

Quiz #5 (answers)
ECNS 432
Spring 2019

Name _____

Common property resource problem

(HINT: This is very similar to highway congestion problem from class)

1.) **(10 points total)** Suppose the output of jumbo shrimp from a shrimp bed is given by the following production function, where L represents the labor input and TP represents total product, or output, in shrimp.

Labor	TP
1	4
2	12
3	19
4	25
5	29
6	31
7	32
8 or more	32

Assume the market price for shrimp is \$10 each and all shrimp gatherers can earn \$40 per day in their next best alternative.

a.) **(5 points)** Suppose the shrimp bed is “common property”, no one owns it and anyone who wishes can work the shrimp bed and share equally in the output. That is, the value of the total product is split evenly amongst however many workers decide to work the shrimp bed. How many workers will harvest shrimp in this case? Explain why common property is inefficient.

People will join the common property shrimp bed to farm it up to the point where $VAP = w$.

As a result, 8 workers farm the shrimp bed under common property

This is NOT socially efficient because workers 6, 7, and 8 could be reallocated elsewhere to be producing more output for society.

b.) **(5 points)** Suppose the shrimp bed is privately held by a profit maximizing owner. How many workers would the owner hire, and would it be an efficient allocation of resources?

Profit maximizing owner will hire up to the point where $VMP = w$.

As a result, 5 workers will be hired to farm the shrimp bed.

This is socially efficient because these workers could not be reallocated elsewhere to be producing more output for society.