Name _____ ID _____

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ECONOMICS 311: Intermediate Microeconomic Theory
SAMPLE FINAL EXAMINATION

This exam is designed to last an hour and fifty minutes. Clear, concise answers are preferred. Your grade will depend on the quality of your explanations, and every answer must include an explanation.

Please write your name and ID number above, but only your ID number on the blue answer books. This allows me to grade the exam anonymously. **Good luck!**
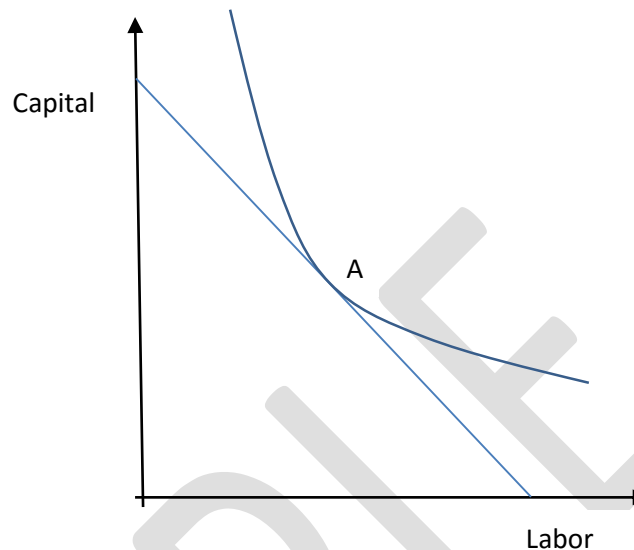
Quick questions. Answer any *five* questions [8 minutes each]

1. The sales (in millions of euros) in an industry total €2000. There are 6 firms, and their sales are, respectively, 500, 400, 400, 300, 200, and 200 euros. Using the Herfindahl-Hirschman index, determine whether this industry is considered highly concentrated, moderately concentrated, or not concentrated.
2. A price-taking firm's short-run supply curve is given by its marginal cost curve above what point? Explain why a firm might continue to operate in the long run even if its profits are negative.
3. Is government provision of higher education a public good? Explain.
4. Is it correct that the Coase Theorem states that an effluent charge will reduce pollution to its optimal level? Explain.
5. The First Theorem of Welfare Economics states that competitive markets are efficient. Give two examples of market outcomes that would not be efficient.
6. What is the free rider problem? Why is it relevant for the discussion of public goods?
7. Why does overfishing occur? How might the problem be solved?
8. A tax on land does not create a deadweight loss. Why not? Draw a graph showing this situation.
9. What is meant by limit pricing? How does it differ from predatory pricing?

Graphing questions. Answer any *two* questions [17 minutes each]

10. The formal analysis of a monopolistically competitive industry is very much like that of a monopoly, except that in the former there will be no (economic) profits in the long-run.
    a. Graph a diagram for a monopolistically competitive firm in long-run equilibrium; be sure to show the price charged, output, profit (if any), and deadweight loss (if any).
    b. It has been noted that firms in monopolistic competition have "spare capacity". Explain what this means, referring to your diagram from a. to illustrate your explanation.

11. The current price of t-shirts is £15; the elasticity of demand is -1.5 and this is a constant cost industry that is in long-run equilibrium.
    a. On a well-labeled diagram of the market, show the effect in the short-run of introducing a tax of £3 per t-shirt on the quantity of t-shirts sold, and the price charged.
    b. Explain why the price of t-shirts to consumers will rise by £3 in the long-run.

12. The long-run average cost curve is an "envelope" of the short-run average cost curves.
    a. Show and explain how the LRAC and SRACs are related, and explain how.
    b. In a., there is a zone of economies of scale. What are economies of scale and why do they occur?

13. This diagram shows an isoquant and a price line. We start at point A. Suppose that the wage rate rises. Show a plausible new combination of labor and capital, given that the firm needs to maintain output at the current level.

14. An industry consists of two identical firms. The (inverse) industry demand curve in an industry is given by
$$P = 200 - 4Y,$$
and there are zero costs – our famous mineral springs once again!
   a.   Assume quantity competition. Find the Cournot solution in this case (i.e. the quantities produced by each firm, the prices they charge, and their profits).
   b.   If the two firms formed a cartel (i.e. colluded), would the prices they charge be higher or lower than in a.? Explain.
   c.   Use the normal form of a Prisoner's Dilemma game to illustrate how firms in a cartel will prefer to cheat than to cooperate.

15. The noise from planes taking off and landing bothers the local neighborhood. Show the deadweight loss due to this noise pollution? Suggest at least three plausible solutions, and evaluate the strengths and weaknesses of each.

16. A firm has average variable cost $AVC = 80 + 20q$, and fixed costs of 600, where q refers to the output of the firm.
   a.   What is the firm's profit-maximizing output if the market price is 320?
   b.   Is the firm making (economic) profit? Explain.
   c.   Someone suggests putting in place a price ceiling of 360. Will this alter the firm's output in the long run? Explain.