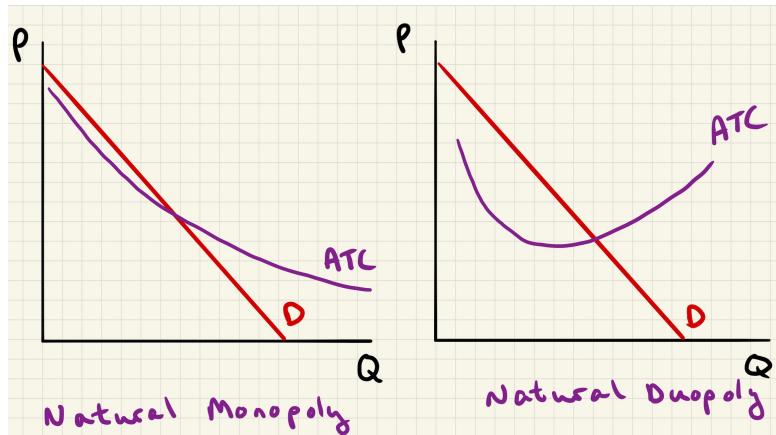


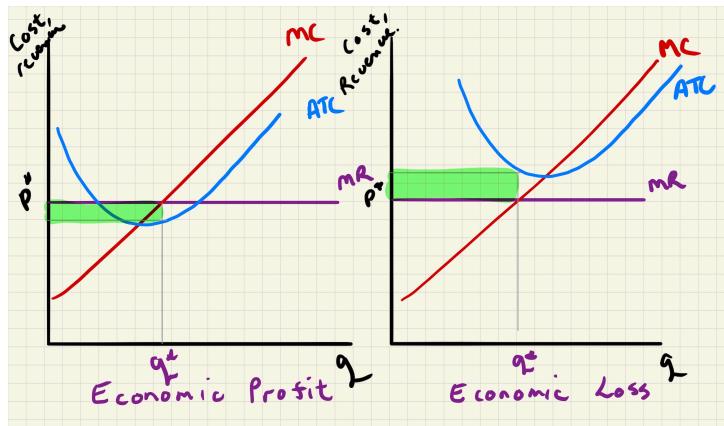
Econ 101.001 Principles of Microeconomics
PRACTICE EXAM SOLUTION

Part I: The purpose of this section is to test your knowledge of the terminology we have covered in class. For each question, draw two diagrams that illustrates the difference in meaning between the two terms. No written definition is required. [5 MARKS EACH]

a) Natural monopoly / Natural duopoly



b) Economic Profit / Economic Loss



Part II: Indicate if the following statements are true (T) or False (F) and fully explain your answer in the space provided. [1 MARKS FOR EACH CORRECT T/F AND 2 MARKS EACH EXPLANATION. 15 MARKS FOR THIS SECTION.]

1. The Nash Equilibrium in the ultimatum game is that the proposer offers an even split, because that way they know the responder will accept that offer.

False

The Nash Equilibrium in the ultimatum game is that the responder accept any offer greater than zero, because otherwise they get nothing, and that the proposer offer very small amount such as \$0.1.

2. A perfectly competitive industry with external economies will have a long run supply curve that is negatively sloped.

True

Firms in an industry with external economies will have lower costs as they increase output in the long run (i.e. when they increase fixed inputs) meaning that they are willing to supply more output at lower prices and the long run suppl curve is downward sloping.

3. In general, the “short run” refers to periods of less than one quarter (3 months), while the “long run” refers to periods of two quarters or longer.

False

The short run refers to a period over which some inputs are fixed (e.g. capital) and the long run refers to a period over which all inputs are variable. This has nothing to do with time.

4. Equilibrium quantity falls following a permanent decrease in demand in a perfectly competitive market because firms exit the market and not because individual firms produce less output.

True

A permanent increase in demand causes firms to temporarily decrease output as prices fall (MR shifts down/movement down along the supply curve). In the equilibrium firms exit the market (supply curve shifts left) and all remaining firms return to their original level of output where $MR = MC$ at the point of zero profit (minimum of the ATC curve).

5. As long as the price elasticity of demand is greater than one, the marginal revenue curve of the monopolist will lie below the market demand curve.

False

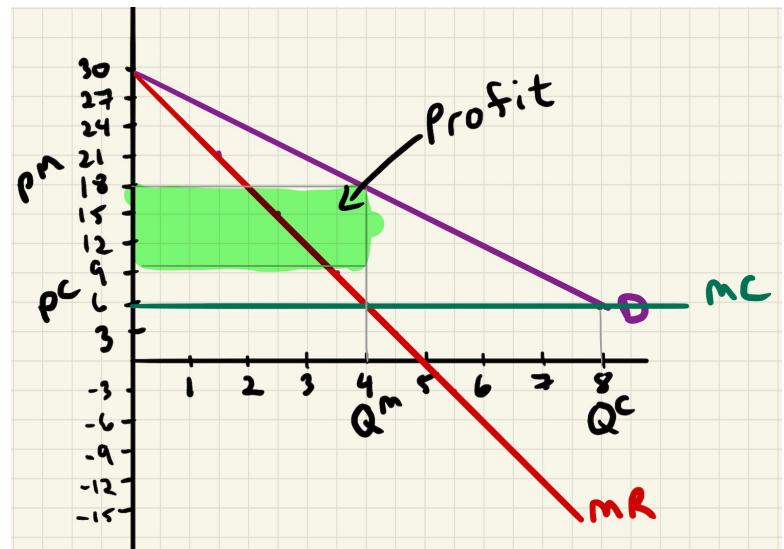
The marginal revenue curve of the monopolist lies below the market demand curve for all levels of quantity because although firms may sell more output when they lower the price (increasing TR) they have to decrease the price of all units (decreasing TR) so the $MR < P$ for every unit of output.

Note you could probably say "True" as long as you made it clear that you understood that elasticity > 1 is not a necessary condition for the MR curve being below Demand.

PART III: Answer the following two questions in the space provided. Marks are distributed as given in the question. Marks will only be given when all work is shown. **[20 MARKS TOTAL]**

1. This question asks you to compare the equilibrium in a market with one producer to a market with 10 producers.
 - a. The market demand for a good that is produced by a monopolist is given by the equation $P = 30 - 3Q$. Complete the table below and draw the market faced by the monopolist on the graph. **[6 MARKS]**

Q units	P (\$)	TR (\$)	MR (\$)
0	30	0	
1	27	27	27
2	24	48	21
3	21	63	15
4	18	72	9
5	15	75	3
6	12	72	-3
7	9	63	-9
8	6	48	-15



- b. Imagine that in this industry equation for the marginal cost curve is $MC = 6$, what is the profit maximizing equilibrium price and quantity for this monopolist? Label this on the graph. **[3 MARKS]**

Quantity = 4 units and $P = 30 - 3Q = 30 - 3(4) = \18

- c. If total fixed cost in this industry is \$16 and the marginal cost is given above, calculate average total cost and profit when the firm produces the profit maximizing level of output. Illustrate the firms profit on the graph. **[3 MARKS]**

$$ATC = AFC + AVC = FC / Q + MC = 16/4 + 6 = \$10$$

$$\text{Profit} = TR - TC = (P \times Q) - ATC \times Q = 18 \times 4 - 10 \times 4 = 8 \times 4 = \$32$$

- d. Suppose now that instead of one monopolist, this industry has 10 firms in a perfectly competitive industry. What is the industry output and price now?

[2 MARKS]

Industry output is just where demand = supply.

Demand is $P = 30 - 3Q^D$

Supply is $P = 6$

$$30 - 3Q = 6$$

$$24 = 3Q$$

$$Q^* = 8$$

$$P^* = 6$$

2. Two food trucks, Unbelievable Burgers and Chips (UBC) and Super Flatbreads Uncooked (SFU), set up on campus. If both comply with a cartel agreement to restrict the portions of food sold 100 each, they each earn an economic profit of \$800. If one quietly increases their output to 200 and the other complies with the cartel agreement, the cheater makes an economic profit of \$1200 and the complier suffers an economic loss of \$200. If both firms cheat on the cartel they both make an economic profit of \$0.

- a. Complete the payoff matrix for this game being certain to label the matrix carefully. **[4 MARKS]**

		UBC	
		Comply	Cheat
SFU	Comply	800, 800	-200, 1200
	Cheat	1200, -200	0, 0

- b. What is the Nash equilibrium for game? Explain your reasoning in the space below. **[2 MARKS]**

The Nash Equilibrium is that both cheat and earn zero profits.

This is the equilibrium because if UBC Complies SFU would choose cheat ($1200 > -800$) and if UBC Cheats SFU would also choose cheat ($0 > -200$).

And, if SFU Complies UBC would choose cheat ($1200 > -800$) and if SFU Cheats UBC would also choose cheat ($0 > -200$).

For both firms the dominant strategy is to choose cheat – this is the Nash Equilibrium and both will earn zero profits.