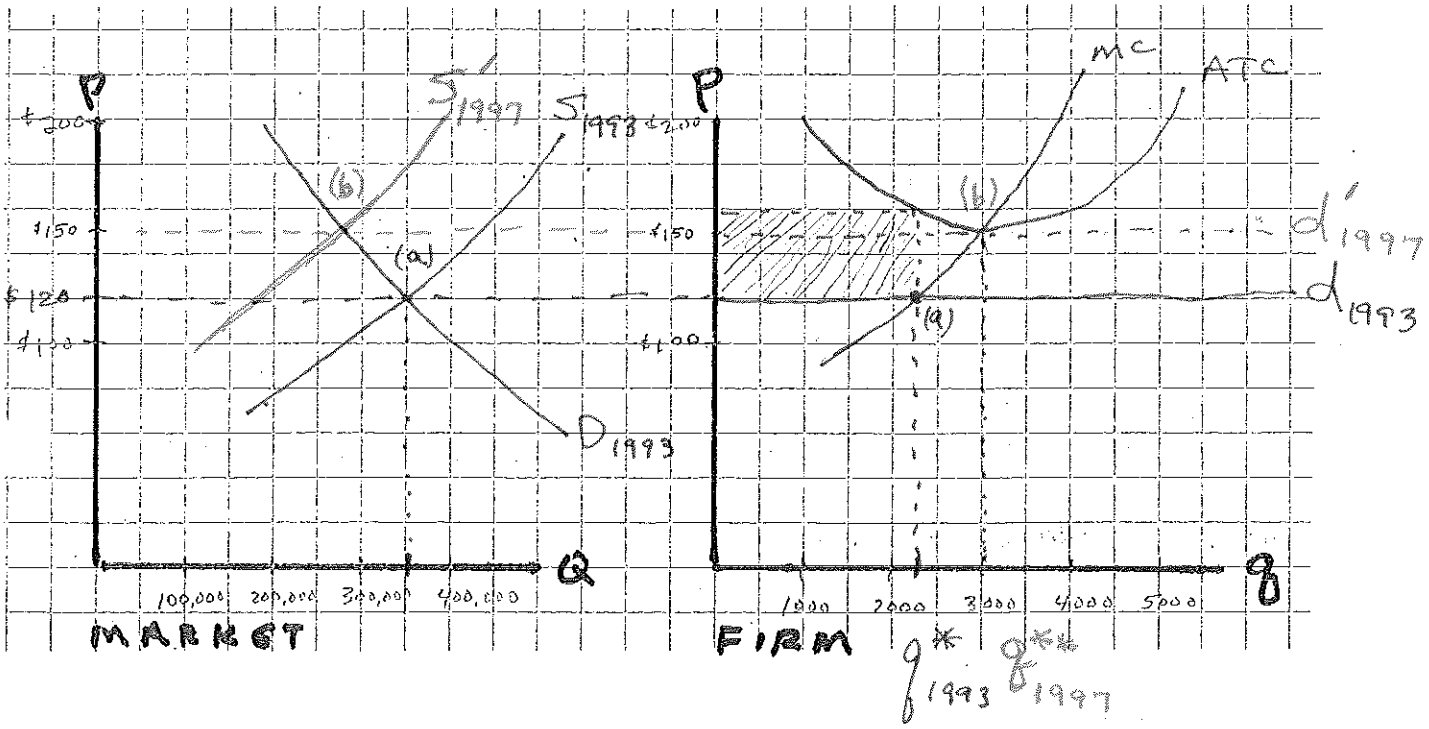
MBA 605 Exam
September 2013

Name: KEY

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. (15 pts.) In 1993 the market price of a four-foot alligator was $120. Approximately 350,000 four-foot alligators were bought and sold at that price. Minimum efficient scale for a typical alligator farmer is 3000 alligators per year. At that scale of operation, average total cost equals $150.
   a) Illustrate these supply and demand conditions in the market diagram below. Then illustrate the ATC, MC, and demand curves for a typical alligator farmer facing the 1993 market conditions. Show the firm's profit-maximizing output and its profits in your diagram.
   b) Now imagine that you were asked in 1993 to predict the future of the industry. Given the 1993 market conditions, what do you think was likely to happen in the alligator market going forward? Your answer should contain references to short-run and long-run profits, the number of firms, and market price and output.



(a) firm produces q^*_{1993} and suffers economic losses equal to shaded area ▨.

(b) Short-run losses will cause some alligator farmers to exit the industry. Market supply will shift left, causing price to rise. When enough firms have exited to cause supply to reach S' and price to equal $150, the market will be in equilibrium, with firms earning zero econ. profit

2. (10 pts.) Boston Beer Company has determined that own-price elasticity of demand for their premium Sam Adams lager is 5.0. Their marginal cost of producing and distributing a six-pack of beer is $6.00. To maximize profits, they should set price at:

$$\frac{P^* - MC}{P^*} = \frac{1}{\varepsilon_{x,P_x}}$$

$MC = 6$

$\varepsilon_{x,P_x} = 5$

$$\frac{P^* - 6}{P^*} = \frac{1}{5}$$

$$P^* - 6 = \frac{1}{5} P^*$$

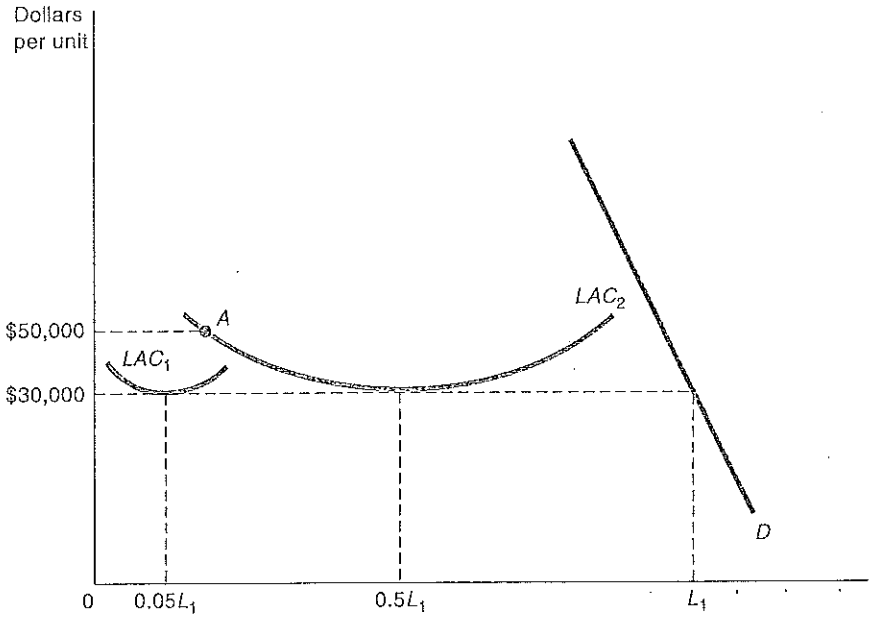
$$\frac{4}{5} P^* = 6$$

$$P^* = \$7.50$$

3. (10 pts.) Currently there are 170 auto makers in China. What do you think the future holds for automobile manufacturing in China? Predict the market structure in this industry ten to twenty years from now. You should incorporate into your discussion several of the *WSJ* and *Economist* articles that you have read.

Very significant economies of scale and economies of scope in automobile manufacturing [Extinction of the Predator article]. Very large multi-product multi-national corporations seem to be the most efficient organizational form. Best bet is that many of these Chinese auto manufacturers will either be acquired or go out of business. ~~Even~~ Chinese market will resemble North America, Europe, and Japan, where 4-6 firms dominate the market.

4. (10 pts.) Suppose all firms in an industry have long-run average cost curves like LAC_1 in the diagram below. What kind of market structure (i.e. how many firms) do you predict for this industry? Briefly explain your reasoning.



There is room for 20 efficient (MES)-sized firms in this market:

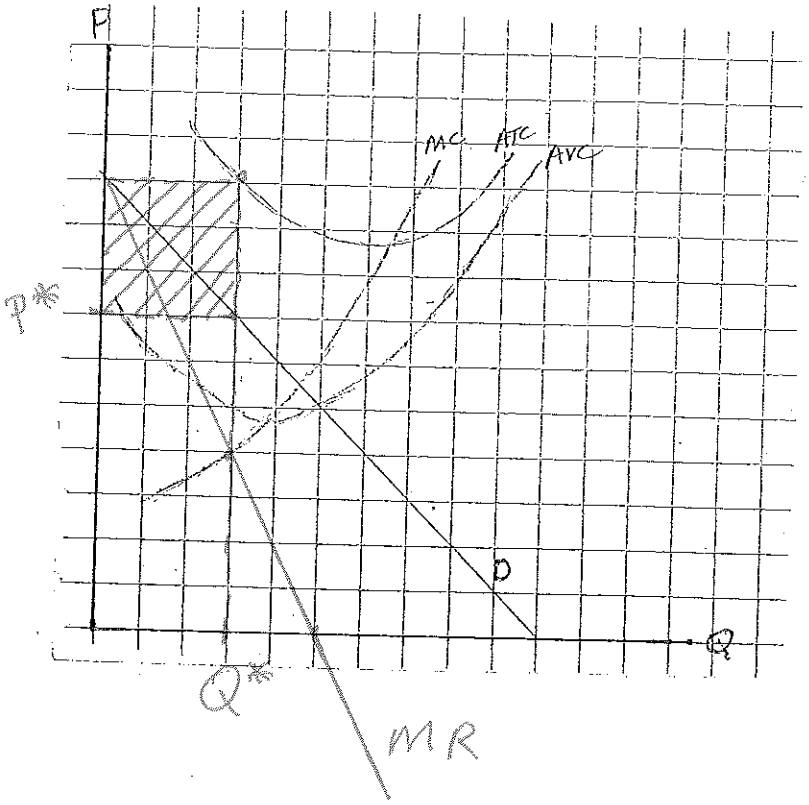
$$\frac{L_1}{0.05L_1} = 20$$

Suppose all firms in an industry have long-run average cost curves like LAC_2 in the diagram above. What kind of market structure do you predict for this industry? Explain.

There is room for 2 efficient-sized firms in this market:

$$\frac{L_1}{0.5L_1} = 2$$

5. (15 pts.) A monopolist faces a market demand curve as shown below. Its AVC, ATC, and MC curves are also illustrated.
   a) What output should it produce and what price should it charge in the short run in order to maximize profits? What will its profits be? Illustrate and briefly explain.
   b) What output should it produce and what price should it charge in the long run if it expects these market conditions to persist?



(a) $P > AVC$, so produce $Q^* > 0$ where $MR = MC$.

Set $P = P^*$.

Since $P < ATC$, firm suffers economic losses equal to [shaded area]

(b) Unless market demand increases, the firm cannot earn a normal return on its investment in this market.

Exit! i.e. $Q = 0$.

6. (10 pts.) A question regarding investments in human capital. When individuals invest in general human capital such as getting a MBA, they usually pay for it themselves. When individuals invest in human capital that makes them more productive in their current job (such as learning how to use proprietary software) but does not make them more productive when working for any other firm, their employer usually pays for the cost of the training. Briefly discuss human asset specificity, holdup, and explain why the employer usually pays for the cost of acquiring firm-specific human capital.

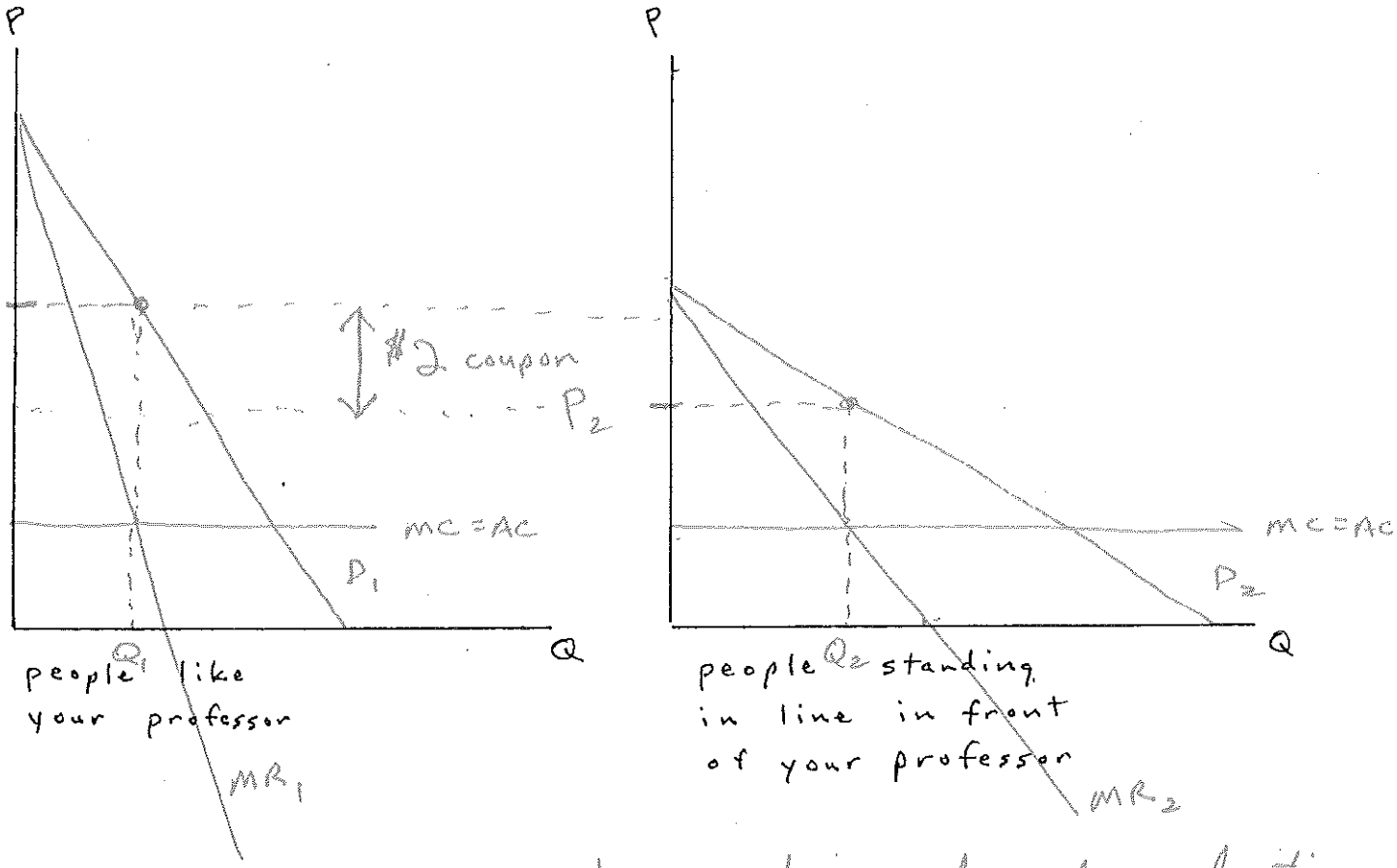
general human capital, such as getting an MBA, has value to a multitude of potential employers.

Specific human capital, such as learning to use the proprietary software of one particular firm, only increases the productivity of the individual if they work for that one firm.

An employee who pays for their own training to gain firm-specific human capital risks being Hold-up by their employer.

Example:
- employee's current productivity and wage rate = w_0
- cost of training = t
- firm promises to pay you $w_1 > w_0 + t$ if you undertake training at your own expense
- you undertake training at cost of t
- firm actually offers you raise in wages to $w_2 < w_0 + t$.
- do you quit and work elsewhere at $w = w_0$?

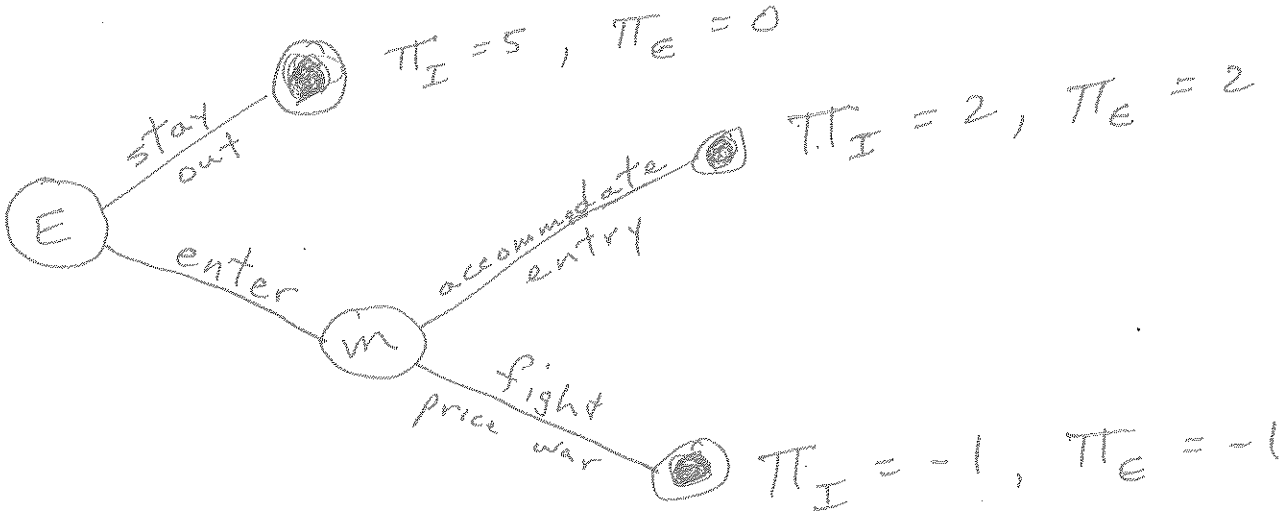
7. (10 pts.) Your professor has observed that people standing in front of him at the grocery store often pay considerably less for Dove ice cream bars than he ends up paying ($2 less, to be exact). Can you explain what is going on here, using words and diagrams? Assume that MC=AC=constant for Mars Corporation, which manufactures Dove ice cream bars. Draw demand and other curves in the diagrams below that are consistent with your explanation.



Your professor has less elastic demand → insensitive to price → compared to people using $2 discount coupons. Sort customers by making it annoying to have to locate and save the coupon in order to get the discount, and your professor ends up paying the higher price.

8. (10 pts.) An incumbent monopolist (I) is making economic profits equal to 5. A potential entrant (E) is considering entering the monopolist's market, creating a duopoly. If the potential entrant stays out, it earns economic profits equal to 0. If it enters the market the incumbent monopolist must make a decision of how to respond. If the monopolist accommodates entry by behaving non-aggressively, each firm earns duopoly profits equal to 2. If the incumbent monopolist decides to respond to entry by behaving aggressively and fighting a price war, each firm suffers price-war economic losses equal to -1.
   a) Draw the game tree for this sequential move game. Explain what you think the outcome will be.
   b) Suppose the incumbent monopolist announces prior to any initial move by the potential entrant that if any other firm enters its market, it will fight a price war. Now what do you think the outcome of the game will be?

(a)



The potential entrant (E) will enter the industry and the incumbent monopolist (I) will accommodate entry. Each will earn duopoly profits = 2.

(b) If entry occurs, it would be irrational for the incumbent firm to fight a price war, since $2 > -1$. Its threat to fight a price war is not credible. The outcome of the game will be the same.

9. (10 pts.) Two rivals play a one-shot simultaneous-move game. The row player has four strategy options, and the column player has three strategy options. Their strategy options and the associated payoffs to each are represented in the payoff matrix below. What do you predict will be the outcome of this game? Explain how you arrive at your proposed solution.

		Column Player		
		Left	Middle	Right
Row Player	Top	9, 3	6, 0	30, 6
	High	6, 6	15, 12	36, 9
	Low	12, 15	9, 0	18, 12
	Bottom	15, 18	12, 15	27, 21

- Low is a dominated strategy for the Row Player (dominated by Bottom).
- Left is a dominated strategy for the Column Player (dominated by Right).
- High then becomes a dominant strategy for the Row Player.
- Given that the Row Player can be expected to play High, the Column Player's best response is to choose Middle.
- The strategy pair [High, Middle] is a Nash equilibrium, neither player experiences ex post regret.