

Exam I
(100 points)

- (8 pts) 1. State and briefly discuss the most important distinction between *open access* and *common property* resources?
- (18 pts) 2. Define the overdiscounting market failure, and as you do so, define this crucial concept and its presumed effect(s). No graphs please. If you had to recommend a general corrective policy to offset this problem, what would it be?
- (19 pts) 3. Name, define, and economically critique any one of the legal doctrines currently applied in Texas for managing who can use water (and how much).
- (25 pts) 4. Under average weather conditions, total water use in a summer month is 60 million gallons when consumers expect to be charged \$8/1000 gallons. The price elasticity of demand is -0.4. \$8/1000 gallons is also the utility's marginal cost of supplying water.

If drought implies that the utility can only supply 90% of summer-month quantity demanded at the normal price (assuming drought demand is the same as average-weather demand), what is the "loss due to drought" for a summer month? Illustrate with a graph and compute.

- (30 pts) 5. A well managed Aquifer Authority (AA) understands that the water it manages is being depleted. Residents of the region (several towns and cities, many irrigators) voted to grant AA the power to meter and regulate pumpage. AA decided to rely on a pair of policies and has been conducting them for several years: (1) each year MUC is computed and all ground water users must pay this charge on every unit of pumped water and (2) AA has been aggressively investing this revenue because it will eventually apply its funds to the development of surface water supplies when the time is right. Things have been operating smoothly even though the MUC charge is publicly disliked.

A new problem caused by a doubling of the market price of oil has recently occurred. This has raised the value of biofuels, especially ethanol, and caused large increases in both irrigated corn acreage and ag water pumping.

Discuss and illustrate the implications of this change for the rate of depletion and AA's two policies. In your judgment, do these consequences represent a policy disappointment and why/not?