

# Engineering Economics

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~~Assignment 1~~

1(b)

## COST SHEET

① Raw material Consumed	
Opening Stock of Raw Mater	87,200
+ Raw Material purchased	369,000
- Closing Stock of Raw Mater	(87,920)
	<u>368,280</u>
+ Direct Expenses	10,010
+ Direct Wages (Productive wages)	176,400
<u>PRIME COST</u>	<u>5,54,690</u>
+ <u>Factory Overheads</u>	
Rent, Tax and insurance of factory	41,900
<del>General</del> Gas and water	2,680
Dep. on plant & tools	9,100
Repairs of Plant and tools	6,230
<u>Factory / Work Cost</u>	<u>6,14,600</u>
+ <u>Office and Administrative Over</u>	
Drawing office Salaries	40,000
General office Salaries	15,000
Dep. written off of furniture	10,000
Manager's Salary	75,000
Rent Tax, insurance (office)	2,800
Gas & Water (office)	560
General Expenses.	<u>40,000</u>

# COST of Production

79,960

+ Selling and Distribution Overhead

Bad Debts Written off

12000

Sales person's Salary

17000

Travelling Expenses

2680

Cash Discant Allowed

4060

Carrriage Outwards

6030

Total Cost

839,730

3(b)

A  
B  
C

Demand  
original

100

change

80

120

150

200

160

A (Price)

B (Demand)

20

120

25

150

$$E_c = \frac{\Delta Q_B}{\Delta P_A} \times \frac{P_A}{Q_B}$$

$$= \frac{30}{5} \times \frac{20.5}{120}$$

= +1

Es = +ve

A & B are substitute goods

A (Price)	C (Demand)
20	200
25	160

$$\begin{aligned}
 E_c &= \frac{\Delta q_c}{\Delta P_A} \times \frac{P_A}{q_c} \\
 &= \frac{-40}{5} \times \frac{20}{200} \\
 &= -0.8
 \end{aligned}$$

$$E_c = -ve$$

So, A & C are Complementary Goods.

2(b) Commodity X-1

Advertisement Expenditure	Demand (₹ thousand)
50	300
75	312

$$E_A \text{ of } X_1 = \frac{\% \text{ Change in demand}}{\% \text{ Change in Advertisement Expenditure}}$$



$$\begin{aligned}
 E_A \text{ of } X_1 &= \frac{\Delta Q_1}{\Delta A} \times \frac{A}{Q} \\
 &= \frac{12}{25} \times \frac{500}{300} \\
 &= 0.08
 \end{aligned}$$

~~$$E_A \text{ of } X_2 = \frac{\Delta Q_2}{\Delta P} \times \frac{P}{Q}$$~~

Commodity X<sub>2</sub> (in thousand)

Advertisement Exp.	Demand
50	500
75	770

$$\begin{aligned}
 E_A \text{ of } X_2 &= \frac{270}{25} \times \frac{50}{500} \\
 &= 1.08
 \end{aligned}$$

Advertisement elasticity is more for Commodity X<sub>2</sub> as compared to X<sub>1</sub>. So X<sub>2</sub> is a luxury good whereas X<sub>1</sub> is a necessary good.