McPeak
PPA 723
Quiz 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
0	12	12	NA	NA	NA
1					11
2		33			
3			15		
4		58			
5		72			
6		87			
7				26	
8		140			

    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) Should the firm produce at this level, or should it shut down? Why?

    d) Draw the fixed cost, the 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=14-Q.

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

    b. If total cost is defined by 2*Q, then you know MC is 2 for all possible levels of Q. Is average cost different from marginal cost in this setting? Why or why not?

    c. What level should the monopolist produce at if at all and why?

    d. What is the implied selling price?

    e. What is the implied profit?

3) Continue with the demand curve from (2). 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=2) 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. Is **being on the expansion path** a necessary condition or a sufficient condition to characterize the point as:

CHARACTERIZE AS	
Technologically Efficient	Necessary Sufficient
Cost Minimizing bundle to produce target output level.	Necessary Sufficient
Highest output level possible at given cost	Necessary Sufficient
Profit Maximizing	Necessary Sufficient
Economically Efficient	Necessary Sufficient
On an isoquant	Necessary Sufficient
Maximizing total social welfare	Necessary Sufficient

5) Assume the rental rate of capital is 10 and the wage rate is 20.

    a. Draw an isocost curve for a total cost level of 120.

    b. If the marginal product of labor is 4, what is the marginal product of capital at an economically efficient point? Why?

6) Complete the following table.

a) Quantity of Output	Total Cost	Average Cost	Marginal Cost
0	0	------------	---------
1	4	4	4
2	7	3.5	3
3	9.5	3.17	2.5
4	11.5	2.875	2
5	13.3	2.66	1.8
6	15.3	2.55	2
7	18.3	2.61	3
8	21.8	2.725	3.5

b. If the market price for the output produced is 2 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	1	2	4
B	2	4	10
C	4	8	22
D	8	16	44
E	16	32	50

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)
A natural monopoly has a downward sloping average cost curve over the entire range of feasible production levels	True False
Economics conventionally defines one as being in the long run after five years have passed.	True False
A monopoly firm is a price taker.	True False
Output level is unchanged as we compare different input bundles on a given isoquant.	True False
The slope of the isocost line is the negative ratio of the input prices.	True False
The bisection rule allows us to derive the marginal revenue curve from a linear demand curve.	True False

10) Circle the correct answer for each.

    i.   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 right of the optimal quantity.

    ii.   Neutral Technological Progress:
1. Increases the marginal rate of substitution for the indifference curve.
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.

    iii.   A monopolist:
1. Is a single buyer of a good for which there is no close complement.
2. Is a single seller of a good for which there is no close substitute.
3. Always produces in at a level where there are decreasing returns to scale.
4. Never wears a black hat and monocle when attempting to build a hotel on Park Place after using a get out of jail free card.

    iv.   The long run supply curve for the individual firm in a perfectly competitive market is:
1. The average variable cost curve at and above the average cost curve, q=0 elsewhere.
2. The horizontal summation of the industry supply curve.
3. The marginal cost curve at and above the point where AC(q)=MC(q), q=0 elsewhere.
4. The downward sloping part of the average fixed cost curve after it intersects the marginal cost curve.