

Part I: Each is worth 2 points.

1. If society is composed of two polluters, with the marginal abatement costs of polluter 1 and 2 represented by the following equations:
$$\text{MAC1} = 18 - E_1$$
$$\text{MAC2} = 12 - 2E_2$$
the unregulated level of pollution for each polluter is:
 - a) 18 units by polluter 1 and 6 units by polluter 2.
 - b) 18 units by polluter 1 and 8 units by polluter 2.
 - c) 4 units by polluter 1 and 4 units by polluter 2.
 - d) none of the above.

2. A marginal abatement cost function represents:
 - a) the costs associated with reducing pollution to a lower level.
 - b) the increase in damage that results from an increase in the level of pollution.
 - c) the opportunity costs associated with production of a good or service.
 - d) the cost of labor, capital, and every needed to lessen the emission of pollution.
 - e) both (a) and (d)

3. The optimal level of pollution abatement across two firms is
 - a) a mandated reduction of equal quantities by each firm
 - b) a reduction of emission levels by each firm to the point where marginal abatement costs are equal across firms.
 - c) a reduction of emission levels by each firm to the point where emission levels are equal
 - d) none of the above

4. The travel cost method is based on the premise
 - a) that a survey of individuals at different recreational sites will provide information about the appropriate level of pollution at camp sites.
 - b) that travel cost to a site can be regarded as the price of access to the site.
 - c) that individual measurements of consumer surplus can be used to generate an average value associated with a specific recreational site.
 - d) both (b) and (c)

5. The _____ the discount rate used in computing a cost-benefit analysis, the _____ the weight placed on future benefits and costs.
 - a) lower; lower
 - b) higher; higher
 - c) lower; higher
 - d) greater the risk component of; higher

Part II: Answer any TWO questions from this section. Each is worth 10 points.

6. Suppose we are comparing two ways of protecting ourselves against mobile-source air pollution: putting additional controls on the internal combustion engine or developing an entirely different type of engine that is cleaner. How would increases or decreases in the discount rate be likely to affect the comparison between these two options?
7. A tax on gasoline is proposed in order to raise money for pollution control activity of several public agencies. The tax will be 10¢ per gallon, and last year 10.3 million gallons of gasoline were used by motorists. Does this mean that we can anticipate \$1,030,000 in revenues from this tax? Explain.
8. Explain carefully one advantage and one disadvantage associated with using contingent valuation methods.

Part III: You must answer this question.

9. Consider a factory located on a lake. The factory emits a pollutant called *crud* into the lake.
 - a) Explain how economists would model the choice of efficient crud emissions. In other words, how is the efficient level of crud emissions determined? Use a diagram to illustrate your arguments. Make sure you explain what each curve represents. [4 pts]
 - b) An environmental activist claims that “the only good pollution is no pollution.” That is, all emissions of crud should be eliminated. Using your diagram from above, explain why this position is unlikely to be “good” from society’s point-of-view. [3 pts]
 - c) What would happen to the efficient level of crud emissions if the following events occurred? Illustrate the impact of each event on a separate diagram, showing the before and after outcomes.
 - i) The number of lake front condos *decreases*. [3 pts]
 - ii) A new factory production process *increases* the amount of crud per unit of output produced by the factory. [3 pts]
 - iii) Water skiing becomes *more* popular. [3 pts]
 - d) How would economists measure damages stemming from environmental degradation due to such pollution as crud? Discuss at least one direct and one indirect method in your answer. [4 pts]