McPeak

PPA 723

Exam 2

Name:_____

All numbered questions are worth 2 points each, sub questions worth an equal share of these 2 points.

1) Complete the following table.

Output	Fixed Cost	Total Cost	Average Cost	Marginal Cost	Variable Cost	Average Variable Cost
0	10	10	NA	NA	NA	
1			22			
2		31				
3					32	
4		55				
5				14		
6		88				

   a) Is this a short run or long run information on cost? Why?

   b) If the price of the good produced is currently 13, what level of output meets the profit maximizing condition?

   c) Draw the average variable cost, the average cost, and the marginal cost curves based on the information in this table.

2) You know that the demand curve is defined by the following function: P=50-2*Q.

    a. Use the bisection rule to define the marginal revenue curve

    b. If total cost is defined by 6*Q, then you know MC is 6 for all possible levels of Q. Is average cost different from marginal cost in this setting? Why or why not?

    c. At what Q do marginal cost and marginal revenue cross?

    d. What is the implied selling price at this Q?

    e. Is the firm better off setting Q=0 and shutting down or producing at the Q you noted in (c)? Explain your reasoning briefly

3) Assume the market for this commodity was to become a perfectly competitive market for some reason.

    a. What are the market price and amount of quantity in the market if all firms in the competitive market had identical cost structures to the monopoly firm (MC=6) and the demand curve was unchanged?

    b. Show the competitive case in comparison to the monopoly case on a single graph.

    c. Calculate the area in numbers of consumer surplus, producer surplus, and total social welfare under the competitive and the monopoly structure.

	Competitive Market Structure	Monopoly Market Structure
Consumer Surplus		
Producer Surplus		
Total Social Welfare		

4) Circle the correct answer for each.

    a) In a perfectly competitive market the area corresponding to consumer surplus is the area:
1. Below the demand curve and above the price line to the left of the optimal quantity.
2. Above the demand curve and below the supply curve to the right of the optimal quantity.
3. Above the supply curve and below the price line to the left of the optimal quantity.
4. Below the supply curve and above the x –axis to the left of the optimal quantity.

    b) Neutral Technological Progress:
1. Increases the marginal rate of technical substitution for the isoquant.
2. Decreases the marginal rate of transformation for the isocost.
3. Leaves marginal rate of technical substitution for the isoquant unchanged.
4. Increases the cost of producing a given level of output with a given input bundle.

    c) A monopsonist:
1. Chooses a price-quantity pair according to a best response function.
2. Is the only supplier of a good for which there is no close substitute.
3. Is the only firm offering Sony products to consumers in a market.
4. Is the only buyer of a good which has multiple suppliers.

    d) The long run supply curve for the individual firm in a perfectly competitive market is:
1. The average fixed cost curve at and above the average cost curve, q=0 elsewhere.
2. The inverse of the industry supply curve.
3. The marginal cost curve at and above the point where AC(Q)=MC(q), q=0 elsewhere.
4. Derived from the price consumption curve as the market price varies for that good.

5) Isoquant and Isocost lines.

   a. Derive the expansion path graphically, using isoquant and isocost curves.

   b. Explain and illustrate how a total cost curve can be derived from your graph in (a).

   c. "Being on the expansion path" (in the role of statement B) is what kind of condition for characterizing a given point according to the terms (in the role of statement A) in the following table: (circle)

CHARACTERIZE AS			
Technologically Efficient	N,S	N,NS	S, NN
Cost Minimizing bundle to produce target output level.	N,S	N,NS	S, NN
Highest output level possible at given cost	N,S	N,NS	S, NN
Profit Maximizing	N,S	N,NS	S, NN
Economically Efficient	N,S	N,NS	S, NN
On an isoquant	N,S	N,NS	S, NN

N,S = necessary and sufficient; N,NS is necessary but not sufficient; S,NN is sufficient but not necessary

6) Assume the rental rate of capital is 5 and the wage rate is 15.

    a. Draw an isocost curve for a total cost level of 150.

    b. If the marginal product of labor is 3, what will the marginal product of capital be at an economically efficient point? Why?

    c. What variables define the slope of an isocost?

    d. What variables define the slope of an isoquant?

7) Complete the following table.

a) Quantity of Output	Total Cost	Average Cost	Marginal Cost
0	0	------------	---------
1	3	3	3
2	4	2	1
3	9	3	5
4	16	4	7
5	35	7	19
6	66	11	31
7	133	19	67
8	208	26	75

b. If the market price for the output produced is 1 and the market structure is perfectly competitive, what level of output is the profit maximizing level of output for this firm? Why?

c. Is this a short run cost function or a long run function? Why?

8) You are given the following information on the relationship between inputs and production level at various points.

Points	Labor	Capital	Output
A	1	2	4
B	2	4	10
C	4	8	20
D	8	16	40
E	16	32	75

a. Illustrate these points using isoquants.

b. Contrast the returns to scale implied by movement between the points. (circle the correct answer)

From a to b I have (increasing, constant, decreasing) returns to scale.

From b to c I have (increasing, constant, decreasing) returns to scale.

From c to d I have (increasing, constant, decreasing) returns to scale.

From d to e I have (increasing, constant, decreasing) returns to scale.

9) Cost definitions.
a) Define the seven short run cost concepts.

b) Which of these seven are also long run cost concepts.

10) Circle the correct answer.

Statement	The statement is (circle the correct answer)	
A natural monopoly exists when one firm can produce the total output of the market at a lower cost than several firms could.	True	False
The slope of the isocost line is the negative ratio of the input prices.	True	False
A Stackelberg leader is the only supplier of a good for which there is no close substitute.	True	False
Output level is unchanged as we compare different input bundles on a given isoquant.	True	False
According to the last dollar rule, the marginal products of all inputs should be equal.	True	False
The bisection rule allows us to derive the marginal revenue curve from a linear demand curve.	True	False
A price floor is one possible policy tool to regulate a monopoly to arrive at the socially optimal outcome.	True	False
A Nash equilibrium in a Cournot quantity setting game is to collude and split the monopoly profits.	True	False