ECO 401-001
3rd Test
Fall 2004

Name: KEY

Multiple Choice, 5 pts. each, circle correct answer.

1. Situation A: P=$5, AFC=$2, AVC=$7; Situation B: P=$7, AFC=$9, AVC=$5. The firm should:
   a) shut down in both situation A and situation B
B b) shut down in situation A but produce in situation B
   c) produce in situation A but shut down in situation B
   d) produce in both situation A and situation B

2. The reason why we can be confident that the short-run market supply curve in a perfectly competitive industry slopes upward to the right is:
   a) because of the law of eventually diminishing marginal utility.
B b) because of the law of diminishing marginal returns.
   c) because it is a horizontal summation, not a vertical summation.
   d) because of entry and exit of firms from the industry.

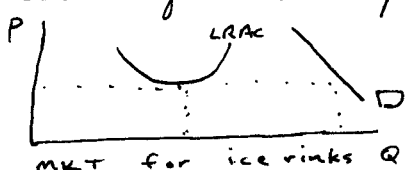
3. Suppose that a firm's total cost function is given by $TC = a + bq + cq^2$. The firm's marginal cost and average variable cost can be expressed as:
   a) $[b + 2cq]$ and $[b + cq]$
A b) $[bq + cq^2]$ and $[a/q + b + cq]$
   c) $[2cq]$ and $[b + 2cq]$
   d) $[a + bq]$ and $[bq + cq^2]$

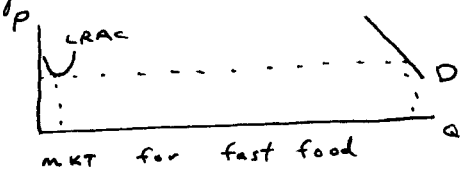
4. Oil supply
   a) Is perfectly inelastic in the short run because it takes time to explore and find new sources and then drill wells to get the oil out of the ground.
D b) Is horizontal in the long run, because oil is a constant-cost industry.
   c) Is tightly controlled by a few big producers.
   d) Responds somewhat to price in the short run as production from existing sources is ramped up, and responds much more in the long run as explorers find new sources.

5. Suppose that raising alligators is an increasing cost perfectly competitive industry. An increase in the demand for alligator meat and skins is expected to lead to:
   a) More alligators bought and sold, and at a higher price than in today's market.
A b) An increase in equilibrium quantity, but no change in equilibrium price.
   c) An increase in price and then a decrease in price back to its original level.
   d) A higher price in the long run than in the short run.

6. (10 pts.) Why are there only a couple of ice skating rinks in Louisville, yet there are hundreds of fast-food restaurants? It would help if you illustrate your answer with a diagram.

The minimum efficient scale of operation for an ice skating rink is large relative to the market demand for ice skating in Louisville, whereas the MES for fast food restaurants is small relative to market demand. Hence there is only room for a few efficient-sized ice skating rinks in the market, but there is room for many fast food restaurants:





7. (15 pts.) If you recall from problem set #5, Bubba did decide to keep his restaurant/bar. He has now turned his attention to ways that he could increase the economic profits of his business. He has all of the necessary components in place to start a pizza delivery business, operating it out of the back door of his restaurant. All of the costs of this add-on business are clear to Bubba except for one. He is a bit puzzled about the economic cost of delivering the pizzas once they are made. He would have to hire a delivery driver, but the labor costs are very visible and are not the issue for Bubba. He is struggling with the costs of owning and operating a vehicle for delivering pizzas. He has estimated that at the end of a year he would have incurred the following costs:

purchase price of a slightly used pickup truck	\$15,000
gas, oil, and other maintenance	1,000
insurance	1,000
license tags and taxes	500
	\$17,500

Bubba figures that if he sells and delivers 17,500 pizzas per year, he will have to charge a dollar per pizza extra just to cover the vehicular cost of delivering pizzas. He once again turns to you for advice about whether he has properly figured the economic costs of owning and operating a vehicle for a year.

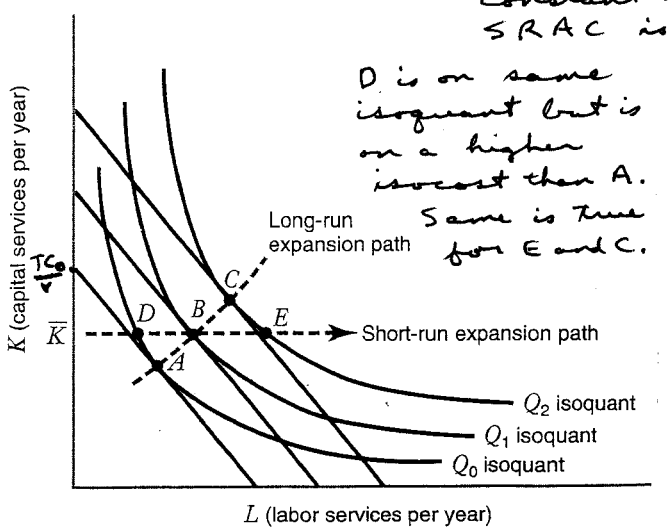
① Bubba does not lose the \$15,000 purchase price, because he acquires a truck that has a market value of \$15,000.

② Bubba does lose the use of the \$15,000 for the year, so any interest he could have earned if the \$15,000 were invested elsewhere is a cost of running a pizza delivery business.

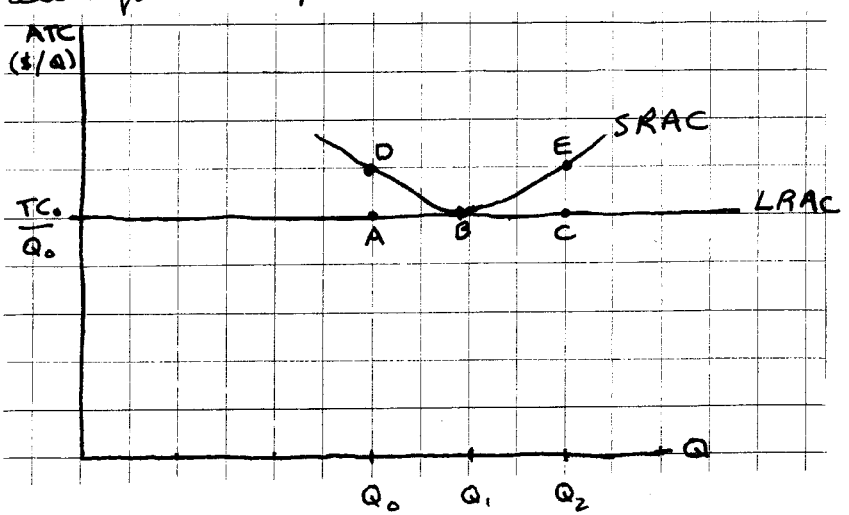
③ The truck will wear out some, or depreciate, during the year, so depreciation is a cost of owning and operating a vehicle.

8. (15 pts.) A firm experiences constant returns to scale in its production process. Its long-run expansion path is illustrated in the diagram below. In the short run its capital stock is fixed at $\bar{K}$, so its short-run expansion path is also illustrated. In the attached diagram draw the firm's LRAC curve and the SRAC associated with $\bar{K}$. Be careful to show points A, B, C, D, and E in your diagram.

constant returns to scale ⇒ LRAC is horizontal.
SRAC is always U-shaped.



D is on same isoquant but is on a higher isocost than A. Same is true for E and C.

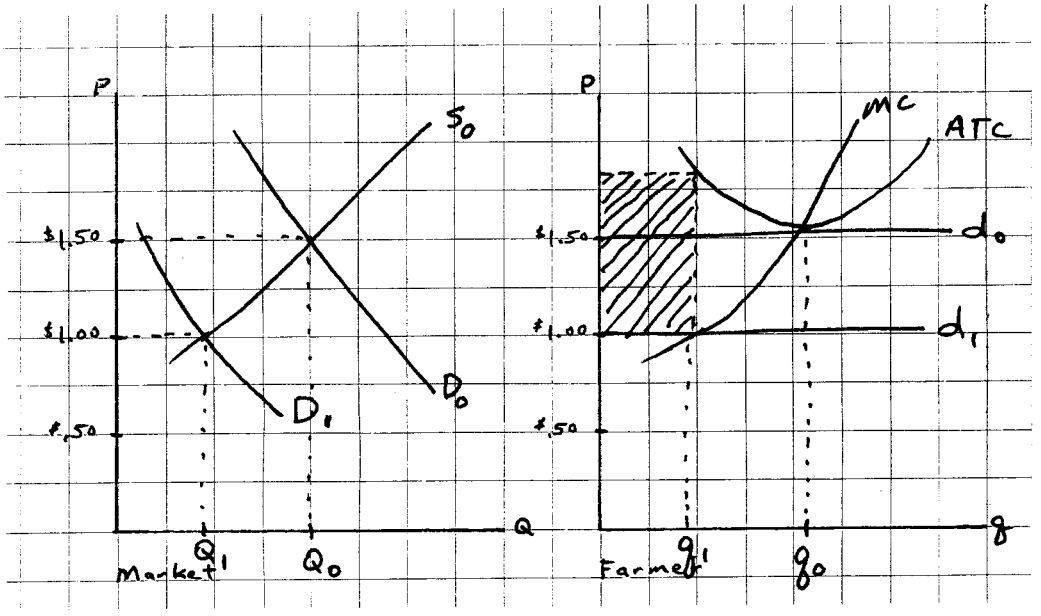


9. (10 pts.) What are the characteristics of market structure that influence firms' behavior and performance?

(1) number and size distribution of sellers
(2) number and size distribution of buyers
(3) extent of product differentiation
(4) entry and exit conditions
(5) information possessed by buyers and sellers

10. (25 pts.) While the Atkins diet craze has pork producers thinking that they are in hog heaven, potato farmers are getting fried. The industry was in long-run equilibrium at a price of $1.50 per bushel in the pre-Atkins period, but lately price has fallen to $1.00 per bushel, so that most producers are suffering economic losses.

a) In the diagrams below illustrate the initial long-run equilibrium, and then show the impact of the decline in the market demand for potatoes.



Initially, $Q_D = Q_S$ at price = $1.50 / bushel. Typical farmer produces q_0 and earns zero econ. profit. Then mkt. demand declines from D_0 to D_1, causing market price to fall to $1.00 / bushel. Typical farmer reduces output to q_1 and suffers economic losses equal to the shaded area.

b) Predict the future of potato farming. Explain what you think will happen to the price of potatoes, the market output, the number of potato farmers, and the economic profitability of growing potatoes.

Losses will cause farmers to exit from the industry, and the market supply curve will shift to the left. As that happens, the price of potatoes will rise. When the market eventually returns to long-run equilibrium, we predict:

① price will return to $1.50 / bushel
② market output will be lower than originally
③ the number of potato farmers will have declined
④ long-run expected profits = zero.