

Assignment

1. **Ebo** is the owner of medium-sized company that assembles personal computers in Ghana. He purchase most of the components for the company such as random access memory (RAM) on a competitive market. In order to maximise profit in the short run, he employed an economist to estimate the demand curve for his product as: $3Q = 20 - 0.4P$. Suppose the firm has a fixed cost of 100 and variable cost per unit function as $1.5Q - 31 + \frac{130}{Q}$, where Q is number of laptops produced and P is the price per computer:
 - a) Determine the number of laptops that maximizes the company's profit.
 - b) How much should the firm charge for one computer?
 - c) Find the total profit at the profit maximizing level of output

2. The demand for a particular product is given by the expression
$$4P + Q - 16 = 0$$
and the total cost per unit function is $0.05Q^3 - 0.3Q^2 + 2Q + 4$,
Find
 - a) an expression of the profit function of the firm in terms of quantity.
 - b) the level of output that maximises the firm's profit
 - c) the price at which the good should be sold in order to maximise profit
 - d) the maximum profit of the firm