Final

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12pt Paragraph

This is a preview of the published version of the quiz

Started: Apr 25 at 10:10am

Quiz Instructions

Multiple Choice (3 points each, 24 points total)

Question 1 — 3 pts

What must be true for an allocation to be Pareto optimal?

- Welfare outcomes must be equal across all recipients
- Resources must be allocated to their highest-value use
- Cannot improve someone's outcome without making someone else worse off
- Total welfare is maximized according to the social welfare function

Question 2 — 3 pts

Compared to stated preference methods, revealed preference methods of valuation usually:

- Offer results that are more easily convincing
- Can be used in a wider variety of situations
- Are more threatened by cognitive biases
- Are more often used to evaluate goods that exist outside of markets

Question 3 — 3 pts

In class, we saw how tourism was estimated to be a major source of value for coral reef ecosystems. Which of the following is the **least appropriate** way to measure this source of value?

- Travel cost analysis for those who travel to the reef
- Hedonic wage methods for workers on nearby oil rigs
- Stated-preference surveys aimed at non-locals
- Direct analysis of revenue in tourism-related industries

Question 4 — 3 pts

In the static fisheries model, which one of the assumptions constrained us to only sustainable outcomes?

- Marginal cost of fishing effort was positive and constant
- Fish populations do not interact with each other
- Assumption that the age of individual fish does not matter
- Discount rate choice of r=0%

Question 5 — 3 pts

Which of the following describes an efficient outcome of a pollution control policy in a situation withmultiple, non-identical polluting firms?

- ○ The largest sources of pollution are shut down first
- ○ The lowest-cost sources of pollution are be abated first
- ○ Abated units of pollution must be proportional to the original emissions levels
- ○ Smaller firms must not be forced to abate more than larger firms

Question 6 — 3 pts

In the forestry models, which of the following will **delay** the optimal harvest date?

- ○ Adding the option to replant trees for future harvests
- ○ Assuming that marginal cost of harvest declines over time with technology
- ○ Assuming that the price of lumber declines over time as substitutes become more popular
- ○ Choosing a higher discount rate

Question 7 — 3 pts

In competitive electricity markets, power is supplied to meet demand according to the economic dispatch curve, which means:

- ○ The sources with the highest investment cost per MW are dispatched first
- ○ The sources with the highest investment cost per MW are dispatched last
- ○ The sources are dispatched in descending order of size

- The sources with the lowest marginal cost are dispatched first
- The sources are determined by the demand curve of electricity customers

Question 8 — 3 pts

Which of the following is a correct application of the Second Equimarginal Principle?

- Tax burden from pollution should be equal across firms and their customers
- Highest-profit companies should face a larger tax burden for pollution
- Reduce pollution from the lowest-value sources first
- All polluting firms must comply with a minimum technology standard

Free Response Questions (76 points total)

You can either type your response or hand write it and upload in the file upload directly below the question

Question 9 — 15 pts

Stated preference methods of valuation often require sophisticated research designs because it is hard to get a person to convey their true valuation of a good. List and briefly explain three of the five response biases we discussed in class. (1 sentence each)

p

0 words

Question 10

10 pts

List and briefly explain the two sources of inefficiency in the open-access fisheries model (1-2 sentences each)

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Question 11 10 pts

Using an example of your choice (can be hypothetical), explain how the “rebound effect” could apply to water use in homes. (2-3 sentences)

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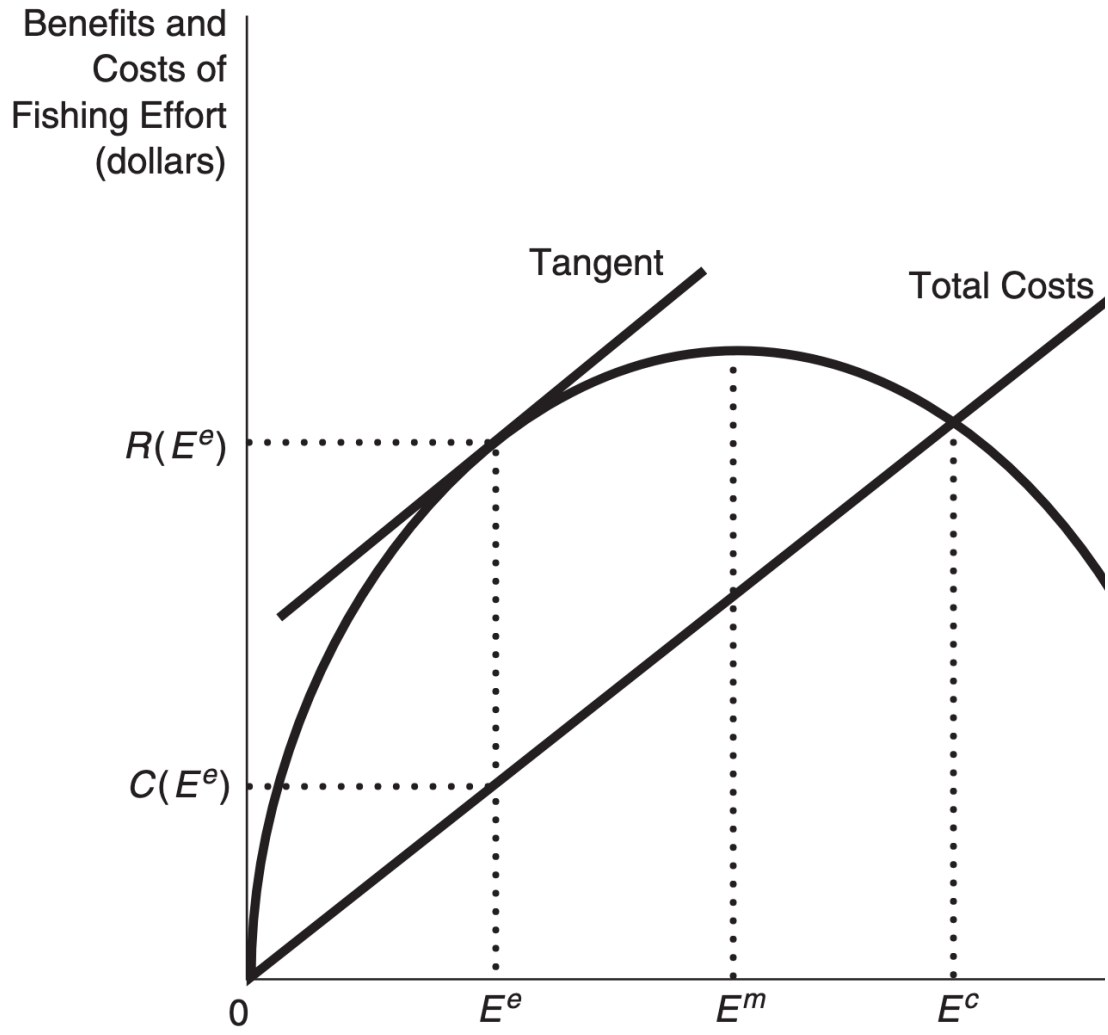
Question 12 10 pts

FIGURE 13.2 Efficient Sustainable Yield for a Fishery



The figure shown is the static version of the Gordon-Schaefer fisheries model. Points A, B, and C are along the horizontal axis, and they represent different levels of sustained fishing effort.

a) Explain the significance of points E^e and E^m. What is the important difference between them? (2 sentences)

b) What is the significance of point E^c in the open-access scenario? (1-2 sentences)

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Question 13 10 pts

Levelized cost of energy (LCOE) is a formula that economists use to compare different energy sources. One important parameter in that formula is the discount rate.

a) Explain why LCOE provides a useful perspective for planning the electricity grid. (1-2 sentences)

b) If we use a high discount rate instead of a low one, LCOE changes for all sources. However, it does not change by an equal amount for all sources. Consider a coal plant and a wind farm. Explain which one is made to look relatively better with a high discount rate. (2 sentences)

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Question 14 6 pts

One recurring theme of this class was the occasional conflict between improving the environment and improving the outcomes of the least wealthy people. In other words, sometimes policies that improve the environment are economically regressive. List and briefly explain two different scenarios from class where this conflict exists. (1-2 sentences each)

Question 15 — 15 pts

Two firms produce steel (A and B). Initially there are no regulations on the firms and each firm produces
100 units of pollution. Regulators determine that an efficient level of use would be half the current level (use = 100
units; abatement = 100 units). Suppose the two sites were built in different time periods and have different abatement costs.

Firm A: $TAC_A = 0.05Q_A^2$ and $MAC_A = 0.1Q_A$

Firm B: $TAC_B = 0.15Q_B^2$ and $MAC_B = 0.3Q_B$, where Q = the level of abatement.

a.) Suppose a uniform standard is set stating that each site must reduce emissions by 50 units (abatement = 50 units). Find the total combined costs of abatement at the two sites under this use standard.

b.) Now suppose that the firms are in a cap-and-trade system. Find the quantity abated by each firm in equilibrium. What is the permit price? What is the total combined costs of abatement?

c.) Explain why the cap and trade system is a more efficient policy (1-2 sentences).

Question 16 0 pts

If you don't want to type your answer, upload high-quality image of work for the pollution abatement question

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