Chapter = Marginal Costing

Topic to be Cover

1. Meaning of Marginal Costing (Done)
2. Basic format of Marginal Costing (Done)
3. Contribution (Done)
4. P/V Ratio / Profit Volume Ratio (Done)
5. Break Even point (Done)
6. Desire Profit (Done)
7. Margin of Safety (Done)
8. How to Calculate P/V Ratio if two yr Sale and Profit given (Done)

Meaning of Marginal Costing

① Marginal Costing is the Technique of Costing.

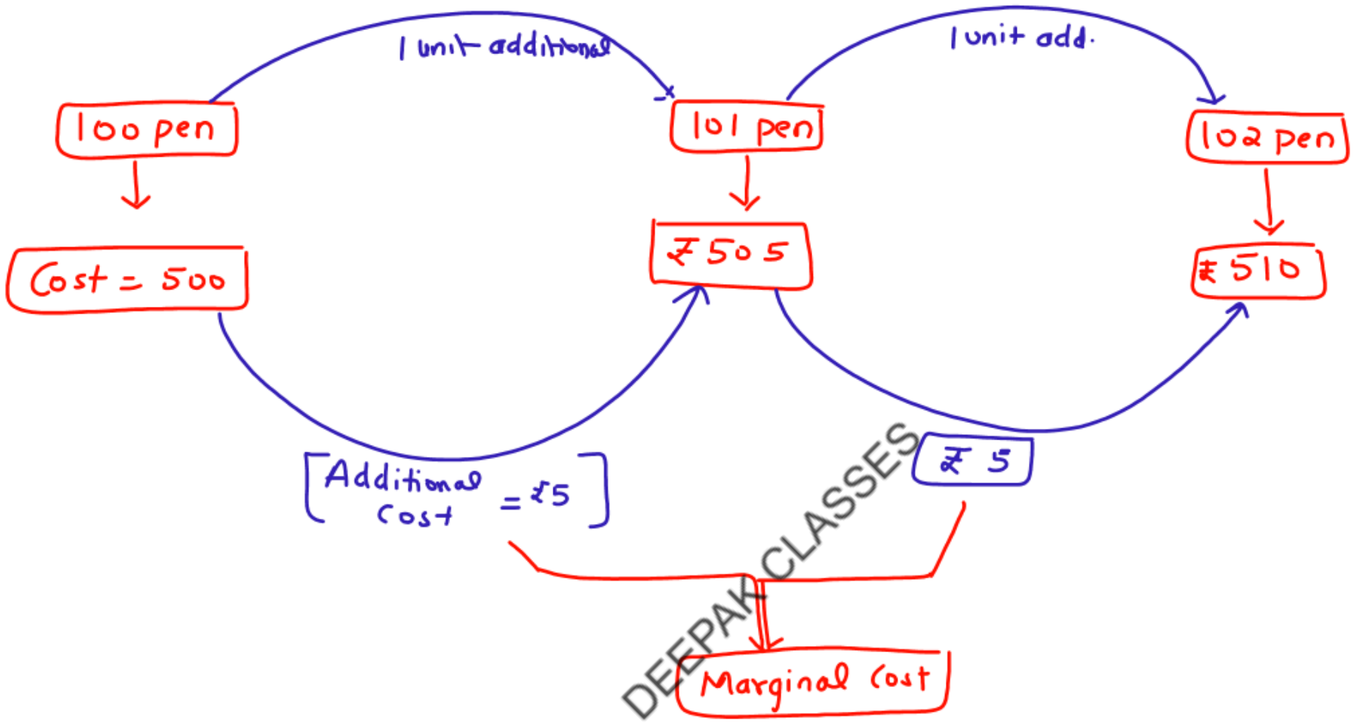
② Marginal Costing is the **additional cost** that is incurred for producing one additional unit of the product

③ Therefore the **Cost of one additional unit** incurred are known as **Marginal Cost.**

④ Marginal cost is also known as Variable cost. In another word Marginal Cost is part of Variable Cost

⑤ Marginal Costing help in **decision Making.**

Ex ABC Ltd ⇒ (Pen Manft")



Har ek additional unit Banane par, Jo additional Cost Incurred hoti hai Us Additional Cost ko Marginal Cost khete hai

Basic format of Marginal Costing

Statement of Profit

Particulars	₹
Sale	xxxx
less: Variable Cost	(xxxx)
CONTRIBUTION	xxxx
less:- Fixed Cost	(xxxx)
PROFT / LOSS	xxxxx

Ex

Sale = 10,00,000

unit = 20,000 unit

Variable Cost = 30/unit

Fixed Cost = 150,000

Find profit/loss & Contribution

Particular	₹
Sale	10,00,000
less :- Variable Cost [20,000 x 30]	(600,000)
Contribution	400,000
less: Fixed Cost	(150,000)
PROFIT / LOSS	250,000

Meaning of Contribution

① Contribution is that portion of Sale Revenue after Cover the Variable Cost

② In another word, Contribution is the Amount to the Coverage of Fixed Cost

Ex RAZA Halwai

Samose = 100 per day

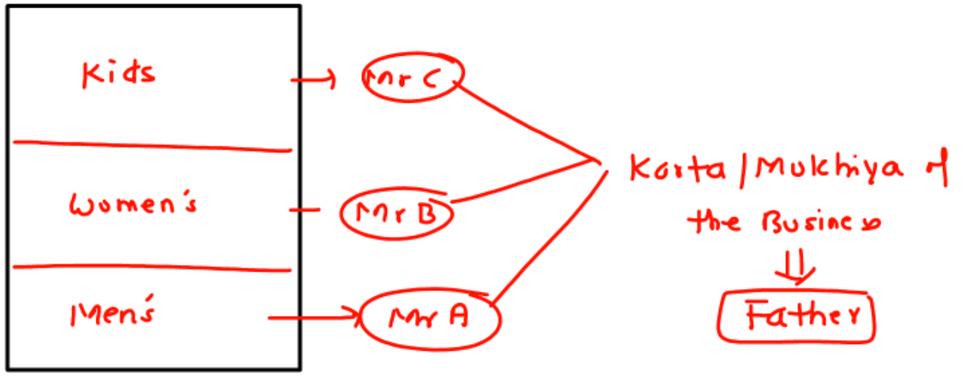
Sale = 100 X 10 = 1000

Variable = 100 X 6 = 600

Contribution 400

Portion

Ex Family Business ⇒ Garment shop



	Sale - 1 month	Variable Exp	Contribution
Mr A	100,000	50,000	50,000
Mr B	150,000	80,000	70,000
Mr C	200,000	120,000	80,000

Contribution to the Father

200,000 − Rent shop 50k − electricity Bill 10k = 140,000

200,000 ↓ Contribution

140,000 ↓ PROFIT

Relation

₹ ₹ ₹

Contribution = Sale − Variable Cost

Contribution − Fixed Cost = PROFIT

Contribution = Profit + Fixed Cost

Contribution = − loss + Fixed Cost

Contribution per unit = Sale per unit − Variable cost per unit

Profit - Volume Ration | P·V Ratio

P/V Ratio means Contribution as a percentage of sale

Contribution , Sale ka kitne % hai usko hum p/v Ratio khete hai

Sale = 20,000

(-) V.C 75% = (15000)

Contribution 5000

% = P/v Ratio

$$P/V\ Ratio = \frac{Contribution}{Sale} \times 100$$

$$P/V\ Ratio = \frac{5000}{20,000} \times 100$$

$$= 25\%$$

Sale Ratio	-	Variable Cost Ratio	=	P/V Ratio
100%	-	75%	=	25%

Ex

Sale = 10,00,000

VC = 600,000

FC = 150,000

Find ① Contribution ④ V/C Ratio

② P/V Ratio ,

③ Profit/loss

① Statement of profit

Sale	=	10,00,000
(–) Variable cost	=	(600,000)
Contribution		400,000
(–) Fixed cost		(150,000)
Profit		250,000

② P/V Ratio = $\frac{\text{Cont}}{\text{Sale}} \times 100$

$= \frac{4L}{10L} \times 100$

$= \boxed{40\%}$

② Sale – P/V Ratio = V/C Ratio

100% – 40% = V/C Ratio

$\boxed{\text{V/C Ratio} = 60\%}$

(or)

Variable cost Ratio = $\frac{\text{Variable Cost}}{\text{Sale}} \times 100$

$= \frac{6L}{10L} \times 100 = \boxed{60\%}$

Break - even - point

B.E.P means that level of output at which the total Contribution is just Sufficient to Cover the Fixed Cost. In Simple word B.E.P is that level of output / Amount where NO PROFIT NO LOSS Situation is arise.

Kitne unit Sale kare (ya) kitne Amount ki Sale kare jisse Humko No profit No loss ho.

BEP (unit) = 50,000

BEP (Amt) = 500,000

Ex

Sale / unit = ₹10

V.C / unit = ₹6

Fixed Cost = 200,000

Find the profit / loss at different level of output

Break even point (unit)

(Amount)

	40000 unit	50,000 unit	60,000 unit
Sale @ 10/unit	400,000	500,000	600,000
less:- Variable Cost @ 6/unit	(240,000)	(300,000)	(360,000)
Contribution @ 4/unit	160,000	200,000	240,000
less:- Fixed Cost	(200,000)	(200,000)	(200,000)
PROFT / Loss	(40,000)	NiLL	40,000

AT BEP

Total Contribution = Fixed Cost

Sale / unit	₹ 10
V.C / unit	(₹ 6)
Cont / unit	₹ 4

Total Contribution (₹) = Total unit × Cont / Unit

↓

$$\frac{\text{Fixed Cost}}{\text{Cont / unit}} = \text{Total unit (BEP)}$$

Ex

Cont / unit = 4

Fixed Cost = 200,000

$$\text{BEP (unit)} = \frac{\text{FC}}{\text{Cont / unit}} = \frac{200{,}000}{4} = 50{,}000 \text{ unit}$$

Ex

Sale (BEP) x P/v Ratio = Total Contribution

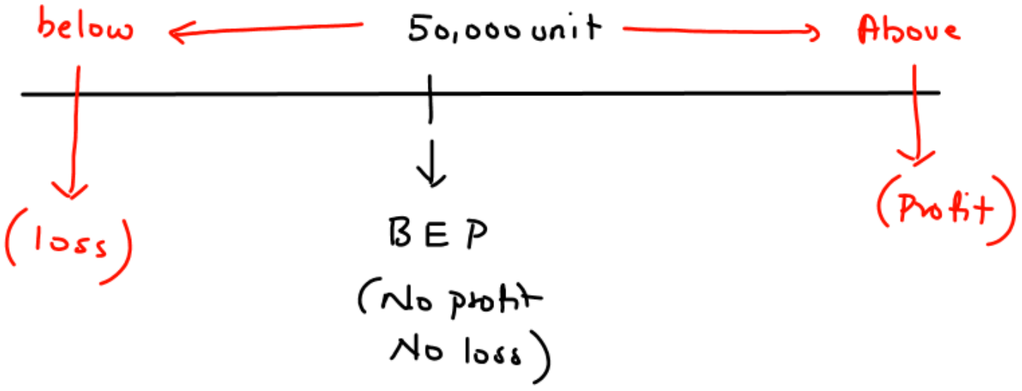
Sale (BEP) x P/v Ratio = Fixed Cost

$$\text{BEP (₹)} = \frac{\text{Fixed Cost}}{\text{P/v Ratio}}$$

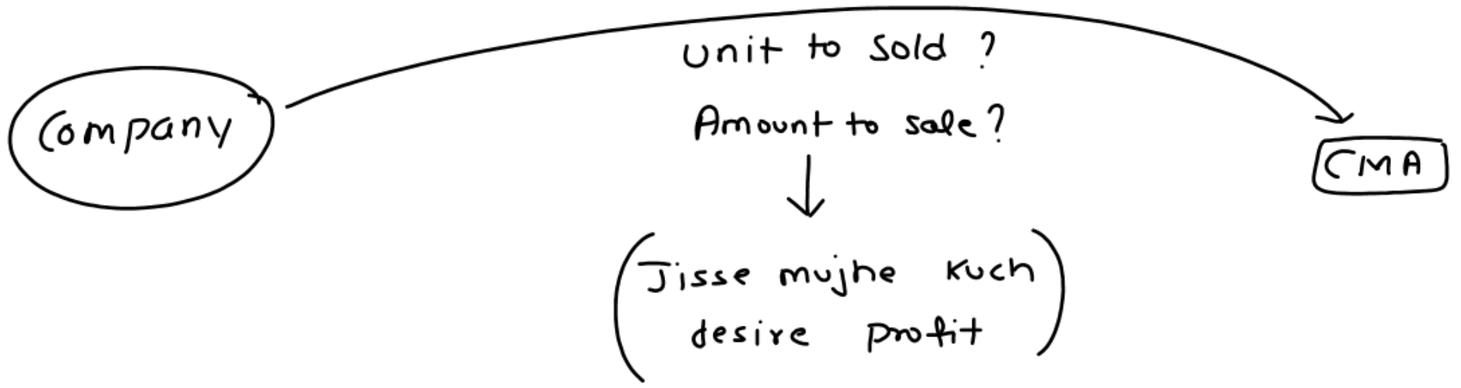
BEP (₹) = 200,000 / 40%

⇓

(Break even Sale) = 500,000



Unit to be sold / Amount of sale to earn desire profit



① Kitni unit Sale karu jisse Hum desire profit kama sake

② Kitne Amount ki sale karu jisse Hum desire profit kama sake

Ex

Sale/unit = 20
V.C/unit = 16
→ Cont/unit = 4

desire profit = 401000

Fixed Cost = 200,000

$$P/V = \frac{Cont}{Sale} \times 100 = \frac{4}{20} \times 100 = 20\%$$

Desire Sale (Sale to earn desire profit) (₹) = $\frac{\text{Fixed Cost} + \text{Desire profit}}{\text{P/V Ratio}}$

Desire Sale (Sale to earn desire profit) (unit) = $\frac{\text{Fixed Cost} + \text{Desire profit}}{\text{Cont./unit}}$

T.C = 240,000

P/V Ratio = 20%

Sale × P/V Ratio = Total Contribution

Sale × 20% = 240,000 (FC + Profit)

$$\text{Sale} = \frac{240,000}{20\%}$$

Sale = 1200,000

Ex

Sale/unit = 50
V.C/unit = 30
} 20, P/V = $\frac{20}{50} \times 100$

= 40%.

Fixed Cost = 500,000

Desire profit = 150,000

① Desire unit to be sold

② Amt of sale to earn desire profit

① Unit to sold = $\frac{FC + D.P}{Cont/unit}$

= $\frac{500,000 + 150,000}{20/unit}$

= 32 500 unit

② Sale to earn desire profit = $\frac{FC + DP}{P/v\ Ratio}$

= $\frac{5L + 1.5L}{40\%}$

= $\frac{650,000}{40\%}$

= 16,25,000

Margin of safety (MOS)

Margin of safety (MOS) mean that sale which are over and above the Break even sale | Break even Point

Ex

Sale / unit = 10

VC / unit = 6

Cont / unit ₹4

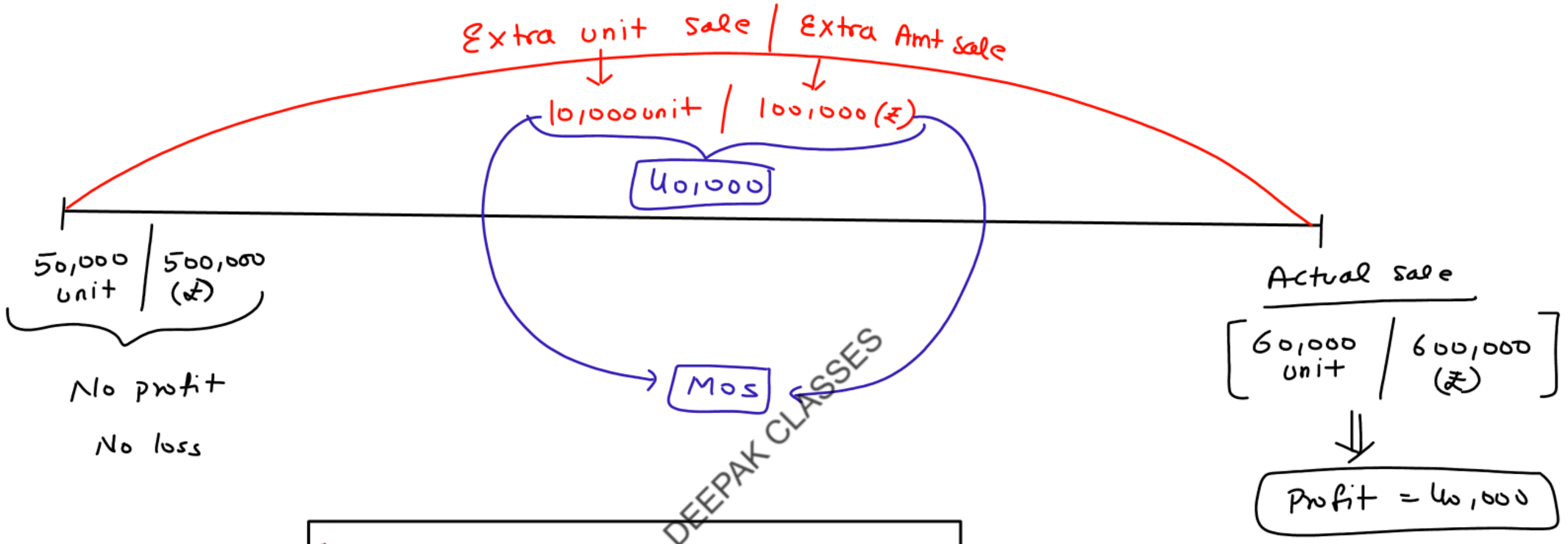
Fixed Cost = 200,000

$$BEP\ (unit) = \frac{FC}{Cont/unit} = \frac{200,000}{4}$$

$$= \boxed{50,000\ unit}$$

let Assume Company sold 60,000 unit

	₹
Total Cont. (60,000 × 4) =	240,000
Less:- Fixed cost =	(200,000)
Profit	40,000



MOS = Sale − BES

unit

101000unit = 601000unit − 501000unit

₹

1001000 = 601000 − 501000

Unit	×	Cont/unit	=	Total Cont.
60,000	×	₹4	=	2,40,000
50,000	×	₹4	=	(2,00,000)
10,000	×	₹4	→	Profit 40,000

PROFT = MOS(unit) × Cont/unit

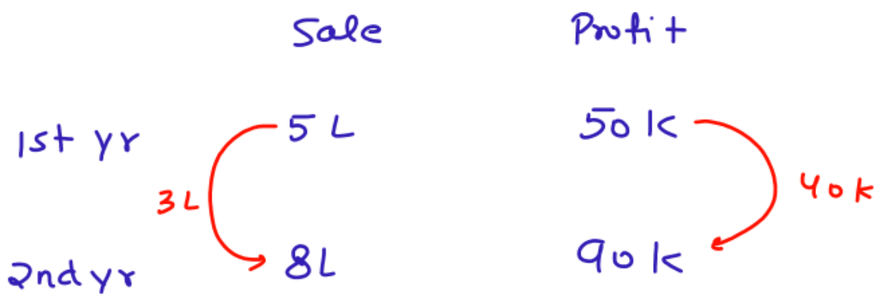
40,000 = 10,000 unit × 4

$$MOS(unit) = \frac{Profit}{Cont/unit}$$

OR

$$MOS(₹) = \frac{Profit}{P/V\ Ratio}$$

How to Calculate P/V Ratio if two year sale and profit is given



$$P/V\ Ratio = \frac{Change\ in\ profit}{Change\ in\ sale} \times 100$$

$$= \frac{40{,}000}{300{,}000} \times 100$$

$$= \boxed{13.33\%}$$

All Formula's

1. Sale − VC = Contribution

2. Sale = 100%.
   VC = 60%.
   ⟶ Cont = 40%.

3. Fixed Cost + Profit = Contribution

4. P/V Ration = $\frac{\text{Cont}}{\text{Sale}} \times 100$

5. V/C Ratio = $\frac{\text{V.C}}{\text{Sale}} \times 100$

6. BEP (Unit) = $\frac{\text{Fixed Cost}}{\text{Cont/unit}}$

7. BEP(₹) / BES = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

8. Desire Sale (Unit) = $\frac{\text{FC + D.P}}{\text{Cont/unit}}$

9. Desire Sale (₹) = $\frac{\text{Fc + D.P}}{\text{p/v Ratio}}$

10. MOS = Total Sale − BES

11. Total sale = 100%.
    BES = 70%.
    ⟶ MOS = 30%.

12. MOS (unit) = $\frac{\text{Profit}}{\text{Cont/unit}}$ | $\frac{\text{Profit}}{\text{P/V Ratio}}$
    (₹)

13. P/V Ratio = $\frac{\text{Change in profit}}{\text{Change in Sale}} \times 100$

81

Statement of profit

	10,000	15000	20,000
Sale @ 10/unit	100,000	150,000	200,000
Less:- V.C @ 6/unit	(60,000)	(90,000)	(120,000)
Contribution @ 4/unit	40,000	60,000	80,000
Less:- Fixed Cost	(45000)	(45000)	(45000)
Profit/loss	(5000)	15000	35000
Profit/unit	(0.5)/unit	1/unit	1.75/unit

05

① BEP (₹) = Fixed Cost / P/V Ratio

= 4L / 50%

= 800,000

② MOS (₹) = Profit / P/V Ratio

= 4L / 50%

= 800,000

WN-1

Statement of profit

Sale	1600,000
(-) Variable cost	(800,000)
Contribution	800,000
(-) Fixed Cost	(400,000)
Profit	400,000

WN-2

P/V Ratio = 8L / 16L × 100

= 50%

06

	₹
Contribution @ 5/unit (1L × 5)	500,000
less:- Fixed Cost	(300,000)
Profit	200,000

07

$$BEP\ (unit) = \frac{FC}{Cont/unit}$$

$$= \frac{100,000}{5} = \boxed{20,000\ unit}$$

$$BEP\ (₹) = \frac{FC}{P/V\ Ratio} = \frac{1L}{25\%}$$

$$= \boxed{400,000}$$

08 (I)

SP/unit	= 100
(-) VC/unit	= (60)
Con/unit	40

(1) $P/V\ Ratio = \frac{40}{100} \times 100 = 40\%$

(2) $BEP = \frac{120,000}{40\%}$ | $\frac{120,000}{40}$

$= \boxed{₹300,000}$ | $\boxed{3000\ unit}$

II $Cont/unit = 80 - 60 = \boxed{20/unit}$

$P/V = 25\%$

$New\ BEP = \frac{120,000}{20}$ | $\frac{120,000}{25\%}$

$= \boxed{6000}$ | $\boxed{480,000}$

Q9

① P/V Ratio = Sale Ratio − V.C Ratio

= 100% − 60%

= 40%

Statement of profit

Contribution [2L × 40%]	= 80,000
(-) Fixed Cost	= (60,000) B/F
Profit	20,000

Fixed Cost = 60,000

Sale to earn desire profit (₹) = $\frac{FC + D.P}{P/V\ Ratio}$

= $\frac{60,000 + 50,000}{40\%}$

= $\frac{110,000}{40\%}$

= 275000

Q10

(i) $$BEP(₹) = \frac{FC}{P/V\ Ratio}$$

$$20{,}000 = \frac{8000}{P/V\ Ratio}$$

$$P/V\ Ratio = \frac{8000}{20{,}000} \times 100$$

P/V Ratio = 40%.

$$Desire\ Sale = \frac{FC + Desire\ profit}{P/V\ Ratio}$$

$$40{,}000 = \frac{8000 + D.P}{40\%.}$$

$$40{,}000 \times 40\% = 8000 + D.P$$

$$16000 - 8000 = DP$$

Desire profit = 8000

(ii) Sale price = 100/unit

less:- Reduce by 10% = (10)

Selling price 90/unit

Sale / unit = 90

V.C / unit = (60)

Cont / unit 30

New P/V Ratio = $\frac{30}{90} \times 100$

= 33.33 %

New B.E.P = $\frac{FC}{P/V\ Ratio}$

= $\frac{8000}{33.33\%}$

= 24000

(11)

MOS (₹) = $\frac{Profit}{P/V\ Ratio}$

= $\frac{50k}{50\%}$ = ₹ 100,000

WN

Sale	=	3L
(-) V C	=	(1.5L)
Contribution	=	1.5L
(-) F C	=	(1L)
Profit		50k

(P/V Ratio = 50%)

Q12

Cont/unit = 60 - 40

= 20/unit

Fixed cost (cash) = 21 - 5lk

= 150,000

BEP (unit) = $\frac{150,000}{20}$ = 7500 unit

BEP (₹) = $\frac{150,000}{33.\overline{33}\%}$ = 450,000

Q13

① BEP (₹) = $\frac{FC}{P/V\ Ratio}$ = $\frac{585000}{45\%}$ = 1300,000

② MOS = $\frac{Profit}{P/V\ Ratio}$

$33.\overline{33}\% = \frac{Profit}{45\%}$

Profit = 33.33% × 45%

= 15% on Sale

let the sale be x

Profit = $\left(\frac{15}{100} \times x\right)$ = 0.15x

$$\text{Sale (Volume)} = \frac{FC + D \cdot P}{P/V \text{ Ratio}}$$

$$x = \frac{585000 + 0.15x}{45\%}$$

$$45\% \text{ of } x = 585000 + 0.15x$$

$$0.45x - 0.15x = 585000$$

$$0.30x = 585000$$

$$x = \frac{585000}{0.30}$$

Sale(x) = ₹19,50,000

Profit = 1950000 × 15% = 292500

Q14

Sale	900,000	700,000
Profit	50,000	(50,000)

$$P/V \text{ Ratio} = \frac{\text{Change in profit}}{\text{Change in Sale}} \times 100$$

$$= \frac{-50,000 - 50,000}{700,000 - 900000} = \frac{-100,000}{+200,000} \times 100$$

$$= \frac{1}{2} \times 100 = 50\%$$

Q15

30,000 unit

		₹
Sale @ 40/unit	=	1200,000
(-) V.C @ 30/unit	=	(900,000)
Cont @ 10/unit	=	300,000
less :- Fixed Cost		(200,000) → B/F
Profit		100,000

Total Fixed Cost = 200,000 + 300,000

= 500,000

New variable Cost per unit = 30 - 5

= 25/unit

Sale = FC + Desire profit / P/V Ratio

1200,000 = 500,000 + 100,000 / P/V Ratio

P/V Ratio = 6L / 12L × 100

= 50%

V.C Ratio = 100% - P/V Ratio

= 100% - 50%

= 50%

VC Ratio = VC / Sale × 100

50% = 25 / Sale × 100

Sale = 25 / 50 × 100

= 50

Sale = 50/unit → (B/F)		
(-) V.C	25	50%
Cont.	25	50%

Q16 XYZ V.C Ratio = 80%.

P/V Ratio = 100% - 80%.

= 20%.

BE Sale = FC / P/V Ratio

= 10,000 / 20%.

= 50,000

MN Ltd Comment

lower BEP of MN Ltd is because of lower Variable cost / Variable Cost Ratio it may increase the selling price Higher & Higher Contribution

Explaination

V.C = 70%. (Assumption)

PV = 30%.

BEP = FC / P/V Ratio = 10k / 30%.

= ₹33,333.33

Comprehensive Numerical Question

(1)

$$\text{B. E. Sale (₹)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

$$= \frac{\text{Int} + \text{Dep}}{0.40}$$

$$= \frac{60L + 100L}{0.40}$$

$$= \frac{160L}{0.40}$$

$$= \boxed{400 \text{ lakh}}$$

$$= \boxed{4 \text{ Cr}}$$

Q2

Statement of profit

	Competition (10k)	monopoly (2k)
Sale (BIF)	12,37,000	437,000
(–) Variable Cost @ 100	(10,00,000)	(200,000)
Contribution	2,37,000	2,37,000
(–) Fixed Cost	37000	37000
Profit	200,000	200,000
Selling price per unit $\left[\frac{\text{Total sale}}{\text{Total unit}}\right]$	123.7/unit	218.5/unit

(3) $$BEP(unit) = \frac{\text{Fixed Cost}}{\text{Cont/unit}}$$

A

$$BEP = \frac{20{,}000}{1}$$

$$= \boxed{20{,}000 \text{ unit}}$$

B

$$BEP = \frac{20{,}000}{2}$$

$$= \boxed{10{,}000 \text{ unit}}$$

(4) Calculating Break Even point

	A	B	C
Sale /unit	100	80	50
(-) V.C /unit	(50)	(40)	(20)
Contribution/unit	50	40	30

Contribution/unit at Break even	10x	12x	15x
	(0.20x × 50)	(40 × 0.30x)	(30 × 0.50x)

At Break Even

Contribution = Fixed Cost

$10x + 12x + 15x = 1480{,}000$

$37x = 1480{,}000$

$\boxed{x = 40{,}000}$

Let x be overall Break even quantity
all 3 product

Product wise Break event point

A — 20% = $x \times 20\% = \boxed{0.20x}$

B — 30% = $x \times 30\% = \boxed{0.30x}$

C — 50% = $x \times 50\% = \boxed{0.50x}$

If $x = 40{,}000$ → overall BEP

A — 8000 unit
B — 12000 unit
C — 20,000 unit
→ Product wise BEP

(5)

	old Situation	New Situation
Pre tax profit =	100,000	120,000
(-) Tax @ 40% / 50%	(40000)	(60,000)
Post tax profit	60,000	60,000

Extra 20k

Cont / unit = 50 − 30
= 20 / unit

More purse to be sold = $\frac{20{,}000}{20}$ = 1000 unit

(6)

Fixed Cost = 100,000 + 20,000

= 120,000

Cont/unit = SP/unit − Vc/unit

= 600 − 0

= 600 | passenger

BEP = $\frac{120,000}{600}$

= 200 Ticket Sold

Wrong Answer

(Correct Ans will be discuss in scanner duration)

(7)

	Current year		Next year
Let S.P/unit	100.	5L 10% ↓	90. 6L
(−) V.C/unit 60%	(60)		(60)
P/V Ratio (40%)	40/unit		30/unit

Let 5000 unit sold in previous year

	C.Y
Sale (5000 × 100)	500,000 ✓
V.C (5000 × 60)	300,000
Contibution	200,000

1667

5000 | 6667

Increase % in Sale quantity = $\frac{1667}{5000} \times 100$

= 33.33%

Unit × Cont/unit = Total Contribution

Total unit × 30/unit = 200,000

Total unit = $\frac{2L}{30}$ = 66667 unit

Let unit sold in C.Y = 8000 unit

	C.Y
Sale (8000 × 100)	8L
V.C (8000 × 60)	(4.80L)
Cont.	320,000

$33.\overline{33}\%$

Sale qty = $33.\overline{33}\%\uparrow$

New sale qty = $8000 + 33.\overline{33}\%$

= 10,666.66 unit

Sale (10,666.66 × 90)	960,000
V.C (10,666.66 × 60)	(640,000)
Contribution	320,000

% increase in qty = $\frac{2666.\overline{66}}{8000} \times 100$

= 33.33%

Extra sale in value = 160,000

% Increase in sale value = $\frac{160,000}{800,000} \times 100$

= 20%

Q8

MOS = 20% of Sale

BEP = 80% of Sale

P/V Ratio = 40%, VC/ Ratio = 60%

Fixed Cost = 24 L

① Break Even Sale = $\frac{FC}{P/V\ Ratio}$

= $\frac{24\ lakh}{40\%}$

= **60 lakh**

② Total Sale X BEP Ratio = BES

Total Sale = $\frac{60\ L}{80\%}$ = **75 lakh**

③ MOS = Total Sale − BES

= 75 lakh − 60 lakh

= **15 lakh**

④ Total Variable Cost = 75 lakh X 60%

= **45 lakh**

⑤

Sale	75 L
(−) V.C	(45 L)
Contribution	30 L
(−) Fixed cost	(24 L)
PROFIT	6 L

Q9

	8000 unit	20,000 unit
Sale @ 15/unit	120,000	300,000
Loss / profit	(40,000)	80,000

Step1

$$P/V\ Ratio = \frac{80{,}000 - (-40{,}000)}{3L - 1.2L} \times 100$$

$$= \frac{80k + 40k}{3L - 1.2L} \times 100$$

$$= \frac{120{,}000}{180{,}000} \times 100$$

$$= \boxed{66.\overline{66}\%}$$

Step2

	₹
Total Contribution @ 66.66% of 3L	= 200,000
(–) Fixed Cost	= (120,000) B/F
Profit	80,000

Step3

$$BEP = \frac{FC}{P/V\ Ratio}$$

$$= \frac{120{,}000}{66.\overline{66}\%}$$

$$= \boxed{180{,}000}$$

Q10 Let the present Cost be x

" " " Profit be y

D. Material = $0.30x$

D. Wage = $0.40x$

Overhead = $0.30x$

Total Cost = x

Cost + profit = Sale

$$x + y = 1600 \quad \text{— eq ①}$$

Proposed Situation

D. Material = $0.30x + 30\% = 0.39x$

D. wages = $0.40x + 10\% = 0.44x$

Overhead = $0.30x$

$1.13x$

profit = $1y - 40\%$

$= 0.60y$

Cost + profit = sale

$$1.13x + 0.60y = 1600 \quad \text{— eq ⑪}$$

Solving eq ① & ⑪

$x + y = 1600$ — × 1.13

$1.13x + 0.60y = 1600$ — × 1

Now,

$1.13x + 1.13y = 1808$

$+ 1.13x + 0.60y = 1600$

$- \quad - \quad -$

$1.13y - 0.60y = 1808 - 1600$

$0.53y = 208$

$y = 392.45$

Put the value of y in eq ①

$$x + y = 1600$$

$$x + 392.45 = 1600$$

$$x = 1600 - 392.45$$

$$\boxed{x = 1207.55}$$

Now, As per present situation

Cost (x) = 1207.55 /unit

Profit (y) = 392.45 /unit

Statement of profit

	Present	Future / proposed
Sale (A)	1600	1600
(–) Cost		
D. Mat. 30%	362.265	470.9445 (30%)
D. labour 40%	483.02	531.322 (10%)
Overhead 30%	362.265	362.265
Total Cost (B)	1207.55	1364.5315
PROFIT (A – B)	392.45	235.47

Present Rate of Profit on Sale $= \frac{392.45}{1600} \times 100$

$= \boxed{24.528125\%}$

Profit on Cost $= \frac{392.45}{1207.55} \times 100$

$= \boxed{32.50\%}$

2nd part

Total Cost in Future	=	1364.53
(+) Profit @ 32.50%	=	443.4725
New selling price		1808

Selling price should be increas by 208 /unit

(1808 − 1600)

Scanner Question

~~1~~, ~~2~~, ~~3~~, ~~4~~, ~~5~~, ~~17~~, ~~18~~, 22

Q1

BEP = 65% of Sale

39 lakh = 65% × Sale

$$\text{Sale} = \frac{39\text{L}}{65\%}$$

Total Sale = 60,00,000

(−) BEP = (39,00,000)

MOS 2100,000

$$\text{MOS} = \frac{\text{Profit}}{\text{P/v Ratio}}$$

$$21\text{ lakh} = \frac{840{,}000}{\text{P/v Ratio}}$$

$$\text{P/v Ratio} = \frac{840{,}000}{2100{,}000} \times 100$$

P/v Ratio = 40%

Q2

let 40% Capacity = 4000 unit

80% Capacity = 8000 unit

Fixed Cost (At 40%) = 4000 × 40 = **160,000**

$$\text{FC/unit (At 80\%)} = \frac{160{,}000}{8000} = \text{20/unit}$$

Q3 P/V Ratio = $\frac{\text{change in profit}}{\text{change in sale}} \times 100$

$= \frac{800{,}000 - 280{,}000}{40L - 27L} \times 100$

$= \frac{520{,}000}{1300{,}000} \times 100$

$= \boxed{40\%}$

WN

$\frac{\text{2014-15 profit}}{35\%} = \text{2015-16 profit}$

$\frac{280{,}000}{35\%} = \text{Profit}_{2015-16}$

Profit (2015-16) = 800,000

Q4

	1000 unit	1500 unit
Sale (39/unit)	39000	58500
Profit / loss	(4550)	1950

① P/V Ratio = $\frac{1950 - (-4550)}{58500 - 39000} \times 100$

$= \frac{6500}{19500} \times 100 = \boxed{33.\overline{33}\%}$

	₹
Total Contribution (58500 × 33.$\overline{33}$%)	19500
(-) Fixed Cost B/F ←	(17550)
Profit	1950

Cont/unit = $\frac{19500}{1500}$ = 13/unit

(II) BEP(unit) = $\frac{\text{F Cost}}{\text{Cont/unit}}$

$= \frac{17550}{13}$

$= \boxed{1350 \text{ unit}}$

(III) Desire sale = $\frac{\text{FC + Desire profit}}{\text{P/V Ratio}}$

$= \frac{17550 + 5850}{33.\overline{33}\%}$

$= \frac{23400}{33.\overline{33}\%}$

$= \boxed{70,200}$

(IV) MOS = $\frac{\text{Profit}}{\text{P/V Ratio}}$

$= \frac{5850}{33.\overline{33}\%} = \boxed{17550}$

Q6

Total Cont. = FC + Profit

$= 9L + 6L$

$= \boxed{15L}$

P/V Ratio = $\frac{\text{Cont}}{\text{Sale}} \times 100 \Rightarrow \frac{15L}{30L} \times 100$

$= \boxed{50\%}$

MOS = $\frac{\text{Profit}}{\text{P/V Ratio}} = \frac{6 \text{ Lakh}}{50\%} = \boxed{12 \text{ Lakh}}$

(17)

$$P/V\ Ratio = \frac{\text{Change in profit}}{\text{Change in sale}} \times 100$$

$$= \frac{10\,800}{30,000} \times 100$$

$$= \boxed{36\%}$$

(18)

25% ↑

	10000 unit	12500 unit
V. Cost @ 120	12,00,000	15,00,000
F. Cost @ 30	3,00,000	3,00,000
T. Cost	15,00,000	18,00,000
Cost/unit	150/unit	144/unit

Q22

Cont/ticket = 600 − 100

= 500/ticket

Passagers = 320

Bogie = 5

Engine Cost = 80,000

1 Bogie Cost = 16000

	Case 1	Case 2	Case 3	Case 4
	1 Bogiee [70 P]	3 Bogiee [210 P]	4 Bogie [280 P]	5 Bogie [350 P]
EC	80,000	80,000	80,000	80,000
BC	16000	48000 (16k x 3)	64000	(16k x 5) 80,000
Fixed Cost	96000	128,000	144000	160,000
Cont/ticket	÷ 500	500	500	500
BEP	192 passanger	256 Pass.	288 Pass	320 Passanger

06

Cont/Ticket = 600 − 0

= 600/ticket

	1 Bogie [80 P]	4 Bogie [320]
Engine Cost	100,000	100,000
Bogie	20,000	80,000
F. Cost	120,000	80,000
Cont/ticket	600	600
BEP	200 Passange	300 pass

Remaing Topic to be Cover

1. Multiple product Break even Analysis (Done)
2. Differential Cost Analysis (Done)
3. Marginal Costing Vs Absorption Costing
   (Advance Application)

Multiple product Break even Analysis

Break even point

Contribution = Fixed Cost

No profit No loss

Ex ABC Ltd ⇒ (Pen - Product)

20,000 unit sold

SP = 20/unit
VC = 15/unit
] Cont/unit = 5

Fixed Cost = 50,000

BEP (unit) = $\frac{50,000}{5}$

= 10,000 unit

Ex XYZ Ltd

(Headphone, earphone, Speaker)

[Multiple product]

Total Cost = 100,000

Fixed Cost
40,000
(Overall Fixed Cost All 3 product)

Variable Cost
60,000

$$BEP\ (₹) = \frac{\text{Total Fixed Cost}}{\text{Weighted Avg P/V Ratio}}$$

$$\text{BEP (unit)} = \frac{\text{Total Fixed Cost}}{\text{Weighted Avg Cont/unit}}$$

EX

	Head phone	car phone	Speaker
Sale	1000	500	1500
less: V.C	(600)	(200)	(800)
Cont/unit	400	300	700

Fixed Cost (Total) = 40,000

Sale Mix (Ratio) = 5 : 3 : 2

(or)

(Percentage) = 50% : 30% : 20%

Sale mix Company yhe Batata hai jab koi Combo product sell kuta hai usme 5-HP, 3-EP, 2-S

$$\text{Weighted Avg Cont/unit (Ratio)} = \frac{\text{Contribution per sale mix}}{\text{Total Mix}}$$

$$= \frac{(400\times5) + (300\times3) + (700\times2)}{10}$$

$$= \frac{2000 + 900 + 1400}{10} = 430/\text{unit}$$

(or)

$$\text{Weight Avg Cont/unit (percentage)} = (400\times 50\%) + (300\times 30\%) + (700\times 20\%)$$

$$= 200 + 90 + 140$$

$$= 430/\text{unit}$$

$$\text{BEP (unit)} = \frac{\text{Total F.C}}{\text{Weight Avg Cont/unit}} = \frac{40,000}{430} = 93 \text{ unit}$$

Product wise Break even

Ratio

Headphone = 93 unit × $\frac{5}{10}$ = 46.5 unit

earphone = 93 × $\frac{3}{10}$ = 27.9 unit

Speaker = 93 × $\frac{2}{10}$ = 18.6 unit

Percentage

Headphone = 93 × 50% = 46.5 unit

earphone = 93 × 30% = 27.9 unit

Speaker = 93 × 20% = 18.6 unit

If BEP in Rupees

Ratio

Weighted Avg p/v Ratio = $\frac{\text{Cont. per sale mix}}{\text{Sale mix}} \times 100$

(Cont/unit × Ratio) → Cont. per sale mix

(Sale/unit × Ratio) → Sale mix

$= \frac{2000 + 900 + 1400}{5000 + 1500 + 3000} \times 100$

$= \frac{4300}{9500} \times 100 = \boxed{45.263\%}$

Percentge

Weighted Avg p/v Ratio = $\frac{(200 + 90 + 140)}{(500 + 150 + 300)} \times 100$

(Cont/unit × %) → (200 + 90 + 140)

(Sale/unit × %) → (500 + 150 + 300)

$= \frac{430}{950} \times 100$

$= \boxed{45.263\%}$

$$BEP\ (₹) = \frac{\text{Total Fixed Cost}}{\text{Weighted Avg P/V Ratio}}$$

$$= \frac{40,000}{45.263\%}$$

$$= \boxed{88,372}$$

Product wise B.E.P (₹)

Headphone – 50% = 44,186

earphone – 30% = 26,512

Speaker – 20% = 17,674

Q4

	A	B	C
Sale	100	80	50
(–) V.C	(50)	(40)	(20)
Cont/unit	50	40	30

Weighted Avg Cont/unit = Cont. per sale mix

$= (50 \times 20\%) + (40 \times 30\%) + (30 \times 50\%)$

$= 10 + 12 + 15$

$= \boxed{37/\text{unit}}$

$$BEP = \frac{\text{Total Fixed Cost}}{\text{Weight Avg Cont/unit}} = \frac{14,80,000}{37} = 40,000$$

- A = 8000
- B = 12000
- C = 20,000

Q2

	A	B
Cont/unit	150	90
unit/Volume	1200	600

Fixed Cost = 1,17,000 + 39000

= 156,000

Sale Mix = ~~1200~~ 2 : ~~600~~ 1

= 2 : 1

Weighted Avg Cont/unit = $\frac{(150 \times 2) + (90 \times 1)}{2+1}$

= $\frac{300 + 90}{3} = \frac{390}{3}$

= 130/unit

BEP (unit) = $\frac{156000}{130/unit}$ = 1200 unit

Product wise B.E.P

A = $1200 \times \frac{2}{3}$ = 800 unit

B = $1200 \times \frac{1}{3}$ = 400 unit

Statement of profit

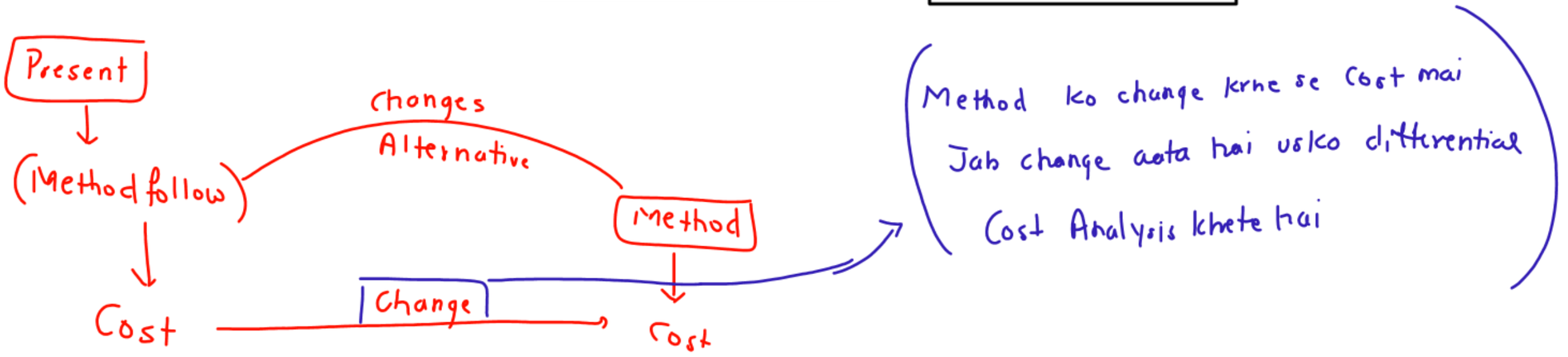
	A (800)	B (400)	Total (1200)
Cont/unit	150	90	
Total Contribution	120,000	36000	156000
Less:- Direct Avoid. F C	(90,000)	(27000)	(1,17,000)
	30,000	9000	39000
less:- Common Fixed cost	–	–	(39000)
			Nil

Differential Cost Analysis

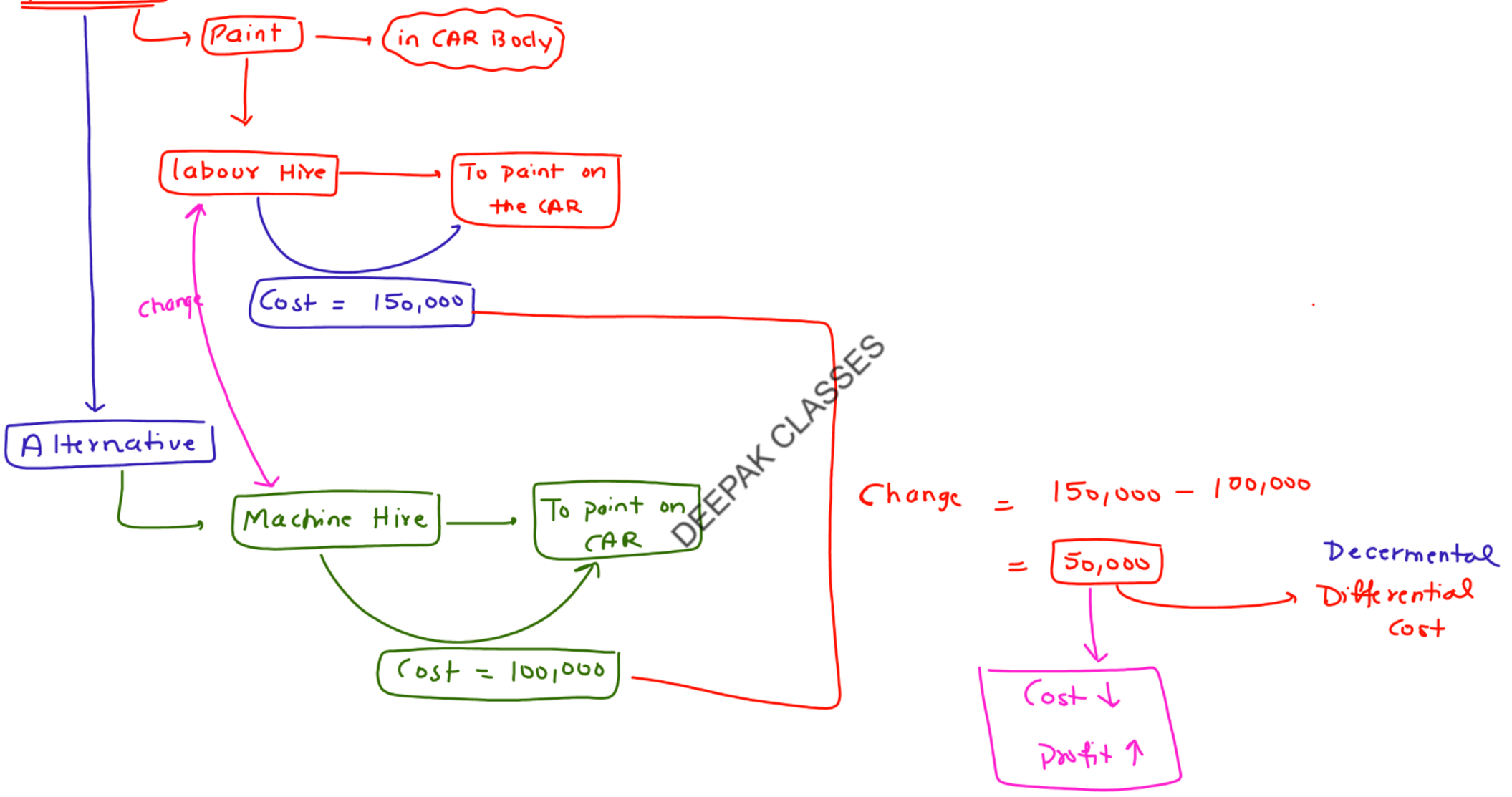
① Differential Cost is the **change in the cost** which result from the Adoption of an **alternative Course** of action.

② The alternative action may be arise due to change in **Sale Volume, Price and product Mix** (by increasing, reducing or stopping the production of certain items) or **Method** of production, **Sale or Sale promotion**, or they may be due to **make or Buy**, **take or refuse** decision

③ When change in cost occur due to change in the Activity from one level to another, differential Cost referred to as **incremental cost** or **decremental cost**.



Ex ABC Ltd



Change = 150,000 − 100,000

= 50,000 → Decermental Differential Cost

Cost ↓

Profit ↑

Q3 Calculating labour & Material Cost per unit

	90% (13500)
Sale	1500,000
less:- Profit @ 10%	(50,000)
Total Cost	13 50,000
(-) Fixed Exp	(30 0500)
(-) Semi Fixed Exp	(97 500)
(-) Variable Exp	(145 000)
Labour & Mat. Cost	807,000
÷ Total unit	÷ 13 500
Labour & Mat Cost / unit	59.77

Statement showing differential Cost

Particulor	₹ (1500 unit)
Mat & labour Cost [1500 x 59.77)	89,667
Fixed Exp	100
Semi fixed Exp	3000
Variable Exp	4500
Total Differential Cost	97,267

(11) Export price = $\frac{97,267}{1500}$ = 64.84 / unit

Scanner Question

Q7

(I) BEP (unit) = Fixed Cost / Cont/unit

= 2,40,000 / 40

= 6000 unit

Cont/unit = Sale/unit − V.C/unit

= 230 − (50+80+60)

= 230 − 190

= 40/unit

(II) Desire Sale (unit) = FC + D.P / Cont/unit

= 2,40,000 + 100,000 / 40

= 340000 / 40 = 8500 unit

(III) Cont/unit = New Sale price − V.C/unit

= (230 − 15) − 190

= 215 − 190 = 25/unit

BEP (unit) = 240,000 / 25 = 9600 unit

Q8

	X	Y	Z
Sale	3L	1.80L	1.20L
(-) V.C	(2.40L)	(1.26L)	(72K)
Cont.	60K	54K	48K
P/V Ratio	20%	30%	40%
V/C Ratio	80%	70%	60%

It is observed that Product X has least P/V Ratio as Compare to Product Y & Z So it advice to the company to sale more product for Y & Z as Compare to X to give effect on profit

Increase the sale of Y & Z by 60000 each

decrease the sale of X by 120,000

	X	Y	Z	Total
Sale	180,000	240000	180000	600,000
(-) V C	(144000)	(168000)	(108000)	(420,000)
Contribution	36000	72000	72000	180,000
(-) Fixed Cost				(81000)
Profit				99000

Q13

	16000 unit	40,000 unit
Sale @ 30/unit	480,000	1200,000
Loss / Profit	(160000)	320,000

$$P/V\ Ratio = \frac{320,000 - (-160,000)}{12L - 4.80L} \times 100$$

$$= \frac{480,000}{720,000} \times 100$$

$$= 66.67\%$$

Now,

Contribution − FC = Profit

800,000 − FC = 320,000

8L − 3.20L = FC

Fixed Cost = 480,000

① $BEP\ (₹) = \frac{480,000}{66.66\%} = 720,000$

② Statement of profit (unit = 50k)

	₹
Sale (50k × 30)	1500,000
Contribution (66.66%)	1000,000
(−) Fixed Cost	(480,000)
Profit	520,000

Pending Question in Scanner

05, 09, 010, ~~011~~, 012, 014, ~~015~~, ~~016~~, ~~019~~, ~~020~~, 021

HW :- ~~11, 15, 16~~ *

Q11 Statement of profit

	40% (10,000)	50% (12500)
Sale	200,000	242,500
(-) Variable Cost (Mat + lab + olH) @ 15/unit	(150,000)	(187,500)
Contribution	50,000	55000
(-) Fixed cost @ 3/unit	(30,000)	(30,000)
Profit	20,000	25000

Cont/unit = $\frac{55000}{12500}$ = 4.4/unit at 50%

= $\frac{50,000}{10,000}$ = 5/unit at 40%

(11) BEP = $\frac{\text{Fixed}}{\text{Cont/unit}}$

At 40%

BEP = $\frac{30,000}{5}$ = 6000 unit

At 50%

BEP = $\frac{30,000}{4.4}$ = 6818 unit

Q15

Variable Cost = 1760,000 − 800,000

= 960,000

Contribution = 1600,000 − 960,000

= 640,000

① (i) P/V Ratio = $\frac{640,000}{1600,000} \times 100$

= 40%

(ii) Break even Sale = $\frac{800,000}{40\%}$

= 20 Lakh

BEP (unit) = $\frac{20 \text{ Lakh}}{₹100 \text{ (SP)}}$ = 20,000 unit

② Additional Sale to Cover Adv. Cost = $\frac{\text{Adv. Cost}}{\text{P/V Ratio}}$

= $\frac{400,000}{40\%}$ = 10,00,000

③ Fixed Cost = 8L + 4L

= 1200,000

BEP (unit) = $\frac{\text{Fixed Cost}}{\text{Cont/unit}}$

20,000 = $\frac{1200,000}{\text{Cont/unit}}$

Cont/unit = $\frac{12L}{20k}$

= 60/unit

SP/unit = V.C/unit + Cont/unit

SP/unit = 60 + 60

= 120/unit

Q16 In 2018

P/V Ratio = 50%.

V/C Ratio = 50%.

Variable Cost = 930,000 x 50%

= 465000

Sale quantity level in 2018	=	Sale quantity level in 2019

Variable Cost in 2019 = 465000

In 2019

P/V Ratio = 38%

V/C Ratio = 62%.

① Total Sale x V/C Ratio = Variable Cost

Total Sale x 62% = 465000

Total Sale = $\frac{465000}{62\%}$ = 750,000

BEP Ratio = 100% − MOS (Ratio)

= 100% − 22%

= 78%

③ Break even sale = 750,000 x 78% = 585000

② BES = $\frac{FC}{P/V\ Ratio}$

585000 = $\frac{FC}{38\%}$

Fixed Cost = 585000 x 38%

= 2,22,300

Q19

Statement of profit

(50,000 unit)

Particular	2020	2021
Sale	50 lakh	50 lakh
less:- Variable Cost		
D. Mat. @ 36	18 L (5% ↑)	18.90 L — 37.8
D. labour @ 30	15 L (10% ↑)	16.50 L — 33
Work o/H @ 5	2.5 L	2.5 L — 5
Sale o/H @ 1	50k	50k — 1
Contribution	1400,000	11,60,000
less:- Fixed Cost		
Work o/H @ 5	2.5 L (6% ↑)	2.65 L
Sale o/H @ 3	1.5 L	1.59 L
Profit	10,00,000	7,36,000

(i) BEP(unit) in 2021 = Fixed Cost / Cont/unit

= 424000 / 23.2

= 18,276 dozen

(ii) Profit in 2021 = 736,000

(iii)

	60,000 (unit)
Sale	59,32,000
(-) V.C 76.8/unit	46,08,000
Contribution	13,24,000
(-) Fixed Cost	424000
Profit	900,000

In 2021

		₹
60,000 unit	=	59,32,000
50,000 unit	=	50,00,000
10,000 unit		9,32,000

Per unit selling price = $\frac{9\,32\,000}{10,000}$

= 93.2/unit

(minimum S.P)

Q20

① Statement of profit — 15000 unit

Particular	Current year (₹)
Sale @ 378/unit	56,70,000
less:- Variable cost	
D. Mat. @ 168	(25,20,000)
D. labour @ 42	(6,30,000)
Variable o/H @ 16.80	(2,52,000)
Contribution	22,68,000
less:- Fixed Cost	(19,60,000)
Profit for C.Y	3,08,000

P/V Ratio = $\frac{22,68,000}{56,70,000} \times 100$ = 40%

(11) **Fourth Comming year**

New D. Mat = 168 + 7.5% = 180.6

New D. labour = 42 + 10% = 46.2

New Variable o/H = 16.80 + 5% = 17.64

New Fixed Cost = 19,60,000 + 3% = 20,18,800

P/V Ratio same As C.Y = 40%

First

$$P/V\ Ratio = \frac{Contribution}{Sale} \times 100$$

$$40\% = \frac{Sale - Variable\ Cost}{Sale}$$

$$40\% = \frac{Sale}{Sale} - \frac{V.C}{Sale}$$

$$0.40 = 1 - \frac{V.C}{Sale}$$

$$\frac{V.C}{Sale} = 1 - 0.40$$

$$\frac{V.C}{Sale} = 0.60$$

$$Sale = \frac{V.C}{0.60}$$

$$Sale = \frac{180.6 + 46.2 + 17.64}{0.60}$$

$$Sale = \frac{244.44}{0.60} = \boxed{407.4}$$

Alternative

P/V Ratio = 40%

V/C Ratio = 60%

Variable Cost / unit = Total sale × V.C Ratio

$244.44 = \text{Total sale} \times 60\%$

$$\frac{244.44}{0.60} = \text{Total sale}$$

Total Sale / unit = 407.7

(iii) C.Y Profit = 308,000

Fixed Cost = 20,18,800

Total Cont. = 23,26,800

Assuming

Selling Price not change

So, Now S.P = 378 / unit

Cont = 378 − 244.44

= 133.56 / unit

Unit to be Sold to earn Profit = $\frac{23,26,800}{133.56}$

= 17,422 unit

Pending Question

~~Q5~~, ~~Q9~~, Q10, ~~Q12~~, Q14, ~~Q21~~

Q5

NC

NC

Statement of profit

(20,000 unit)

Particulars	£
Sale @ 20/unit	400,000
less:- Variable Cost	
D. Material @ 9	(180,000)
D. Labour @ 3	(60,000)
V. OIH @ 3	(60,000)
Total Contribution	100,000
less:- Fixed Cost (B/F)	(80,000)
Profit (5% on sale)	20,000

Statement showing evaluating the purposal

	Proposal (i) (20k unit)	(ii) (20k unit)	(iii) (24000 unit, SP = 19)	(iv) (19000 unit, SP = 22)
Sale @ 20	400,000	400,000	456000	418,000
(-) Variable Cost				
D. Material @ 9 D. Labour @ 3 Variable O/H @ 3 → 15 - 1 = 14	(300,000)	(280,000)	(360,000)	(285,000)
Total Contribution	100,000	120,000	96000	133,000
less :- Fixed Cost (80k - 12k)	(68000)	(80,000)	(80,000)	(80,000)
Profit	32000	40,000	16000	53000

Comment → It is advice to the company to Accept the 4th proposal, So that you will get extra profit of 33000 [53000 - 20,000]

Q9 Present situation

		₹
Sale / unit	=	40
less :- Variable cost [16 + 12 + 4]		(32)
Cont / unit		8

Total Contribution [90,000 unit × 8] = 720,000

Profit (Present) = Contribution − Fixed Cost

= 720,000 − 500,000

= **220,000**

(a) Selling price reduce by 5%

		₹
New S.P [40 − 5%]	=	38
less :- Variable Cost		
Mat	16	
Conv.	12	
Dealer [38 × 10%]	3.8	(31.8)
Cont / unit		6.2 / unit

unit to be sold to maintain present profit

No. of unit = $\frac{720,000}{6.2}$

= **1,16,129 unit**

(b) Dealer margin increase by 25%.

Sale	= 40
less: Variable Cost	
D. Mat	16
Conversion	12
Dealer Margin [4 + 25%]	5
Cont/unit	7

unit to be sold to maintain present profit

$$\text{No. of unit} = \frac{720{,}000}{7}$$

$$= \boxed{102{,}857 \text{ unit}}$$

It is Recommeded to accept the 2nd proposal where increase in dealer margin by 25% over Existing Rate so that you will get Higher Contribution from lower sale unit to acheive targeted profit. lower sale unit help us to lower Financing Requirement

Q10 = Based on Make & Buy decision

Q14 = Based on limiting key Factor

Q12

Total Fixed Cost = 11,50,000

Total V.C/unit = 143/unit

S.P/unit = 190/unit

Cont/unit = 47/unit

(i) BEP (unit) = $\frac{11,50,000}{47}$

= 24,468 unit

(ii) If Company product = 1,00,000 unit

Minimum S.P = ?

Selling price = V.C/unit + FC/unit

= 143/unit + $\frac{11,50,000}{1,00,000}$

= 143 + 11.50

= 154.5/unit

unit to be produce = $\frac{FC + DP}{Cont/unit}$

= $\frac{11,50,000 + 30,00,000}{47}$

= 88,298 unit

Q21 [Dec 22 paper] - (2016)

↳ [Homework]

Marginal Costing Vs Absorption Costing

Ex

4 Friend → Trip

CAR	20,000
Food	10,000
Room	10,000
Total Cost	40,000
Per person Cost	10,000

One More Friend

CAR	20,000 — FC
Food	12000 — V.C
Room	13000 — V.C
Total Cost	45000

Per person Cost = $\frac{45000}{5}$ = 9000

⇓

Absorption Costing

(New Friend ke aane Ki vajah se jo: Cost Incurred hoti hai sirf utna hi charge karo)

Food	2000 — V.C
Room	3000 — V.C
	5000 (charge)

⇓

Marginal Costing

Cost sheet as per Absorption Costing

Particular	₹
Sale (A)	xxxx
Total Cost	
Direct Mat. Consumed	xxx
Direct Labour	xxx
Variable manff" o/H	xxx
Fixed manff" o/H	xxx
Cost of production	xxxx
Add:- o/s of Finished goods / WIP	xxx
less:- c/s of Finished goods / WIP	(xxx)
Cost of Good sold	xxxxx
Add:- under absorption of manff" o/H	xxx
less:- over absorption of manf" o/H	(xxx)
Add:- Administration o/H	xxx
Add:- S & D o/H	xxx
Total Cost (B)	xxxx
PROFIT (A - B)	xxxxx

Cost sheet as per marginal Costing

Particular	₹
Sale (A)	xxxx
Variable Cost	
Direct Mat. Consumed	xxx
Direct Labour	xxx
Variable manff" o/H	xxx
Cost of Good produce	xxxx
(+) o/s of Finished Good	xxx
(-) c/s of Finished good	(xxx)
Cost of Good Sold	xxxxx
(+) Variable o/H → Administration, S & D o/H	xxxx
Total Variable Cost (B)	xxxx
Contribution (A - B)	xxxx
(-) Fixed o/H → Production, Administration, S & D o/H	(xxx)
PROFIT	xxxxx

Q11 Cost sheet as per Absorption Costing

Particular	₹
Sale (4000 X 10) (A)	40,000
Total Cost	
Direct Mat. Consumed	10,000
Direct labour	10,000
Variable manff" o/H	10,000
Fixed manff" o/H	15000
Cost of production (5000 unit) ←	45000
Add:- o/s of Finished goods	—
less:- c/s of Finished goods (1000 X 9)	(9000)
Cost of Good sold	36000
Add:- under absorption of manff" o/H	—
less:- over absorption of manf" o/H	—
Add:- Administration o/H	—
Add:- S & D o/H	—
Total Cost (B)	36000
PROFIT (A-B)	4000

Cost sheet as per marginal Costing

Particular	₹
Sale (A)	40,000
Variable Cost	
Direct Mat. Consumed	10,000
Direct labour	10,000
Variable manff" o/H	10,000
Cost of Good produce (5000 unit) →	30,000
(+) o/s of Finished Good	—
(-) c/s of Finished good (1000 X 6)	(6000)
Cost of Good Sold	24000
(+) Variable o/H → Administration, S & D o/H	—
Total Variable Cost (B)	24000
Contribution (A - B)	16000
(-) Fixed o/H → Production, Administration, S & D o/H	(15000)
PROFIT	1000

Cost sheet as per Absorption Costing

Particular		₹
Sale	(A)	100,000
Total Cost		
Direct Mat. Consumed		60,000
Direct Labour		
Variable manff" o/H		20,000
Fixed manff" o/H		
Cost of production	20,000 →	80,000
Add:- o/s of Finished goods		—
less:- c/s of Finished goods		—
Cost of Good sold		80,000
Add:- under absorption of manff" o/H		—
less:- over absorption of manf" o/H		—
Add:- Administration o/H		—
Add:- S & D o/H		—
Total Cost	(B)	80,000
PROFIT (A-B)		20,000

Cost sheet as per marginal Costing

Particular		₹
Sale	(A)	100,000
Variable Cost		
Direct Mat. Consumed		60,000
Direct Labour		
Variable manff" o/H		
Cost of Good produce	20,000 unit →	60,000
(+) o/s of Finished Good		—
(-) c/s of Finished good		—
Cost of Good Sold		60,000
(+) Variable o/H → Administration, S & D o/H		—
Total Variable Cost	(B)	60,000
Contribution (A - B)		40,000
(-) Fixed o/H → Production, Administration, S & D o/H		(20,000)
PROFIT		20,000

Cost sheet as per Absorption Costing (4L unit)

Particular	₹
Sale [3 87 500 x 64] (A)	2.48 Cr
Total Cost	
Direct Mat. Consumed, Direct Labour, Variable manff" o/H [4L x 32] →	1.28 Cr
Fixed manff" o/H 4L unit →	24 L
Cost of production (400,000 unit) →	152,00,000
Add:- o/s of Finished goods (50K x 38)	19 L
less:- c/s of Finished goods (62500 x 38)	(23,75000)
Cost of Good sold	147,25000
Add:- under absorption of manff" o/H	600,000
less:- over absorption of manf" o/H	—
Add:- Administration o/H	—
Add:- S & D o/H (F + V)	57,20,000
Total Cost (B)	2,10,45000
PROFIT (A - B)	37,55000

Cost sheet as per marginal Costing (80%)

Particular	₹
Sale (3 87 500 x 64) (A)	2.48 Cr
Variable Cost	
Direct Mat. Consumed, Direct Labour, Variable manff" o/H (400,000 unit x 32)	1.28 Cr
Cost of Good produce 400,000 unit	1.28 Cr
(+) o/s of Finished Good [50,000 x 32]	16 L
(-) c/s of Finished good [62,500 x 32]	(20 L)
Cost of Good Sold	1.24 Cr
(+) Variable o/H → Administration, S & D o/H	37.20 L
Total Variable Cost (B)	1,61,20,000
Contribution (A - B)	86,80,000
(-) Fixed o/H → Production, Administration, S & D o/H	(50,00,000)
PROFIT	36,80,000

WN Calculating c/s of FG

Unit produce	= 400,000
(+) o/s FG	= 50,000
Total unit	450,000
(-) Sale	(387500)
c/s of FG	62500

absorption Rate of Fixed production o/H (at 80%) = 30,00,000 / 500,000

= 6/unit

Fixed Cost at 4L unit = 4L x 6

= 2400,000

Under absoption of Fixed production o/H = 30L − 24L

= 6L

Pending question

~~Q13~~, ~~Q14~~, ~~Q15~~, (Q21 – scanner)

(Maximum profit)

	60%	70%	80%	90%	100%
Unit	30,000	35000	40,000	45000	50,000 unit
Sale per unit	0.95	0.90	0.85	0.75	0.60
Total sale	28500	31500	34000	33750	30,000
Less :- Variable cost @ 0.20/unit	(6000)	(7000)	(8000)	(9000)	(10,000)
Contribution	22500	24500	26000	24750	20,000
Less :- Fixed cost	(15000)	(15000)	(15000)	(15000)	15000
Profit	7500	9500	11000	9750	5000
			↓ Highest profit		

Q15 Current data

SP/unit = 40

Mat/unit = 15

V.C/unit = 9

] ⇒ 24/unit

FC = 18L

First proposal :- S.P Reduce by 15%

New S.P = 34/unit

(-) V.C/unit = 24/unit

[15 + 9]

Cont/unit 10/unit

Desire sale (unit) = $\frac{FC + \text{Desire profit}}{\text{Cont/unit}}$

$= \frac{18L + 5L}{10} = \boxed{230{,}000 \text{ unit}}$

Maximum Capacity of plant = 200,000 unit

So, It is clear that First proposal is Not sutiable for us. because it Exceed the plant Capacity

Second proposal :- Sale promotion = 2L

SP = 40

VC = 24

Cont. 16/unit

New FC = 18L + 2L

= 20L

D.S (unit) = $\frac{FC + D.P}{\text{Cont/unit}}$

$= \frac{20L + 5L}{16}$

$= \boxed{156{,}250 \text{ unit}}$

Its advice to the Company to the Accept the second proposal because it give improment in plant Capacity & also give a profit of 500,000.

Q21 (scanner)

At 50% unit produce : 18000 unit

At 100% unit Capacity = 36000 unit

SP = 100

P/V Ratio = 40%

Contribution = 40

Variable Cost = 60

Variable Cost = D.M + D.W + V.O/H + Variable part of semi Variable O/H

60 = 30 + 20 + 8 + Variable part of S.M O/H

Variable part of S.V.O/H = 2/unit

Variable Cost under S.V.O/H = 18000 x 2

= 36000

Total semi-Variable O/H = V.O/H + F O/H

96000 = 36000 + F O/H

Fixed O/H portion in semi-Variable O/H = 60,000

Total Fixed Cost = Fixed O/H + Fixed part in semi-Variable overhead

= 240,000 + 60,000

= 300,000

(11) Let the sale unit be x

$$\text{Desire sale (unit)} = \frac{FC + D.P}{\text{Cont/unit}}$$

$$x = \frac{300{,}000 + (28 \times x)}{40}$$

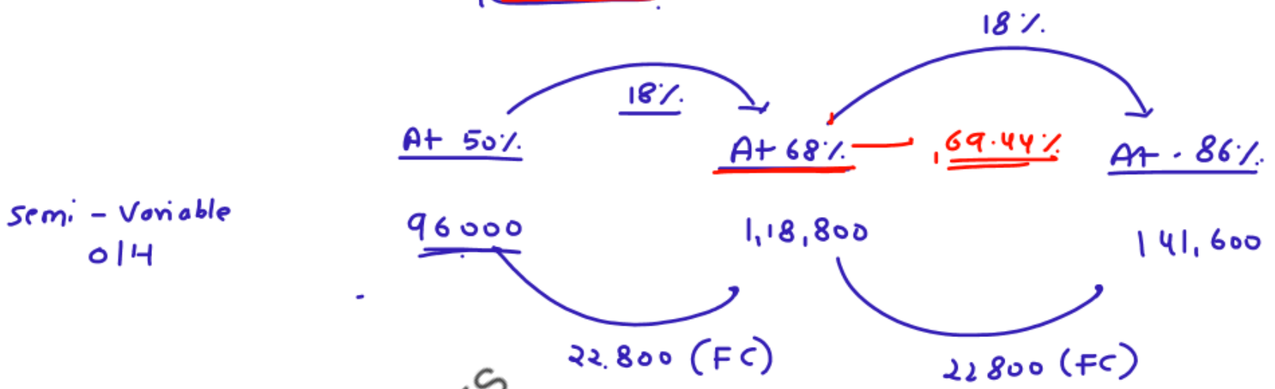
$$40x - 28x = 300{,}000$$

$$12x = 300{,}000$$

$$x = 25000 \text{ unit}$$

Capacity utilization $= \frac{25000 \text{ unit}}{36000 \text{ unit}} \times 100$

$= 69.44\%$



Total semi variable OIH = 96000 + 22800 + 22800

$= 141{,}600$ (22800 + 22800 = FC)

Assumption as per suggest Answer

every 18% increase in capacity or any part thereof the cost will 22,800 so that cost is only Fixed Cost there is No variable cost in Increment part

Fixed part in semi variable OIH = 60,000 + 22800 + 22800

$= 105600$

Total Fixed Cost = 240,000 + 105,600 = 345,600

Desire Sale = $\frac{\text{FC} + \text{Desire profit}}{\text{Cont/unit}}$

$x = \frac{345600 + 28x}{40}$

$40x - 28x = 345600$

$12x = 345600$

$x = 28800$ unit

(iii) Total Capacity = 36000 unit

At 80% level = 28800 unit (80%)

Capital employed = Fixed + working

= 53,85,600 + 20% of Sale

let the SP per unit x

Sale = Variable cost + Fixed Cost + Profit

$(28800 \times x) = (28800 \times 60) + 345,600 + 25\% \left[\underbrace{53,85600 + \overbrace{20\%\ 28800x}^{\text{WC}}}_{\text{CP}}\right]$

$28800x = 17,28000 + 345600 + 0.25\,[53,85600 + 5760x]$

$28800x = 20,73,600 + 1346,400 + 1440x$

$28800x - 1440x = 34,20,000$

$27360x = 34,20,000$

$x = \frac{34,20,000}{27,360} = 125$ per unit