MBA 603 Exam
September 2009

Name: _____

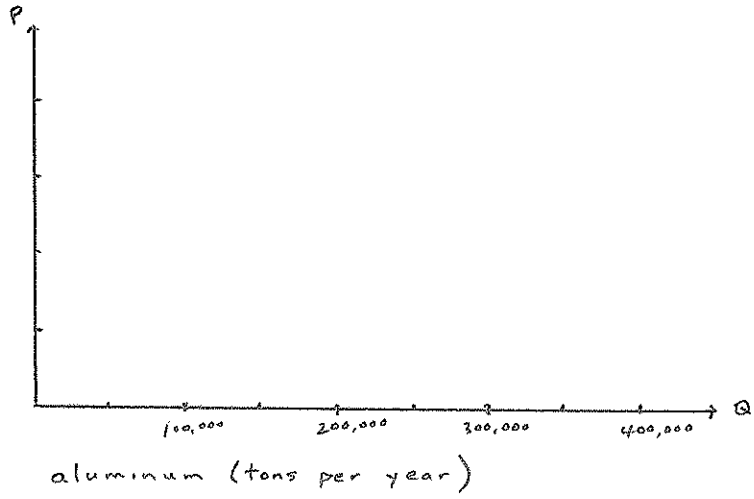
100 points total. Answer each question in the space provided. General advice: show your work, including any formulas or diagrams that you use in reasoning through your answers.

1. (10 pts.) In your lawn-care business, your production process is described by the following production function: $Q = L^{1/2}K^{1/2}$, where Q is the number of acres of lawns you mow in an hour, L is the number of person hours of labor used, and K is the number of lawn mowers used. Does your production process exhibit increasing returns to scale, constant returns to scale, or decreasing returns to scale? Use a numerical example to explain your answer.

2. (5 pts.) Contrast Honda and General Motors in terms of the fixed set-up costs at their factories and the lengths of their production runs.

3. (5 pts.) Small investment with major return: "Start making your own coffee to take to work each morning. Cost: $20 for a Thermos, $10 for a filter and papers, and $60 a year for ground coffee. Then skip the $4 a day drive-thru. If that saves you $1,000 a year, the return is more than 1,000%." Briefly evaluate the logic of this suggestion.

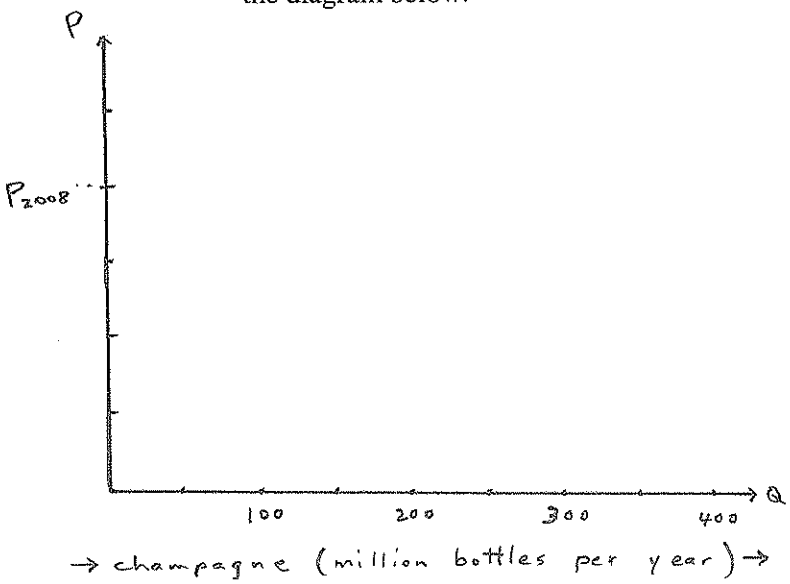
4. (10 pts.) Use the concept of a long-run average cost curve to explain why a primary aluminum producer like Century Aluminum Co. would want to close a plant with annual capacity of 170,000 tons and shift that production to a plant with 260,000+ tons of annual capacity. Illustrate your answer.



5. (10 pts.) After Burton Denson graduated with honors from the American Trucking Academy, his proud (and rich) parents gave him a new $350,000 tractor-trailer rig. At a recent class reunion of ATA alums, Burton boasted to some fellow truckers that his revenues were typically $25,000 per month, while his operating costs (fuel and maintenance) amounted to only $18,000 per month. The other truck drivers are all employees of various trucking companies, and bemoaned the fact that they are only averaging $5,000 per month in salary and benefits, while Burton is taking home $7,000. They wish that they had rich parents so that they could be in business driving their own rigs like Burton. Since you are attending the class reunion with your spouse, who is also an alumna of the ATA, you overhear this conversation. Your spouse turns to you and says, "OK Mr./Ms. MBA student, I'm driving trucks across the country to put you through school, what do you think of this guy's reasoning? Why don't we take the $350,000 we have in mutual funds and cash it in, and buy me a rig of my own. Then I can quit driving for J. B. Hunt Trucking Co. and work for myself like Burton." How do you answer your spouse? (Hint: this questions calls for an evaluation of the economic profitability of being an independent trucker.)

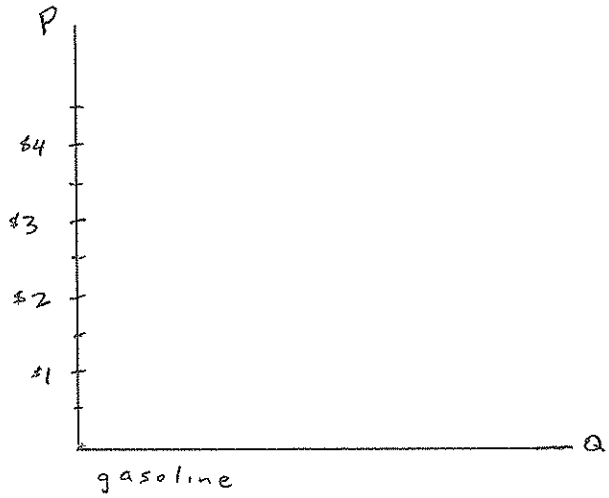
6. (5 pts.) Besides mechanical potato chip dryers, name one other way Frito-Lay is responding to higher energy costs.

7. (10 pts.) From the *WSJ*, 9/3/09: As a result of the worldwide recession, global champagne sales are expected to fall from 322 million bottles in 2008 to 260 million bottles this year. Champagne makers like LVMH Moet Hennessy Louis Vuitton SA are contemplating price cuts to soften the blow of the decreased demand for champagne. Their marketing research departments have estimated the own-price elasticity of demand for champagne to be 1.5. By what percentage do champagne makers need to reduce their prices in order to keep sales volume the same in 2009 as it was in 2008? Illustrate what is going on in the diagram below.



8. (10 pts.) In the major champagne consuming regions of the world, per capita incomes are estimated to have fallen by 5% over the last year or so. What is the income elasticity of demand for champagne? What does that tell you about the type of good champagne is?

9. (10 pts.) Currently the market price of gasoline is $2.38 per gallon in Lexington. Suppose city council votes to make it illegal for any gasoline retailer to sell at a price higher than $3.00 per gallon, i.e. they impose a price ceiling or maximum price at $3. Illustrate and explain briefly what the effect of this policy will be on the market for gasoline.



10. (10 pts.) A firm contemplating entering the breakfast cereal market would need to invest $100 million to build a minimum efficient scale production plant (or about $10 million annually on an amortized basis.) Such a plant could produce as much as 100 million pounds of cereal per year.
    a) What would be the average fixed costs of this plant if it ran at capacity?

    b) Each year U.S. breakfast cereal makers sell about 3 billion pounds of cereal. What would be the average fixed costs if the cereal maker captured a 2 percent market share? What would be the cost disadvantage if it only captured 1 percent of the market?

11. (5 pts.) What sorts of activities has Boeing outsourced in the production of the new Dreamliner 787? How has it worked out?

12. (10 pts.) Bauxite mining and alumina refining are the first two stages in the vertical chain of production in the aluminum industry. What is typically the nature of the vertical connection between these two stages? What economic reason can you think of that might explain how the make or buy decision is made between these two stages of production? Briefly explain.