

Exam II
(100 points)

- (15 pts) 1. The chairman of a regional water agency maintains that a proposed, publicly funded water canal is justified, based on agency analysis. The canal has a present value of costs amounting to \$50 million. Absent the canal, the Chair says it will cost \$100 million to obtain the same water supply increment using the next cheapest option. Moreover, absent both options, business activity will not grow by the forecast \$500 million in total annual sales. Has the agency formulated a compelling analysis?
- (25 pts) 2. Identify and discuss an operating U.S. water market, indicating what is being traded (surface water, ground water, or both), where the market is located (state and/or basin), and how the externalities of trade are treated in this market and why. Identify a separately unique feature of this market, relative to other existing water markets and describe how/why this is unique.
- (10 pts) 3. Risk arising from the variability of future water supply and demand has formally developed (and understood) effects on some water pricing elements. Briefly describe only one of these effects and how pricing element(s) are affected by this aspect of risk.
- (25 pts) 4. Suppose the following. A region's water supply is fully employed, because any increase in water use beyond current levels will be damaging to the environment and further damage is illegal. Yet, pro-growth activists believe that there are technical measures that can successfully mitigate this damage. Activists admit that these measures are costly: \$1000 per acre-foot for every year that these measures are being applied. Assume that the activists are correct. If the region increases its water use and performs the recommended mitigation, what are the implications for each of the 3 primary pricing tools used by water suppliers? [Economic efficiency is the goal.] Explain well.
- (25 pts) 5. You are a manager within a stable, water-using company (named DAD) that expects to experience no change in future demand for its products. Your water is self-supplied using a permitted water source from which you pump and treat water. It costs a constant \$25 per unit of water for every unit of water used. DAD's water demand is $w = \left(\frac{750}{p}\right)^2$. The company owns 1200 units of transferrable water rights that it cannot exceed when pumping. The company's owner wants your response to the following: "I want to lease one-third of our water rights to my daughter's company. It's important to me that DAD break even on this lease – experiencing neither a loss nor gain. How much money I should ask her to pay? Explain all this stuff to me using whatever tools you have."