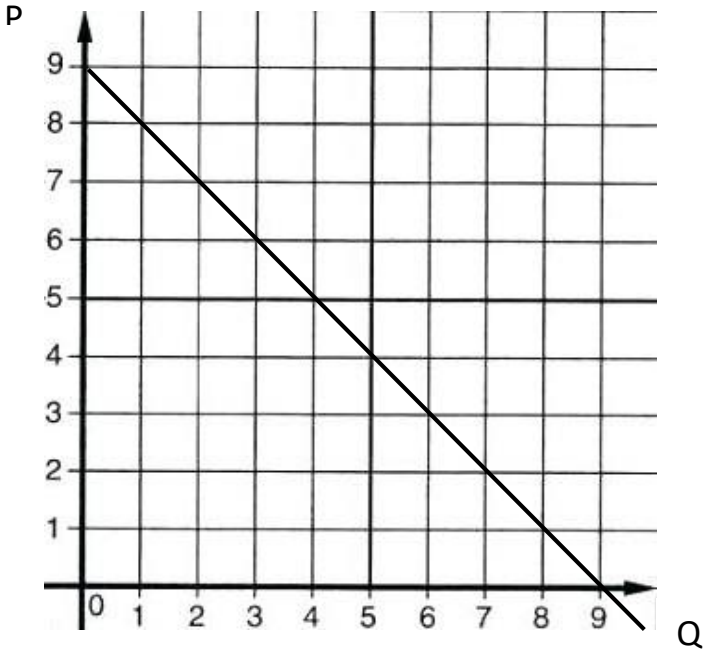
2. (26 points) Imperfect Competition
    a. (6 points) Are the profits in the monopolistically competitive market below positive, negative, or zero? Does the market experience deadweight loss? If yes, please identify it on the graph. If no, please state why.



    b. (4 points) Draw the consumer surplus on the graph above.

    c. (5 points) Explain the role of branding and advertising in helping a firm maintain positive profits in a market with free entry and many firms selling similar products.

d. (6 points) The graph below shows the demand for a good in a monopolistically competitive market. Calculate the marginal revenue for Q=1 through 5, and draw the MR curve. (Remember: Show your work.)



e. (5 points) As a frim moves from selling Q=3 to Q=4 with the demand in d, how much of the marginal revenue is due to the price effect? How much is due to the quantity effect?

3. (30 points) Monopoly
    a. (3 points) When **total revenue** is maximized, what is marginal revenue equal to?

    b. (5 points) Suppose a monopolist has to purchase new equipment and his fixed costs increase. Explain what will happen to the monopolist's profit-maximizing output quantity and the monopolist's profits.

Now consider Wakanda, Inc., a firm that owns the only known Vibranium mine in the world. The demand for an ounce of Vibranium is given by P=20,000-Q and marginal revenue in this monopoly market is MR=20,000-2Q. The marginal cost of extracting an ounce of Vibranium is $2,000 (note: this is a constant MC).

    c. (5 points) Find the monopoly output and price set by Wakanda, Inc. given these facts.

d. (10 points) Calculate the deadweight loss due to Wakanda's monopoly power. The graph below is provided to aid you in thinking through the problem, but you are not required to use it.

4. (35 points) Costs and Perfect Competition
   a. (4 points) If a firm experiences diminishing marginal product, does this mean that total output decreases? Explain.

Webby Inc. is a profit maximizing firm in a perfectly competitive market. It develops websites according to the production function in the table. and the corresponding number of workers per day are in the table that follows. Webby pays $4000 per month in fixed costs and pays each worker (programmer) $2000 per month. There are no other production costs.

L (programmer)	Q (websites/ mo.)	MPL	TC ($)	VC ($)	MC ($/site)	ATC ($/site)	AVC ($/site)
1	2						
2	6						
3	14						
4	20						
5	24						
6	26						

   b. (12 points) In the table above, find the MPL, TC, VC, MC, ATC and AVC. No need to show your work.

c. (5 points) Market price is $500/website. What is their output? Calculate the monthly profits at this level of output. Show your work.

d. (8 points) At what price would the firm shut down? What is the decision rule? At what price would the firm exit the market in the long run? What is the decision rule?

e. (6 points) Consider a firm that increases its inputs by 15 percent. For each scenario, state whether the firm experiences economies of scale, diseconomies of scale, or constant returns to scale.

i. Outputs increase 15 percent.

ii. Outputs increase by less than 15 percent.

iii. Outputs increase by greater than 15 percent.

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