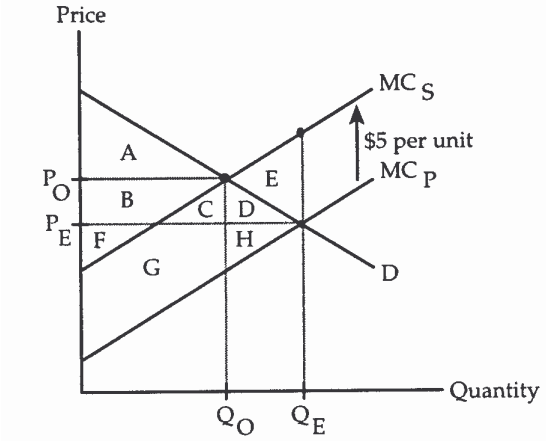
ECON 310
Assignment #5
Due: Monday, December 3 at 9:00am
Please write your answers on a separate piece of paper and show all of your work.
Please write legibly!

1. The following questions refer to the accompanying diagram, which shows the effects of a negative externality created by an industry's production. The equilibrium quantity in the absence of any attempt to internalize the externality is Q_E and the optimal quantity according to Pigovian analysis is Q_0. (10 pts)



i. The external costs imposed by this externality is given by what area in the above diagram?
GCDHE

ii. Suppose there is no attempt to internalize the externality. Pigovian analysis indicates that the externality creates a deadweight loss equal to what area?
NO TAX: Social gain = A+B+F-E
TAX: Social gain = A+B+F
DWL= E

iii. According to a Pigovian analysis of this externality, when a tax of $5 per unit is imposed on the firms in this industry, the external costs created by the firms' production will be equal to what area?
At Qo, difference between MCs and MCp = CG

iv. Suppose there are no transactions costs. Also suppose the externality is internalized when the damaged parties offer producers a bribe of $5 per unit to reduce their production. Coasian analysis indicates that social gain in this situation will equal what area?
ABF- see below
CS: A
Bribe: -EDH
PS: BCFG+EDH
Externality: CG
Difference: ABF

v. According to Pigou, what is the socially optimal quantity?
Qo (see above!- I told you this outright!)

2. Use the following chart to answer the questions below. (10 pts)

	Non Excludable	Excludable
Non Rival	**A**	**C**
Rival	**B**	**D**

i. An empty public park falls under square __A__
ii. A toll bridge not during rush hour falls under square _C__

iii. A toll bridge during rush hour falls under square __D__
iv. A fishery falls under square _B___
v. Cable television falls under square __C___

3. Chapter 14, Problem Set #1 (6 pts)

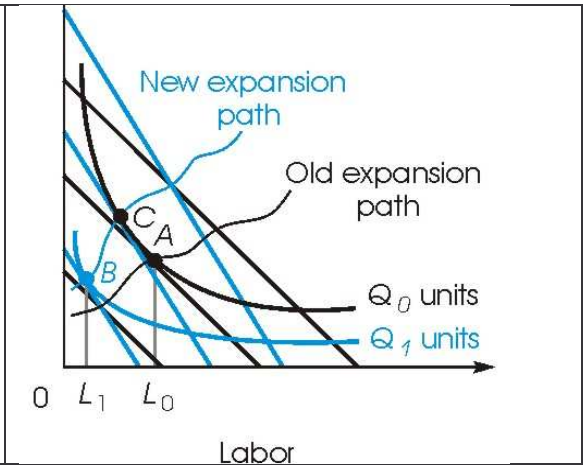
# Fisherman	Fish per Day per Fisherman	Opportunity Cost	Total Benefit	Social Gain	Marginal Social Benefit
1	20	7	20	13	-----
2	19	7	38	24	18
3	18	7	54	33	16
4	17	7	68	40	14
5	15	7	75	40	7
6	13	7	78	36	3
7	10	7	70	21	-8
8	7	7	56	0	-14

a) 8 come to the lake; where opp cost = private benefit. Each catches 7 fish 8 fishers= 56 fish. Social gain is 0.*

b) Optimal # = 5, where MBs = MC. Social gain = 40.

c) Entrance fee must make the fishermen indifferent. We want 5 at the lake, we have 8. How do we get the three to leave? At 5, each catches 15 fish. At 8, each catches 7. Let's charge an entry fee of 8 fish.

4. The figure shows the effects of a wage __*increase*_____. The firm starts at point A and ultimately ends up at point B. Point C is an interim point that illustrates certain effects. The movement from A to C is the ___*substitution* ____ effect while the movement from C to B is the ____*scale*_____ effect. (6 pts)



5. Chapter 16, Problem Set #4 (3 pts), 5 (3 pts), 6 (4 pts) (10 pts total)

#4) Yes, since the income effect for Dick caused him to work more, leisure must be an inferior good for Dick. Thus, if he gets a wage hike, the substitution effect will say he will work more and the income effect will say he will work more since leisure is inferior (since this is what he did when he got his inheritance). Thus, Dick will work more.

#5) No, for Jane, leisure is a normal good. When she got non-labor income, she consumed more leisure. In this case we don't know if the substitution effect of the wage hike (which tells us she will work more) is greater than the income effect (which says she will work less), so we can't determine how Jane's behavior will change.

#6) a) See Exhibit 16-5A in the text, except that Q will be to the right of Q'

b) NO; Since leisure is inferior, an increase in the wage will always cause Hortense to work more. Thus, his labor supply curve will be upward sloping.

i. The short-run demand curve for labor for a firm in any type of market for its output coincides with
   a. the upward sloping portion of the marginal revenue product curve.
   b. the downward sloping portion of the marginal revenue product curve.
   c. the downward sloping portion of the marginal product curve.
   d. the marginal labor cost curve.

ii. An increase in the price of labor will, in the short run, cause a competitive firm's
   a. marginal cost to increase, the quantity it sells to decrease and therefore reduce the quantity demand of labor.
   b. price of output to increase, leaving the demand for labor unchanged.
   c. marginal revenue product of labor to decrease and therefore reduce demand for labor.
   d. marginal revenue product of labor to increase and therefore increase demand for labor.

iii. If labor and capital are complements in production, then an increase in the amount of capital will
   a. reduce the firm's demand for labor.
   b. raise the firm's marginal cost of production.
   c. cause the scale effect to outweigh the substitution effect.
   d. increase the labor's marginal product.

iv. When will a wage increase cause a firm to produce more output in the long-run?
   a. Always.
   b. When labor and capital are complements in production.
   c. When labor is a regressive factor.
   d. Never.

v. To maximize its profits, a monopsonist will always hire the quantity of labor at which marginal revenue product of labor
   a. is downward sloping and equal to the market wage rate.
   b. is downward sloping and equal to its marginal labor cost.
   c. minus marginal labor cost is maximized.
   d. is maximized.

vi. Being a member of a cartel is similar to being in a Prisoner's Dilemma situation because
   a. each firm is being held hostage by the decisions of other firms
   b. of anti-trust laws which make price fixing a criminal offense.
   c. to obtain the best possible outcome for all, an enforcement mechanism is needed.
   d. of the presence of organized crime in industries with cartels.

vii. In the Cournot model of oligopoly, firms produce
   a. the competitive quantity.
   b. the monopoly quantity.
   c. more than the monopoly quantity but less than the competitive quantity.
   d. less than the monopoly quantity.

viii. In the Betrand model of oligopoly, each firm chooses its output assuming its rivals
   a. do not change their price.
   b. do not change their output.
   c. can enter and exit the industry costlessly.
   d. use the tit-for-tat strategy.

ix. The key defining feature of oligopoly, in addition to firms' market power, is
   a. collusion.
   b. free entry and exit.

c. firms take rivals' actions into account.
d. the Prisoner's Dilemma.