FALL 2012, ECON 1, MIDTERM 2 ANSWER KEY/RUBRIC

MULTIPLE CHOICE

VERS. A

1. D
2. D
3. D
4. D
5. C
6. D
7. D
8. D
9. B
10. D
11. D
12. D
13. C
14. D
15. A

VERS. B

1. D
2. C
3. D
4. D
5. D
6. D
7. D
8. D
9. D
10. B
11. D
12. D
13. D
14. C
15. A

SHORT ANSWER

Herfindahl-Hirschman Index Question (Vers. A #2, Vers. B #1)

a. The general formula for the HHI is

$$HHI = \sum_{n=1}^{N} (MS_n)^2$$

where $n \in N$ indexes producers and MS_n is the market share of producer n. In words, the HHI is sum of each producer's squared market share.

For our problem, the HHI is

$$HHI = 82^2 + 7^2 + 5^2 + 4^2 + 2^2$$
$$HHI = 6724 + 49 + 25 + 16 + 4$$
$$\boldsymbol{HHI = 6818}$$

b. After Google and Yahoo merge, the new HHI is

$$HHI = 89^2 + 5^2 + 4^2 + 2^2$$
$$HHI = 7921 + 25 + 16 + 4$$
$$\boldsymbol{HHI = 7966}$$

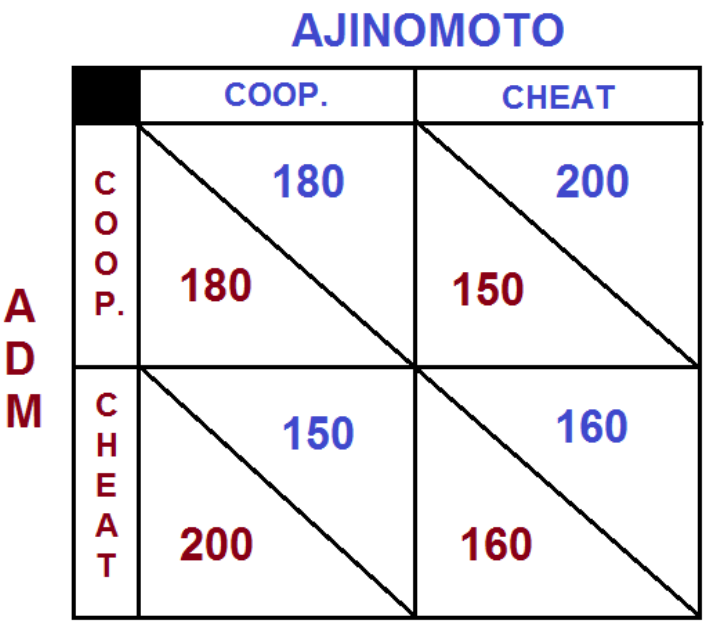
Grading for both parts a and b

-2 pts for the correct HHI

-3 pts for showing work/formula

Prisoner's Dilemma Question (Vers. A #1, Vers. B #2)

a.



Both companies will choose to cheat because this is their dominant strategy. That is, regardless of what the other player does, it is always optimal for ADM/Ajinomoto to cheat (that is it gives them the higher payoff). In this the Nash equilibrium will be for both firms to cheat, or cheat-cheat.

b. Yes, cooperation can be sustained in a repeated game setting if both firms play tit-for-tat. Tit-for-tat is when a firm cooperates at first and then in subsequent games does what their opponent did in the previous period.

If both firms start off cooperating and don't cheat until the other does first (as is the case with the tit-for-tat strategy) then cooperation will be sustained.

Grading for part a

-4 pts for the correct matrix

-minus 1 pt if payoffs are mixed up

-1 pt for correct dominant strategy

-1 pt for correct Nash equilibrium

-1 pt for correct explanation (must say/imply that cheat is best choice REGARDLESS of what the other player does)

Grading for part b

-1 pt for yes answer

-2 pts for explaining tit-for-tat

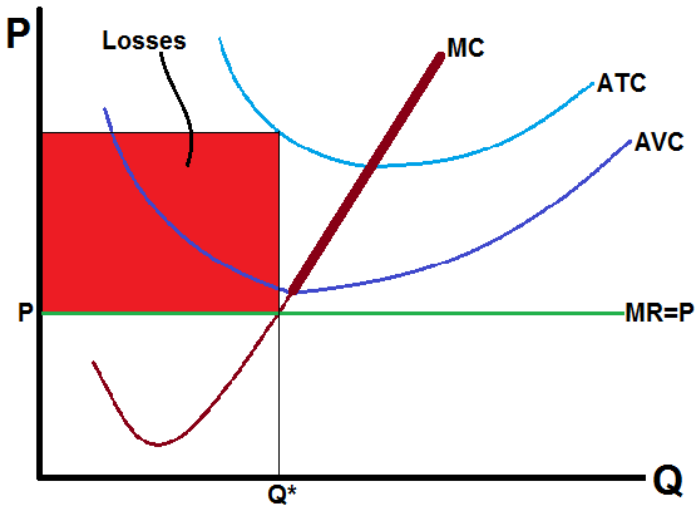
-1 pt for knowing the firm cooperates at first

-1 pt for knowing they then mirror their opponent's move (or that they will not cheat until the other cheats first)

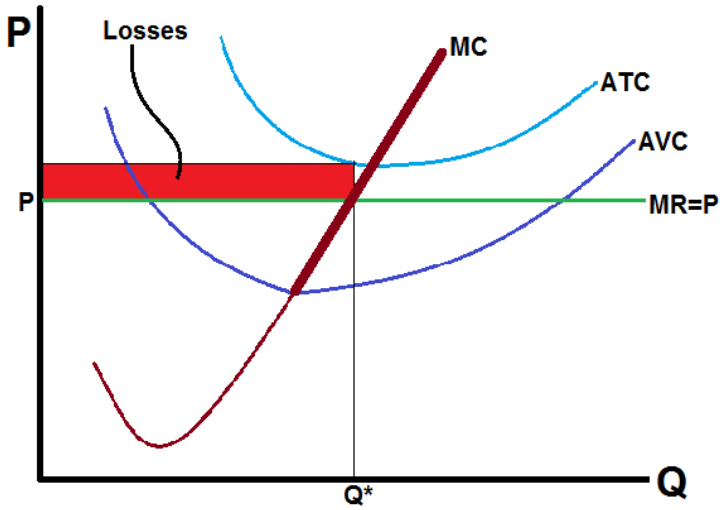
Perfect Competition Question (#3 on both versions)

a. There are two potential ways to answer this question -- either the firm could be shutting down or not shutting down. What is important is that your graph should match your recommendation about shut down.

Here is the first case, where the firm should shut down because price is below the minimum of the average variable cost curve.

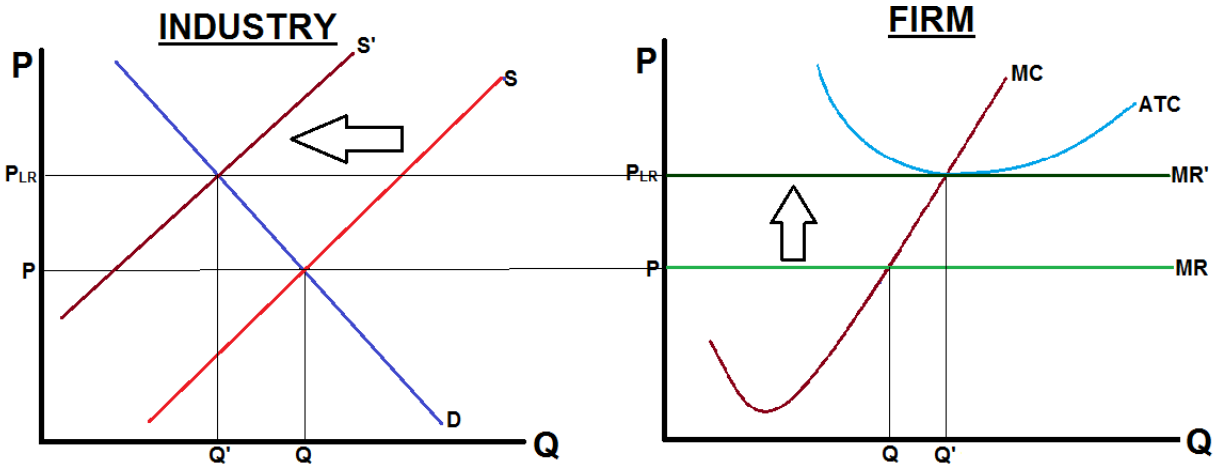


And here is the second case, where the firm should keep producing because they are at least covering their variable costs of production.



In both cases, the firm's short-run supply curve is the upward sloping portion of the MC curve that lies above the minimum of the AVC curve (put another way, above the shut-down price). In the graphs, it is the bold portion of the MC curve.

b. If firms are making losses in the short-run, then in the long-run (when entry and exit can occur) these firms will exit the industry. As firms exit the industry, the number of active producers falls. However, one of the determinants of market supply is the number of producers. Thus, as producers exit the industry in the long-run, market supply decreases and pushes price up. This adjustment occurs until firms earn zero profits in the long-run and no firm has the incentive to exit (or enter) the industry.



Grading for part a

-3 pts for graph set-up

-must have MC hit AVC, ATC at minimum, flat MR curve

-correct P and Q and economic losses

-minus 0.5 if P and Q right, but losses incorrect

-LABELS!

-1 point for correct shut-down decision

-1 point for identifying the SR supply curve

-can be written on indicated on graph

-minus 0.5 pt if MC is identified, but incorrect portion of the MC curve

Grading for part b

-1 pt for each graph set-up

-correct curves, correct shapes

-LABELS!

-1 pt for correct shifts (0.5 for each the supply shift and MR shift)

-minus 0.5 if price is not at the break-even point (but does increase)

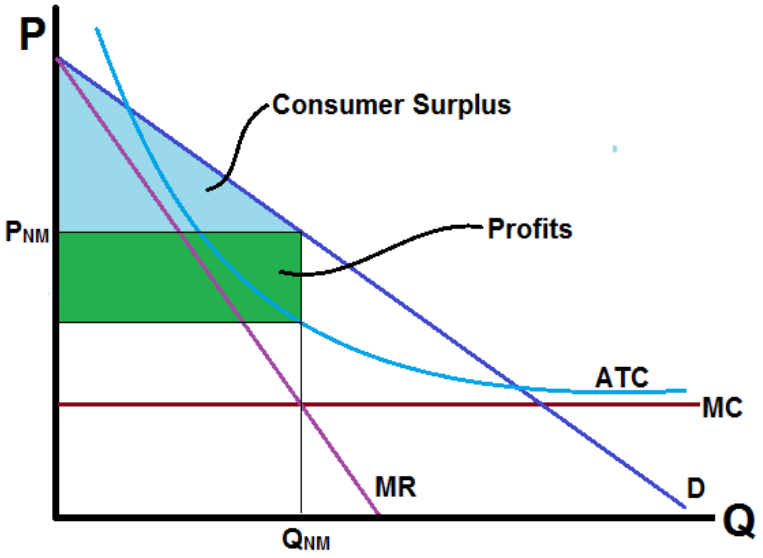
-1 pt for explanation

-minus 0.5 if explained from SR profits to LR (not SR losses to LR)

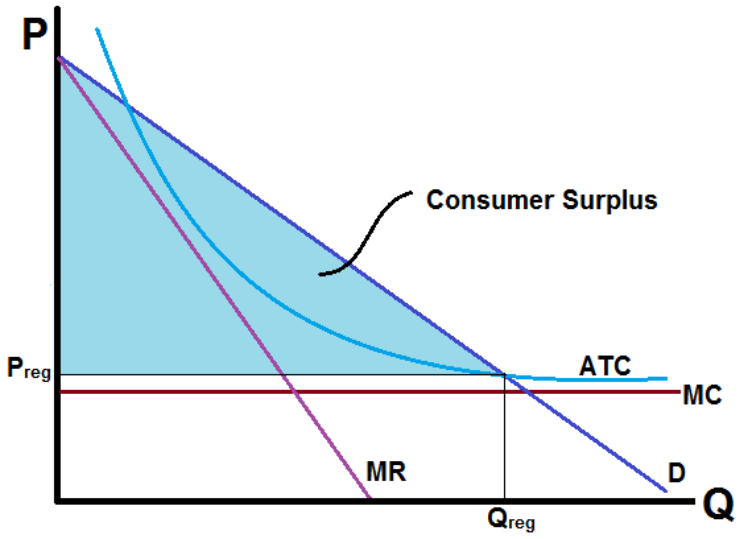
-1 pt for correct firm profits

Natural Monopolist Question (#4 on both versions)

a. Like any other monopolist, a natural monopolist faces a downward sloping demand and marginal revenue curves. However, because of the existence of high fixed costs, the ATC curve for the natural monopolist will be downward sloping over the relevant portion of output.



b. When we regulate the natural monopolist to charge a price equal to ATC, profits will be zero for the natural monopolist.



Grading for both parts a and b

-3 pts for graph set-up

- -2 pts for correct ATC, MC, D and MR curves
- -1 pt for correct P and Q
- -LABELS!

-1 pt for correct consumer surplus

-1 pt for correct profits

- -must be written out that profits are zero for part b!