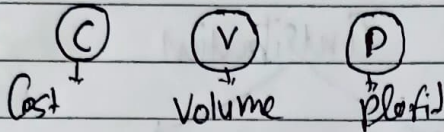


Marginal Costing

[5 to 15 marks]

* Marginal Costing
(Variable Costing)
(CVP Analysis)



Meaning: The cost incurred to produce 1 additional unit is known as marginal cost.

Unit $T_c = VC + FC$

10000 80000 = 60000 + 20,000

100001 80006 = 60,006 + 20,000

1 Unit ₹ 6

Variable cost pu = ₹ 6 pu

* Absorption Costing:

Sales

Tc

Profit

↓

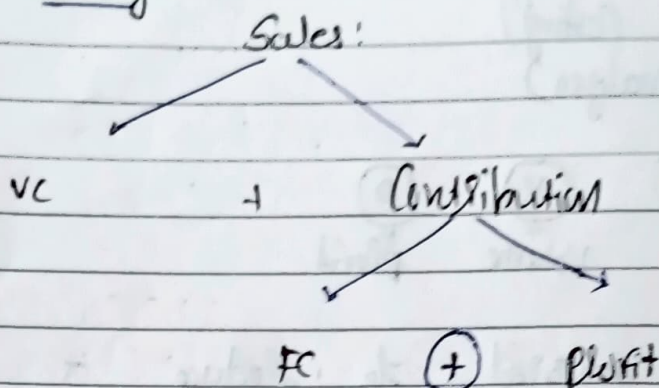
Vc + FC

VC } product cost
FC }

D.M	3
+ D.L	2
+ V.G.H	1
= V.C.p.u	6
+ F.C.p.u	2
= T.C.p.u	8
+ profit	2
= S.P.p.u	10

→ It is used to determine manufacturing cost of product.

Marginal Costing:



→ It is used for decision making purpose

Budgeted Total FC = 500,000
 Subjected production = 250,000 units
 ∴ 100% capacity = 300,000 units

Export order = 50,000 units

④ 37 p.u

Particulars	Reject	Accept
Sales	2,500,000	2,850,000
- V.C.	1,500,000	1,600,000
Contribution	1,000,000	1,050,000
- F.C.	500,000	500,000
Profit	500,000	550,000

* Break Even point (BEP) / (BE)

→ Sales required to earn zero profit

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DL:

/ /

Pg.no.:

* Profit Statement

Particulars	₹
Sales	✓
- V.C.	✓
Contribution	✓
- F.C.	✓
Profit	✓

Particulars	₹
S.P.P.U	✓
- V.C.P.U	✓
C.P.U	✓
x Sales unit	✓
Total Contribution	✓
- Total FC	✓
Profit	✓

→ $BEP = \frac{FC}{C.P.U} = \boxed{} \text{ units} \times S.P.P.U$

- $\boxed{} ₹$

→ Sales Required to earn desired profit

$$= \frac{FC + \text{profit}}{\text{C.P.U}}$$

C.P.U

$$= \boxed{} \text{ unit} \times \boxed{} \text{ P.P.U}$$

$$= \boxed{} \text{ ₹}$$

→ Sales Required to earn desired loss

$$= \frac{FC - \text{desired loss}}{\text{C.P.U}}$$

C.P.U

$$= \boxed{} \text{ unit} \times \boxed{} \text{ p.p.u}$$

$$= \boxed{} \text{ ₹}$$

Eg.

$$\text{G.P.P.U} = ₹10$$

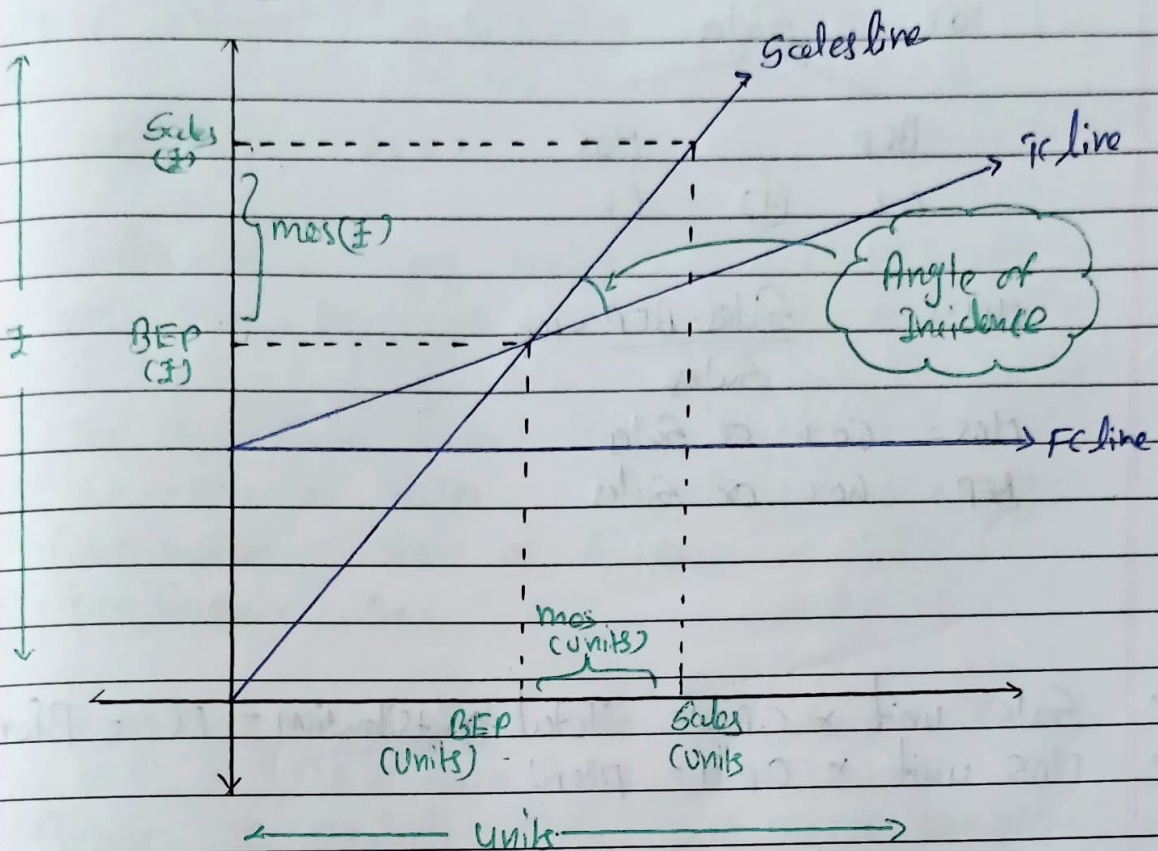
$$\text{V.C.P.U} = ₹6$$

$$\text{FC} = ₹500,000$$

Particulars	Situation - I	Situation - II	Situation: III
S.P.P.U	10	10	10
- V.C.P.U	6	6	6
C.P.U	4	4	4
* Sales unit	125,000	200,000	100,000
Total contribution	500,000	800,000	600,000
- Total F.C.	500,000	500,000	500,000
Profit	0	300,000	(100,000)

Angle line between Sale line & TC line

Break even - point



* Margin of Safety (Mos)

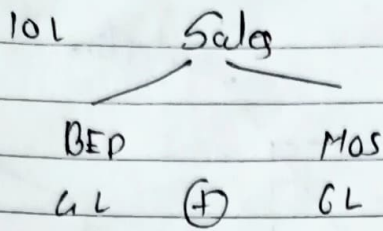
→ Sales over and above BEP

$$\begin{aligned} \text{Mos} &= \text{Sales}^{\text{Unit}} - \text{BEP}^{\text{Unit}} \\ &= \boxed{} \text{ Units} \times \boxed{} \text{ P.P.U} \\ &= \boxed{} \text{ ₹} \end{aligned}$$

Or

$$\begin{aligned} \text{Mos} &= \text{Sales ₹} - \text{BEP ₹} \\ &= \boxed{} \text{ ₹} \div \text{P.P.U} \\ &= \boxed{} \text{ Units} \end{aligned}$$

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$$\text{MOS-1.} = \frac{\text{Sales} - \text{BEP}}{\text{Sales}} \times 100$$

MOS = 60% of Sales

BEP = 40% of Sales

$$\rightarrow \text{Sales unit} \times \text{C.P.U} = \text{Total Contribution} - \text{FC} = \text{Profit}$$

$$\rightarrow \text{MOS unit} \times \text{C.P.U} = \text{Profit}$$

$$\text{i} \quad \text{MOS unit} = \frac{\text{Profit}}{\text{C.P.U}}$$

$$\text{ii} \quad \text{C.P.U} = \frac{\text{Profit}}{\text{MOS unit}}$$

PIV Ratio $\rightarrow$ profit volume ratio
or

C/S Ratio $\rightarrow$ Contribution to Sales Ratio

$$1. \text{ PIV Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{PIV Ratio} = 40\%$$

$$\textcircled{1} \text{ Contribution} = 40\% \text{ Sales}$$

$$\text{V.C.} = 60\% \text{ of Sales}$$

$$\text{V.C. to Sales Ratio} = 70\%$$

$$\text{V.C.} = 70\% \text{ of Sales}$$

$$\text{Contribution} = 30\% \text{ of Sales}$$

$$\text{PIV Ratio} = 30\%$$

$$\textcircled{2} \text{ PIV Ratio} = \frac{\Delta \text{ in Profit}}{\Delta \text{ in Sales}} \times 100$$

(When 2 periods profit and Sales are given)

$$\textcircled{3} \text{ PIV Ratio} = \frac{\text{Profit}}{\text{Mos(I)}} \times 100$$

(When profit & Mos(I) are given)

$$\text{Sales} \times \text{PIV Ratio} = \text{Total Contribution} - \text{FC} = \text{Profit}$$

$$1) \text{ Mos(I)} \times \text{PIV Ratio} = \text{Profit}$$

$$2) \text{ Mos(I)} = \frac{\text{Profit}}{\text{PIV Ratio}}$$

$$3) \text{ PIV Ratio} = \frac{\text{Profit}}{\text{Mos}} \times 100$$

$$\begin{aligned} \rightarrow \text{BEP} &= \frac{\text{FC}}{\text{p.u.}} \\ &= \boxed{} \div \text{s.p.u.} \\ &= \boxed{} \text{ units} \end{aligned}$$

$$\begin{aligned} \rightarrow \text{Sales required to earn } &\text{desired profit} \\ &= \frac{\text{FC} + \text{profit}}{\text{p.u.}} \\ &= \boxed{} \div \text{s.p.u.} \\ &= \boxed{} \text{ units} \end{aligned}$$

$$\begin{aligned} \rightarrow \text{Sales required to earn } &\text{desired loss} \\ &= \frac{\text{FC} - \text{profit}}{\text{p.u.}} \\ &= \boxed{} \div \text{s.p.u.} \\ &= \boxed{} \text{ units} \end{aligned}$$

3 IMP assumptions of Marginal costing

1. S.p.u will always remain same

2. V.c.p.u will always remain same

3. Fixed ~~cost~~ cost in total will always remain same

Shut down point

→ Meaning: It is the level of sales at which both the alternatives (Continue plant or shut down plant) are at par. (i.e. both the alternative having equal profit.)

→ Formula:

$$\text{shut down point} = \frac{\text{Avoidable fixed cost}}{\text{Contribution per unit / price}} / \text{production}$$

$$\text{Avoidable fixed cost} = \text{Total fixed cost} - \text{unavoidable fixed cost}$$

→ Decision Making:-

At the level of Sales above shut down point, Continue plant is more profitable.

At the level of Sales below shut down point, shut down plant is more profitable.

*

$$\text{Cost indifference point} = \frac{\Delta \text{ in FC}}{\Delta \text{ in V.C.P.U.}}$$

P.y

Particulars

Machine

Machine

X

Y

(Manual)

(fully automatic)

S.P.P.U.

₹ 10

₹ 10

V.C.P.U.

(₹ 5)

(₹ 2)

Cont. per unit

₹ 5

₹ 8

FC

200,000

500,000

$$\text{Cost indifference point} = \frac{\Delta \text{ in FC}}{\Delta \text{ in V.C.P.U.}}$$

$$= \frac{₹ 300,000}{₹ 3 \text{ P.U.}}$$

$$= 100,000 \text{ units}$$

→ Meaning:- It is the level of sales at which both the alternatives are at par i.e. both the alternative having equal profit

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→ Formula:-

$$\begin{aligned} \text{Cost indifference point} &= \frac{\text{Diff FC}}{\text{Diff V.C.P.U}} \\ &= \boxed{} \text{ unit} \times \text{S.P. per unit} \\ &= \boxed{} \text{ ₹} \end{aligned}$$

→ Decision making:-

~~At the~~

At the level of above cost indifference point, the alternative having lower V.C.P.U is more profitable

At the level of sales below cost Indifference point, the alternative having lower FC is more profitable

Absorption Costing vs. Marginal Costing

$$M = A + \left(\frac{\text{Op}}{\text{unit}} - \frac{\text{CI}}{\text{unit}} \right) \times \text{FOAR}$$

Here

M = Profit as per marginal Costing

A = Profit as per Absorption Costing

FOAR = fixed fact. OH Absorption Rate.

= $\frac{\text{Budgeted FOH}}{\text{Budget prod.}}$

Profit as per Absorption Costing

Particulars	₹	₹
Sales [x]		
Variable Cost of prod. [DM + DL + DE + Fixed var. OH]		
+ Fixed fact. OH (Prod Fixed OH) (Absorbed/ absorbed) [Actual prod × FOAR]		
Cost of production		
+ Op. St. of FG		
- Cl. St. of FG		
Cost of goods sold		
+ Admin OH		
Variable		
Fixed		
+ S&D OH		
Variable		
Fixed		
Total cost / Cost of Sales [y]		
Profit before Adj. [x-y]		
- Under Recovery of fixed fact. OH		
+ Over recovery of Fixed Fact. OH		
Profit		

Profit as per Marginal Costing

Sales

[x]

Variable Cost of production

① Op. St. of FG

- Cl. St. of FG

Variable COGS

+ Admin OH

Var

+ 587 OH

Var

Total var. cost

[y]

Total Contribution [x-y]

- Total Actual FC

Fact.

Admin

587

Profit