Midterm Economics Exam (Second Makeup) Answer Key

I. Definitions (7 points each) <u>Briefly</u> define each of the following terms.

market welfare hypothesis

It states that (1) if the supply curve represents the marginal social cost of supplying a good, (2) if the demand curve represents the marginal social benefit supplied by this good, and (3) if there is a single equilibrium, then the market equilibrium is also the price and quantity that maximize the net benefits to society to be had from this good. Notes: (1) The third condition is more technical and is not necessary for full credit. (2) The MWH is not about whether there will be an equilibrium, but whether the equilibrium (a "positive" phenomenon) will be beneficial (a "normative" characteristic).

prisoner's dilemma

This is a situation in which each individual has an individual incentive to act in his or her personal interest, but if all do so, each will be worse off individually. An example used in class was the case of sneakers in a status-conscious high school. If a student buys fancy sneakers and other don't, he or she will gain prestige; being the only one to buy cheap sneakers, on the other hand, results in a feeling of shame. Yet if all spend lots of money on shoes, no one gains socially, while all end up broke.

marginal benefit

This is the additional benefit received from one more unit of something. Under the assumption that individuals are perfectly rational, the height of the demand curve at a particular quantity represents the marginal benefit of the last unit acquired.

II. Short-answer questions (15 points each) For <u>two</u> of the following three statements, indicate whether they are true or false and briefly explain why.

1. Every year private charity organizations distribute free meals on Thanksgiving and Christmas. This is an example of a public good provided by the private sector.

False. There are two characteristics of public goods, nonrivalry and nonexclusion. The first says that there is a zero or near-zero marginal cost of provision, the second that it is not practical to charge for use. Neither applies in this case. (1) There is a positive marginal cost associated with the food and labor invested in each meal. (These things have opportunity costs even if they are donated.) (2) It is very practical to charge people for eating, since restaurants do it all the time. The charities may voluntarily choose to not charge, but that is a different matter.

2. Raising the gasoline tax would cut down on global warming by increasing the social cost of driving a car.

*False. The social cost of driving a car consists of the opportunity and disutility costs of building the car, providing the gas, plus all the externalities that result from driving it. None of these are altered by the tax. It is true that raising the gas tax would probably lead to less driving, but this would mean **less** social cost, not more.*

3. To measure the direct benefit consumers derive from lumber, an economist would need more information than just the going price for lumber and the amount purchased.

True. She or he would need the data incorporated in the demand curve, since it is the willingness to pay for lumber, not its price, that determines its benefit to consumers (in economic theory).

III. Problems Solve <u>all</u> of the following numerical and graphical problems.

1. (10 points) Draw a diagram for the market in fresh Pacific Northwest chanterelle mushrooms , incorporating "normal" supply and demand curves, and indicate their equilibrium price and quantity. Now, for both of the following, shift either the demand curve or the supply curve in the correct direction and show how this changes the equilibrium price and quantity. Show and label the old and new curves, and the old and new equilibria, in the same diagram.

a. An early frost in upland forest areas shortens the harvest season there.

b. The northwest falls into a steep economic recession.
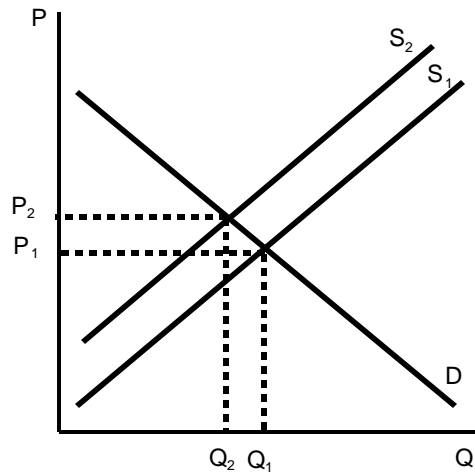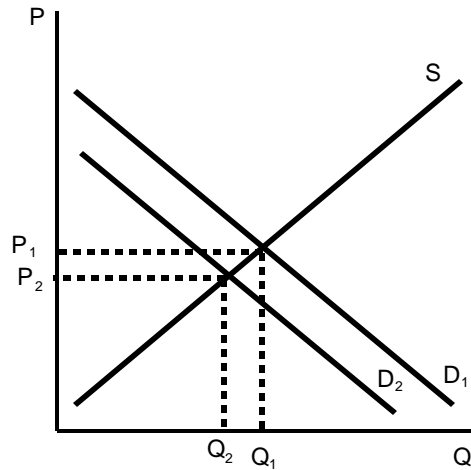
a.
b.

2. (10 points) Suppose the following diagram depicts the demand and supply curves for electricity in Washington State. Assume that the demand curve also represents the marginal social benefits of electricity, but the supply curve understates the marginal social costs (as depicted). Indicate on the horizontal axis the optimal quantity of electricity that should be generated (from this economic perspective), and shade in the area representing net social benefits at that quantity.

P

MSC

S

D = MSB

Q*

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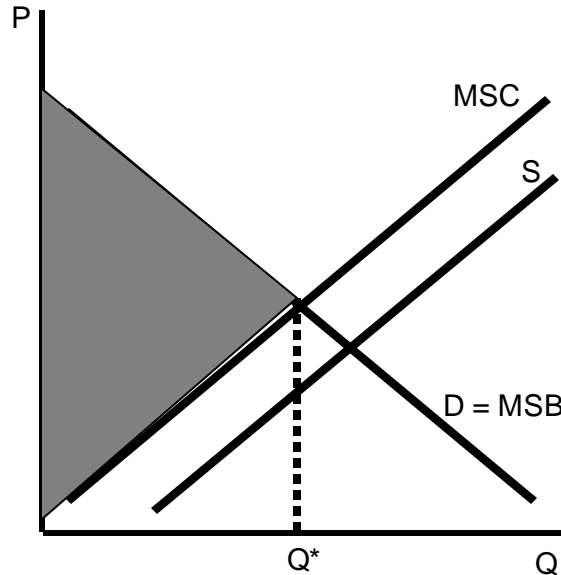
3. (28 points) Suppose a private, for-profit hydroelectric dam and a kayaking recreation company both operate on the same river. Since the kayaking occurs downstream from the dam, there is a tradeoff between the use of water for hydroelectric power and its use for recreation. In this problem we will assume that there are no costs or benefits to either kayaking or hydropower other than their profitability to these two companies, and that there are no other effects of either business on anyone else. The tradeoffs are shown in the following table:

	Dam profits	Kayak profits
Full operation of dam	$80,000	$10,000
Partial operation of dam	$40,000	$20,000
Breeching of dam	$0	$100,000

a. What is the marginal cost to "society" of going from a full to a partial operation of the dam?
The answer I was looking for was $40,000 — the lost profit from the dam — but I also accepted $30,000, since this represents the reduction in the combined profit from both operations.

b. What is the marginal benefit to "society" of going from a full to a partial operation of the dam?
$10,000, the increase in Kayak profits.

c. What is the economically efficient use of the dam — full, partial or breeched? Why?
Breeching is economically efficient, since it maximizes the combined benefits (profits).

d. What is the least the dam owner would need to be paid to accept a breeching of the dam, rather than full operation?
$80,000

e. What is the most the Kayak company would be will to pay to have the dam breeched, rather than have it be fully operated?
$90,000

f. What is the least the Kayak company would need to be paid to accept full operation rather than breeching of the dam?
$90,000

g. What is the most the dam owner would be will to pay to be able to operate the dam fully rather than having it breeched?
$80,000

h. Is this result consistent with the Coase Theorem? Explain.

Yes, it is consistent. The Coase Theorem says that, if the parties are able to negotiate, it doesn't matter which one has been given the rights — in this case, the right to operate the dam or the right not to have the stream flow interfered with. In either case, negotiations will lead to the same actions, and those actions will be economically efficient (maximize net benefits). If the dam owner is given the right to operate the dam, the kayak company will be willing to pay enough to convince him/her to breech (parts d and e). If the Kayak company is given the right, the dam owner is not willing to pay enough to get permission to operate (parts f and g). Either way, the dam is breeched, and this is economically efficient (part c).