**Microecomomics Unit 3 IP**

**Production and Perfect Competition**

**The firm currently uses 50,000 workers to produce 200,000 units of output per day. The daily wage per worker is $80, and the price of the firm’s output is $25. The cost of other variable inputs is $400,000 per day. Although you do not know the firm’s fixed cost, you know that it is high enough that the firm’s total costs exceed its total revenue.**

**Assume that total fixed cost equals $1,000,000. Calculate the values for the following four formulas:**

* **Total Variable Cost = (Number of Workers \* Worker’s Daily Wage) + Other Variable Costs**
* **Average Variable Cost = Total Variable Cost / Units of Output per Day**
* **Average Total Cost = (Total Variable Cost +Total Fixed Cost) / Units of Output per Day**
* **Worker Productivity = Units of Output per Day / Number of Workers**

**Then, assume that total fixed cost equals $3,000,000, and recalculate the values of the four variables listed above.   
For both cases, calculate the firm’s profit or loss.**

**For both sets of calculations, compare the firm’s output price and the calculated average variable cost and average total cost. Should the firm shutdown immediately when the total fixed cost equals $1,000,000? Should the firm shut down immediately when the total fixed cost equals $3,000,000?**

**For one of the cases, if the firm can operate at a loss in the short-run, how many employees need to be laid off in order for the company to break even? To calculate the number of workers to be laid off, divide the loss for the two situations by the daily wage per worker. Given a lower number of employees now working at the company, what is the change in worker productivity? Is the change in worker too large, and the firm should shut down immediately? Or in your opinion, can the workers increase their productivity, assuming that the units of output per day remain fixed at 200,000 units, so that the firm operates at a breakeven state?**

**Provide a two to four page report to management of the firm that discusses what should be done.**

**Be sure to show your work to support the decision you outline in your report.**