

Review Problems for the Final Exam

These problems are identical in format to those on the test but are not intended to serve as your only review aid. Rather, you may want to treat this as a practice test by working it under a time constraint. You may bring one formula sheet into the exam.

A. Answer True, False, or Uncertain, and briefly explain your answer.

- (1) The substitution effect is always negative.
- (2) In the long run there are no fixed costs.
- (3) The Coase theorem is true if all agents have Cobb-Douglas preferences.
- (4) Free riding is an example of the prisoner's dilemma.
- (5) Public goods will always be underprovided.
- (6) In the Bertrand model, each firm conjectures that the other firms will not react if it changes its price.

B. Short answers.

- (1) What is the marginal rate of substitution between X and Y for the utility function $U = \sqrt{X} + \ln Y$?
- (2) Give an example, algebraic or graphical, of quasilinear preferences.
- (3) What is a mixed strategy?
- (4) What is the First Theorem of Welfare Economics?
- (5) What is a reservation price?
- (6) What is a consumption externality?

For the following problems, please show the calculations used to arrive at your answers. Draw graphs neatly and label axes and points clearly. Round answers to the first decimal place if necessary.

C. A person has the utility function $U = \sqrt{X} + \sqrt{Y}$.

- (1) What is the marginal rate of substitution between X and Y?
- (2) What is the demand function for X?
- (3) Given income $M = 32$ and prices $P_X = 8$, $P_Y = 2$, graph the budget constraint.
- (4) What is the quantity demanded of X?
- (5) The price of X changes to include a volume discount so that $P_X = 8$ if $X \leq 4$ and $P_X = 2$ if $X > 4$. Graph the new budget constraint.
- (6) Under this new pricing policy, would the consumer increase, not change, or decrease consumption of Y? If there is a change, by how much?

D. The market for widgets is perfectly competitive. All firms have costs $C(Q) = 5Q$. The demand for widgets is $Q = 500 - 10P$.

- (1) What are market price and quantity?

A friendly, well-meaning conglomerate, Lempel Ltd., buys all the widget-making firms and turns the market into a monopoly.

- (2) Now what are market price and quantity?
- (3) Graph the market before and after monopolization and indicate the deadweight loss that is caused by Lempel Ltd.

The government attempts to increase Lempel's profits by subsidizing widgets in the amount of \$2 per widget.

- (4) What are the new market price and quantity?
- (5) Show the subsidy on a new graph and indicate the total subsidy payment collected by Lempel Ltd.
- (6) What are profits before and after the subsidy?