McPeak

Name:_____

PPA 723

Exam 2

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	Marginal Cost	Average Cost	Average Variable Cost
0	2	2	NA	NA	NA
1				13	
2			10		
3					11
4			13		
5					12
6		77			
7		98			
8				16	

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

   b) If the price of the good produced is currently 14, what level of output meets the profit maximizing condition?

   c) Draw a figure illustrating the fixed cost, the average cost, and the marginal cost curves based on the information in this table. Identify where the individual firm's short run supply curve comes from on the figure you draw.

2) You know that the demand curve is defined by the following function: P=28-2Q.
    a. Use the bisection rule to define the marginal revenue curve

    b. If total cost is defined by 4*Q, then you know MC is 4 for all possible levels of Q. What level should the monopolist produce at, what is the selling price if the optimal Q is greater than zero, and what is the implied profit?

    c. What three conditions characterize production of Q if the supply curve is horizontal (as in MC=4 for all possible levels of Q) as it is in this case?

3) Assume the market for this commodity was to become a perfectly competitive market for some reason.
   a. What would happen to 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=4) 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) Isoquant and Isocost lines.
      a. Derive the expansion path graphically, using isoquant and isocost curves.

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

      c. "Being on the expansion path" is what kind of condition for characterizing a given point according to the terms 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

5) Assume the rental rate of capital is 3 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 5, what will the marginal product of capital be at an economically efficient point? Why?

   c. If the rental rate of capital increases from 3 to 6, will the firm adjust by using more capital or less capital than they used when r was equal to 3 holding the level of labor constant? Why?

   d. Illustrate your answer to (c) on a graph.

6) Complete the following table.

a) Quantity of Output	Total Cost	Average Cost	Marginal Cost
0	0	------------	---------
1	2		
2	4		
3	8		
4	16		
5	32		
6	64		
7	128		
8	256		

b. If the market price for the output produced is 32 and the market structure is perfectly competitive, what level of output is the profit maximizing level of output? Why?

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

Points	Labor	Capital	Output
A	3	6	4
B	6	12	10
C	12	24	21
D	24	48	42
E	48	96	80

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.

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

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

9) Circle the correct answer.

Statement	The statement is (circle the correct answer)	
If $AC(q) > p=MC(q)$ [that is, average cost is greater than marginal cost where p=MC], q=0 for the profit maximizing firm in the short run.	True	False
$MC_L = w/MP_L$	True	False
A monopoly firm is a price taker.	True	False
The curvature of the isocost line is determined by the substitutability of the inputs in production.	True	False
An isoquant further on a ray from the origin has a higher associated production level than one closer to the origin on that ray.	True	False
The bisection rule allows us to derive the average cost curve from a linear demand curve.	True	False

10) Production.

    a. Define marginal product.

    b. Define average product.

    c. Draw a production function with labor as the variable input, and that exhibits diminishing marginal returns to labor.

    d. Show how the shape of the cost function is related to the production function by drawing cost as a function of quantity in a way consistent with what you drew for (c).