Economics 3250
Spring 2010

Dr. Lozada
Exam 1

Do Not Turn This Page Over Until You Are So Instructed!

This exam has 25 points. There are six questions on the exam. The number of points for each question is shown next to the question number. Two questions are worth 6 points, one is worth 4 points, and the rest are worth three points each.

Put your answers to the exam in a blue book.

You have **one hour** (that is, until **2:25pm**) to take this test. After the test is over, I'll lecture until the regular class period ends.

Answer the questions using as much precision and detail as the time allows. Correct answers which are unsupported by explanations will not be awarded points.

Answer all of the following six questions.

1. **[6 points]** In the figure attached to this exam, three graphs are drawn. These graphs all illustrate the same result in environmental economics. The letter "Q" stands for quantity of output; "MEC" stands for "Marginal External Cost;" and "MR" stands for "Marginal Revenue." Finish labeling these graphs completely, including all the lines and curves, the axes, and the important points on the Q axes. Explain what important result the graphs show.

   Note: You have not seen all of the third graph before, but you have seen part of it before.

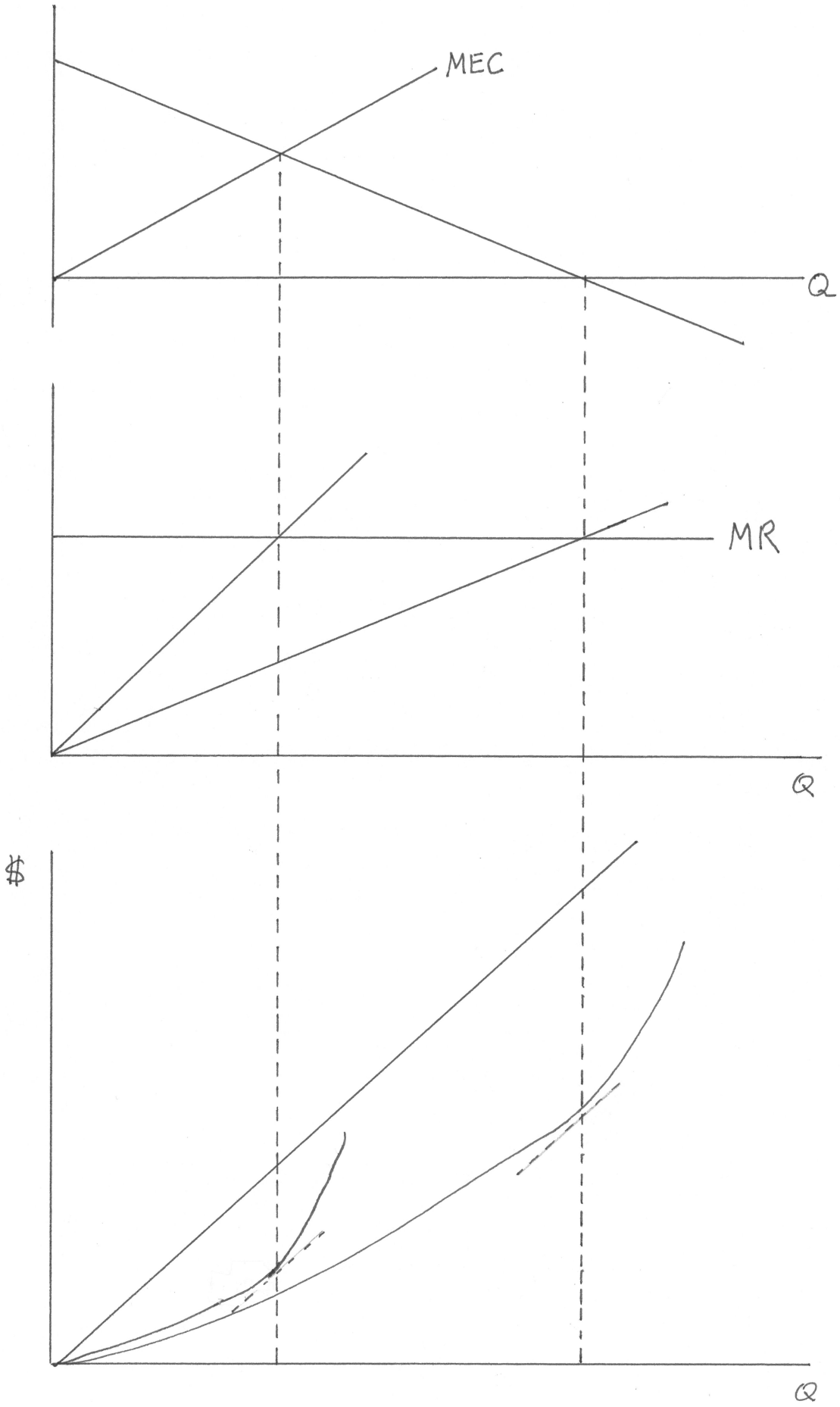
2. **[4 points]**
   (a) What do economists mean by "efficiency?"
   (b) What do economists mean by "Pareto Optimality?"
   (c) What do economists mean by a "Pareto improvement?"
   (d) Give an example of an efficient allocation which some people would consider to be undesirable.

3. **[3 points]** Define, and thereby contrast:
   (a) Willingness to pay.
   (b) Willingness to accept.

4. **[6 points]** In class, we discussed eight potential disadvantages of the Contingent Valuation Method. Describe three of them.

5. **[3 points]** Frank Knight suggested making a distinction between "risk" and "uncertainty." What is the distinction? What implication does it have for economics?

6. **[3 points]** Define, and thereby contrast, emission charges, user charges, and product charges.


MEC
Q
MR
Q
$
Q

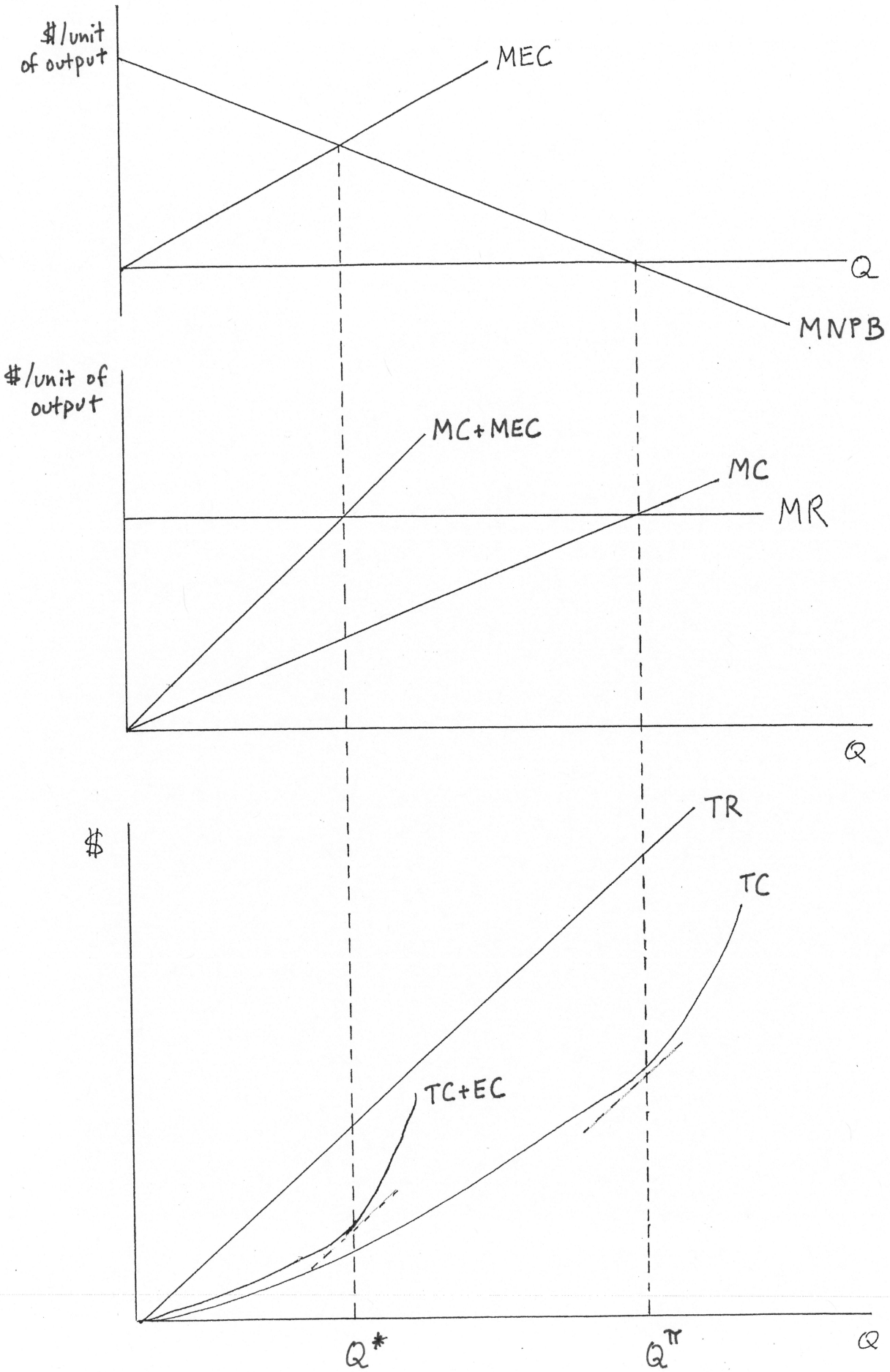
Answers to Exam 1,
Econ 3250, Spring 2010

① See the graphs.

MNPB: Marginal Net Private Benefit
MC: Marginal Cost
TR: Total Revenue
TC: Total (Internal) Cost
EC: External Cost
Q^{π}: profit-maximizing Q → maximizes TR − TC; equates MR and MC; makes MNPB = 0
Q^{*}: socially optimal Q → maximizes TR − (TC + EC) = TR − TC − EC; equates MR and MC + MEC; equates MNPB and MEC

$Q^{\pi} > Q^{*}$ because the firm ignores EC (and MEC), the cost of its pollution to the pollution victims, and so produces an output level that is too high.

The flat MR curve in the second graph corresponds to the linear, upward-sloping TR curve of the third graph. This is because the area under the MR curve is TR. Similarly, the area under the MC curve is TC, and the area under the MEC curve is EC. Where the slope of TR = the slope of TC, TR − TC is maximized. Where the slope of TR = the slope of TC + EC, TR − TC − EC is maximized.


$/unit of output
MEC
Q
MNPB
$/unit of output
MC+MEC
MC
MR
Q
$
TR
TC
TC+EC
Q*
Q^π
Q

(2)

a) An allocation is "efficient" if there is no alternative allocation making no one worse off and at least one person better off.

b) Efficiency.

c) A reallocation which makes no one worse off and at least someone better off.

d) One example would be giving all resources to one person and nothing to everyone else. As long as no resources were wasted, this allocation is efficient, but some people would object to its "unfairness" (in their eyes).

(3) a) The amount of money a consumer (or other agent) would be willing and able to pay in exchange for adoption of a policy that the consumer likes or " " " rejection " " " " " " does not like.

b) The amount of money which, if paid to a consumer (or other agent), would make that consumer indifferent between "the original situation" and: "the money plus adoption of a policy that the consumer does not like" or " " " " rejection " " " " " " like."

(4)

a) Overstating WTP : if respondent won't actually have to pay, overstating WTP makes his preferred outcome more likely, and costs him nothing

b) Understating WTP : if respondent will have to pay (free riding) (understating WTP makes his preferred outcome only very slightly less likely, but saves him money)

c) WTP << WTA : may make the cost-benefit analysis indecisive (unable to come to a conclusion)

d) Part-whole bias : WTP for the whole < WTP for each part, summed over the parts

e) Vehicle bias : method of payment can affect stated WTP (example: people might not like a new tax, but might not mind an entrance fee)

f) Starting point bias : ranges given in multiple-choice questions can influence responses.

Example:

choices:	a	b	c	d
Survey 1	< $10	$10-$20	$20-$30	> $30
Survey 2	< $30	$30-$50	$50-$70	> $70

If 80% of respondents choose (a), (b), or (c), then in Survey 2, many fewer choose (a). *

g) The questions are hypothetical : so respondents may be unsure of their answers.

h) Information Quality / Understanding : respondents should be "fully informed," but that may be impossible.

The question asks for 3 of these.

* Although Survey 1's (a), (b), and (c) are equivalent to Survey 2's (a).

Note: Environmental racism/"classism" is a potential problem (in some people's eyes) in <u>all</u> neoclassical valuation methods, not just the Contingent Valuation Method.

(5)

Risk : the odds are known. For example, flipping a fair coin.

Uncertainty: the odds are unknown. For example, the odds of a Democrat being elected president 20 years from now, or the odds the D-Day invasion in 1944 would be successful.

Situations with "risk" can be rationally analyzed and an optimum response calculated. In situations of "uncertainty," the most one could do would be to use subjective guesses at the probabilities by each interested party; no objective measures are available.

(6)

emission charges : fees based on the amount of polluting emissions put out by the firm

user charges : a pollution fee not primarily based on the amount of pollution emitted

product charges : fees added to the price of commodities produced by polluting processes. The consumer directly pays these (although their ultimate incidence is different).