



Ministry of Higher Education and Scientific Research

Al-Mustaqbal University College

Chemical Engineering and Petroleum Industries Department

Chemical Engineering Economics

Fourth Stage

Sheet No. 1

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1. Indira Industries is a major producer of diverter dampers used in the gas turbine power industry to divert gas exhausts from the turbine to a side stack, thus reducing the noise to acceptable levels for human environments. Normal production level is 60 diverter systems per month, but due to significantly improved economic conditions in Asia, production is at 72 per month. The following information is available.

Fixed costs \$2.4 million per month Variable cost per unit \$35,000 Revenue per unit \$75,000

(a) How does the increased production level of 72 units per month compare with the current breakeven point?

(b) What is the current profit level per month for the facility?

(c) What is the difference between the revenue and variable cost per damper that is necessary to break even at a significantly reduced monthly production level of 45 units, if fixed costs remain constant?

2. Alpha Associates has the following details:

Fixed cost = \$ 2,000,000 Variable cost per unit = \$ 100

Selling price per unit = \$200, Find The break-even sales quantity.

3. Krishna Company Ltd. has the following details: Fixed cost = \$40,00,000 Variable cost per unit = \$300 Selling price per unit = \$500 Find (a) The break- even sales quantity (b) The break-even sales capacity.

4. The total capital investment for a chemical plant is \$1 million, and the working capital is \$100,000. If the plant can produce an average of 8000 kg of final product per day during a 365-day year, what selling price in dollars per kilogram of product would be necessary to give a turnover ratio of 0.65?

5. A design-to-cost approach to product pricing involves determining the selling price of the product and then figuring out if it can be made at a cost lower than that. Banner Engineering's QT50R radar-based sensor features frequency-modulated technology to

accurately monitor or detect objects up to 15 miles away while resisting rain, wind, humidity, and extreme temperatures. It has a list price of \$589, and the variable cost of manufacturing the unit is \$340.

(a) What could the company's fixed cost per year be in order for Banner to break even with sales of 9000 units per year?

(b) If Banner's fixed cost is actually \$750,000 per year, what is the profit at a sales level of 7000 units per year?