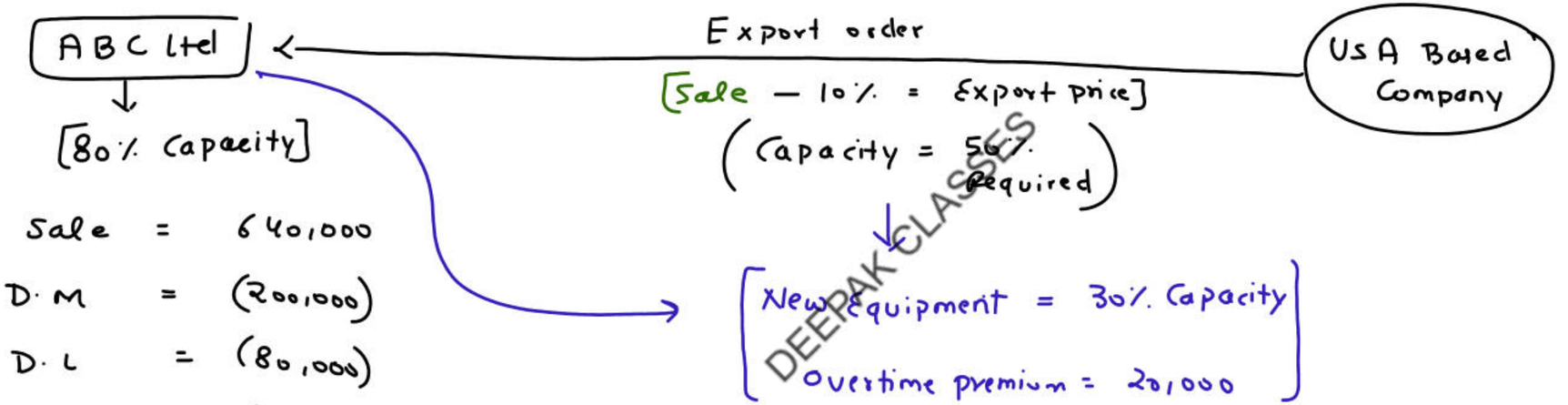
Accept an order or Reject

The management of a Company is offered a special order for one of its product at price lower than its Customary selling price.



① Reject the offer → Domestic sale Continue

② Accept the offer → Capacity split Equally

③ Accept the offer → Increase the Capacity then also increase the Fixed Cost 20,000

Comparative Statement of profitability

	Reject the offer 80%	Capacity = 50 - 50%	Capacity = 130%
Sale	640,000	760,000	10,00,000
(-) Direct Material	(200,000)	(250,000)	(325,000)
Direct labour	(80,000)	(100,000)	(130,000)
Variable o/H	(40,000)	(50,000)	(65000)
overtime premium	—	—	(20,000)
Contribution	3,20,000	360,000	4,60,000
(-) Fixed o/H	(260,000)	(260,000)	(2,80,000)
Profit	60,000	100,000	180,000

Option 3 will be Best → So Accept the order an increase the capacity.

WN

If 80% Capacity

Sale = 6,40,000

At 100% Capacity

$$\text{Sale} = \frac{6,40,000}{80} \times 100$$

$$= \boxed{800,000}$$

Option 2 [Capacity split at 50-50]

Sale = 800,000

(50%) → [Domestic Sale = 400,000]

(50%) → Export Sale = (400,000 − 10%) = 360,000

Option 3

Sale = 130%

Domestic - 80%

Sale = 640,000

Export Sale - 50%

Sale = 360,000

Q3 Comparative Statement of profitability

	Reject the offer 80%	Capacity = 50 - 50% 100%	Capacity = 130%
Sale	12,80,000	15,20,000	20,00,000
(-) Direct Material	(400,000)	(500,000)	(6,50,000)
Direct labour	(160,000)	(200,000)	(260,000)
Variable o/H	(80,000)	(100,000)	(130,000)
Overtime Premium	-	—	(20,000)
Contribution	6,40,000	7,20,000	9,40,000
(-) Fixed o/H	(520,000)	(5,20,000)	(560,000)
Profit	120,000	200,000	3,80,000

Comment :-

Accept the Export order and maintain the domestic Sale also it give more profit

If Capacity = 80%.

Sale = 12,80,000

At 100% Capacity

$$\text{Sale} = \frac{1280,000}{80} \times 100$$

$$= 16,00,000$$

[Domestic - 50%]

Sal = 800,000

[Export - 50%]

Sale = 800,000 - 10%

= 720,000

[Total Sale = 15,20,000]

Capacity = 130%

- Normal = 100%.
- Equipment Buy → 10%.
- Work Overtime → 20%.

Total Sale = Domestic (80%) + Export (50%)

= 12,80,000 + 720,000

Fixed Cost = 5,20,000 + 40,000

= 5,60,000

At = 130% Capacity

labour cost = 260,000

(Normal = 100%) → 200,000

(equipment - 10%) → $\frac{2L}{100} \times 10$ ⇒ 20,000

(overtime = 20%) → $\frac{2L}{100} \times 20$ → 40,000

Total wages including overtime = 40,000 × 1.5 time

= 60,000

overtime premium = Total wage with overtime − Normal wage

= 60,000 − 40,000

= 20,000

Question & illustration

illustration :- Complete = 1 to 9

Incomplete :- 10, 11, 12, 13, 14, 15, 16, 19, 18, 20, 21, 25, 26, 28

This question is cover from module under Class No-14

Comprehensive :- Complete = 11, 12

Incomplete = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15

Cut from module

unsolved :- Complete = 1

Incomplete = 2, 3, 4, 5, 6

Unsolved Question

Q2

At 100% Capacity

100,000 unit @ 82/unit

Export order

5000 @ 55/unit

10,000 @ 52/unit

10,000 @ 51/unit

Comment

It is Advice to the Company do not accept any of the Export order because Export Revenue per unit in All Source is below the Cost/unit so their a loss in all source.

Q3 Let the purchon price be ₹2000 from Source 1 for full lot
the purchon price ₹1900 from Source 2

Comparative Cost Statement

	Source 1	Source 2
unit	1000 lot	1000 lot
Cost to Buy	2000	1900
Cost to maintain defective items [I = 2%, II = 2.8%]	100 (20 unit × 5)	140 (28 × 5)
Total Cost	2100	2040

Per unit

Source 1 = ₹ 2

Source 2 = ₹ 1.9

Comment → Source II is more Economical because it save the Cost of ₹ 60

Q4

$$\text{Indifference point} = \frac{\text{Change in Fixed Cost}}{\text{Change in Variable Cost}}$$

$$= \frac{₹\ 12000}{(9 - 8)}$$

$$= \frac{12000}{1} = \boxed{12000 \text{ unit}}$$

Comment

12000 Extra unit must be produce & sold to recover the Hiring charge

05

Statement of profit from Foreign market

	₹
Unit	3000 unit
Sale [3000 × 14]	42000
Less :- Variable Cost	
D. Mat $\left[\frac{120,000}{24000} \times 3000\right]$	15000
D. Labour $\left[\frac{84000}{24000} \times 3000\right]$	10,500
Variable o/H $\left[\frac{48000}{24000} \times 3000\right]$	6000
Semi - Variable o/H	1000
Profit	9500

Q6 Total Cost = Variable Cost + staff salary

= (900 × 20) + 41000

= 18000 + 41000

= 59000

Expected Income = 800 × 60

= 48000

(I) lowest Amount of Bid = 59000 - 48000

= 11000

(II) If Contract price = 30,000

Amount shot to Recover the Cost = 59000 − 30,000

= 29000

Minimum Hour to work for Break Even = $\frac{₹\,29000}{60}$

= 483.$\overline{33}$ Hour

05

Comprehensive

labour Cost/unit = 10% ↑

Material cost/unit = 5% ↑

Variable O/H = Nil

Mat : labour = 3 : 2

P/V Ratio = 20%

New Inco. S.P = ?

let the Common factor be x

Total Cost = Material + labour

Material Cost = 3x

labour Cost = 2x

Total Variable Cost = 5x

After Increment of Cost

Material Cost = 3x + 5% = 3.15x

labour Cost = 2x + 10% = 2.20x

Total Cost = 5.35x

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

20% = $\frac{\text{Sale} - \text{V.C}}{\text{Sale}}$

$\frac{20}{100} = \frac{\text{Sale} - 5x}{\text{Sale}}$

20 Sale = 100 Sale − 500x

500x = 80 Sale

Sale = $\frac{500x}{80}$

Sale = 6.25x → old S.P

P/V Ratio = $\frac{\text{Sale} - \text{Vc}}{\text{Sale}} \times 100$

$\frac{20}{100} = \frac{\text{Sale} - 5.35x}{\text{Sale}}$

20 Sale = 100 Sale − 535x

80 Sale = 535x

Sale = $\frac{535x}{80}$

Sale = 6.6875x

New SP = 6.6875x

old SP = 6.25x

Difference 0.4375x

Increase in a % of S.P = $\frac{0.4375x}{6.25x} \times 100$

= 7%

Q10

Trading A/c

Particular	₹	Particular	₹
To Mat	40,000	By sale	100,000
To labour	15000		
To Factory			
Variable →	5000	(Bal fig)	
Fixed →	20,000		
To Gross profit	20,000		
	100,000		100,000
To Fixed Selling & Ad	10,000	By G P	20,000
To Variable Selling & Adm	15000		
		By Net loss	5000
	25000		25000

Variable S & A o/H = 15000

Variable Factory o/H = 5000

Sale	= 100,000
(-) Variable Cost	
Mat -	(40,000)
labbur -	(15000)
Factory -	(5000)
S & A -	(15000)
Contribution	25000

P/v Ratio = $\frac{25000}{100,000} \times 100$

= 25%

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

$$= \frac{30,000}{25\%}$$

$$= \boxed{120,000}$$

Cost sheet

	D. Mat	40,000
	D. Labour	15000
	Prime Cost	55000
(+)	Factory o/h	
	Variable	5000
	Fixed	20,000
	Net Factory Cost	80,000
(+)	Adm & Selling o/h	
	Fixed	10,000
	Variable	15000
	Cost of Sale	105000

Q14

Comparative statement for make or Buy

	P	Q	R
Demand (unit)	2000	2500	4000
Material A Required	6000 kg	5000 kg	4000 kg
Cost of making	26000	30,000	56000
Cost of Buying	26000	42 500	64000
Decision	Buy	Make	3000 unit = Make 1000 unit = Buy

Make

Product Q = 2500 unit (Make)

↳ Consumption = 5000 kg

Balance Mat = 8000 kg - 5000 kg

= 3000 kg

After use of Bal mat we can make 3000 unit of R and Balance 1000 unit we will from outside

Total cost = 12500 + 6000

Saving = 18500

09

Comparative statement of profit

	Without Convert	With Convert
Sale A – 100000 × 1	400,000	Z → (1L × 3) + 300,000
B = 200000 × 1.5		600,000
(–) Variable cost	(200,000)	(2L + 1,75000)
Contribution	200,000	225,000

It Advice to the Company to Accept the proposal and Convert Product A into Product Z so that you will get maximum Contribution

Q8

Statement showing sale Amount

	₹
Variable Cost	2100,000
Fixed Cost	300,000
Total Cost	24,00,000
(+) Profit @15%	3 60,000
Sale	27,60,000

Statement of profit

Sale	=	27 60,000
(-) V.C	=	(2100,000)
Contribution		6 60,000
(-) FC		(3 06,000)
Profit		3 60,000

① P/V Ratio = $\frac{660,000}{2760,000} \times 100$

= **23.9130%**

② BEP = $\frac{300,000}{23.9130\%}$ = **12,54,548**

③ **Selling price reduce by 5%**

Statement of profit

Sale	=	26,22000
(-) V.C	=	(2100,000)
Contribution		5 22,000
(-) FC		(3 06,000)
Profit		2,22000

P/V Ratio = $\frac{522000}{2622000} \times 100$ = **19.90%**

$$BEP = \frac{300,000}{19.90\%}$$

$$= \boxed{15,07,538}$$

(d) Desire profit = 222000 + 10%.

$$= \boxed{2,44,200}$$

$$\text{Desire sale} = \frac{300,000 + 244,200}{19.90\%}$$

$$= \frac{544,200}{19.90\%}$$

$$= \boxed{27,34,673}$$

Q7

Statement of profit

Sale	70,000
(-) Variable Cost	(30,000)
Contribution	40,000
(-) Fixed Cost	(20,000)
Profit	20,000

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

$$= \boxed{57.143\%}$$

(I) $$BEP = \frac{20,000}{57.143\%} = \boxed{35000}$$

(II) $$Desire\ Sale = \frac{FC + Profit}{P/V\ Ratio}$$

$$49000 = \frac{20,000 + Profit}{57.143\%}$$

$$28000 - 20,000 = Profit$$

$$\boxed{Profit = 8000}$$

(III) $$Amount\ of\ sale = \frac{20,000 + 28000}{57.143\%}$$

$$= \frac{48000}{57.143\%}$$

$$= \boxed{84000}$$

Q6 Statement of profit

Revenue	100,00,000
less :- Variable Cost	(82,00,000)
Contribution margin	1800,000
less :- Fixed Cost	(1700,000)
Operating profit	100,000

(a) 10% Increase in Contribution margin

Contribution = 18 L + 10%

= 19.80L

Operating profit = 19.80L - 17L

= 2,80,000

(b) 10% Decrease in Contribution Margin

New Contribution = 18L - 10%

= 16.20L

operating profit = 16.20L - 17L

= 80K

(c) Fixed Cost increase by 5%

Revenue	100,00,000
less :- Variable Cost	(82,00,000)
Contribution margin	1800,00,000
less :- Fixed Cost	(17,85,00,000)
Operating profit	15,000

(d) 5% decrease in Fixed Cost

Revenue	100,00,000
less :- Variable Cost	(82,00,000)
Contribution margin	1800,000
less :- Fixed Cost	(16,15,000)
Operating profit	1,85,000

(e) 8% increase in unit sold

Revenue	108,00,000
less :- Variable Cost	(88,56,000)
Contribution margin	19,44,000
less :- Fixed Cost	(17 00,000)
operating profit	244 000

(f) 8% decrease in unit sold

Revenue	92 00,000
less :- Variable Cost	(75,44,000)
Contribution margin	16,56,000
less :- Fixed Cost	(17 00,000)
operating profit	(44 000)

(g) Fixed cost & unit sold = 10% ↑

Revenue	1,10,00,000
less :- Variable Cost	(90,20,000)
Contribution margin	19,80,000
less :- Fixed Cost	(18,70,000)
operating profit	1,10,000

(h) Fixed cost increase by 5% & variable cost decrease by 5%.

Revenue	=	100,00,000
less:- Variable cost	=	(7790,000)
Contribution		22,10,000
less:- Fixed cost		(17,85000)
operating profit		425000

Q4

Statement showing Cont/unit

	P	Q
Sale	20	15
less:- Variable cost		
D. Mat.	(10)	(9)
D. labour	(3)	(3)
V. OIH (100%)	(3)	(3)
Contribution/unit	4	0

(a) Product P = 1000, Product Q = 2000

	P	Q	Total
Contribution	4000	0	4000
less Fixed cost	800	4000	(4800)
@2-Q			
Profit			(800)

(b) Product P = 1500, Product Q = 1500

	P	Q	Total
Contribution	6000	0	6000
less Fixed cost	800	3000	(3800)
Profit			2200

(c) Product P = 2000, Product Q = 1000

	P	Q	Total
Contribution	8000	0	8000
less Fixed cost	800	2000	(2800)
Profit			5200

Q4

Statement showing Cont/unit

	A	B
Sale	20·50	15·50
less:- Variable cost		
D. Mat.	(10·50)	(8·50)
D. labour	(3)	(2)
V. OIH (100%)	(3)	(2)
Contribution/unit	4	3

(a) Product A = 100 + Product B = 200

	A	B	Total
Contribution	400	600	1000
less Fixed cost	—	—	(800)
Profit			200

(b) Product A = 150 + Product B = 150

	A	B	Total
Contribution	600	450	1050
less Fixed cost	—	—	(800)
Profit			250

(c) Product A = 200 + Product B = 100

	A	B	Total
Contribution	800	300	1100
less Fixed cost	—	—	(800)
Profit			300

Comprehensive

Q1

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

$= \frac{5000}{20,000} \times 100$

$= \boxed{25\%}$

Statement of Profit

	2021	2022
Contribution (25%)	37500	42500
less :- Fixed Cost	(17500)	(17500)
Profit	20,000	25000

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

2021 = $\frac{17500}{25\%} = \boxed{70,000}$

2022 = $\frac{17500}{25\%} = \boxed{70,000}$

(iii) Desive sale = $\frac{17500 + 40,000}{25\%}$

$= \boxed{2,30,000}$

(iv) Margin of safety = $\frac{\text{Profit}}{P/V\ Ratio} = \frac{50,000}{25\%}$

$= \boxed{200,000}$

(v) Variable cost = 75% of Sale

2021 = 1,12,500 , 2022 = 127,500

Q13

(i) P/V Ratio = $\frac{\text{Cont}}{\text{Sale}} \times 100$

AA Ltd = $\frac{30,000}{150000} \times 100$

= 20%.

AB Ltd = $\frac{50,000}{150,000} \times 100$

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

(ii) BEP = $\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$

AA Ltd = $\frac{15000}{20\%.} = 75000$

AB = $\frac{35000}{33.\overline{33}\%.} = 105,000$

Comment

(1) In Case of Heavy demand, AB Ltd is more profitable because P/V Ratio is Higher than AA Ltd

(2) In Case low demand, AA Ltd is more profitable because Fixed Cost is less than AB Ltd.

Q15

Let the total cost per unit be x & profit per unit be y

At present, $x + y = 3000$ —— eq ①

Statement of profit

	At present / unit	Calculation	After Increment of Cost
Material 50%	$0.50x$	$(0.50x + 17\%)$	$0.585x$
Labour 20%	$0.20x$	$(0.20x + 20\%)$	$0.24x$
overheel 30%	$0.30x$		$0.30x$
Total Cost (cos)	x		$1.125x$
(+) Profit	$+ y$	$(1y - 25\%)$	$+ 0.75x$
Sale	3000		3000

$x + y = 3000$ —— $\times 0.75$

$1.125x + 0.75y = 3000$ —— $\times 1$

$0.75x + 0.75y = 2250$

$+1.125x + 0.75y = +3000$

$-\quad -\quad -$

$+0.375x = +750$

$x = \frac{750}{0.375}$

$\boxed{x = 2000}$

Total Cost/unit = 2000

Profit/unit = 1000

Sale 3000

a) Statement of Profit/unit

		₹
Mat	50%	1000
labour	20%	400
O/H	30%	600
Total Cost		2000
(+) Profit	→	1000
Sale		3000

Profit % on Cost $= \frac{\text{Profit}}{\text{Cost}} \times 100$

$= \frac{1000}{2000} \times 100$

$= \boxed{50\%}$

Profit on Sale $= \frac{\text{Profit}}{\text{Sale}} \times 100$

$= \frac{1000}{3000} \times 100$

$= \boxed{33.\overline{33}\%}$

(5) Statement of profit

(here $x = 2000$)

Material	$[0.585x]$	= 1170
labour	$[0.24x]$	= 480
Overhed	$[0.30x]$	= 600
Total Cost		2250
(+) Profit	50%	1125
Sale		3375

Q10

Statement showing Computation of profit

	Before Plant Expansion	After plant Expansion
Sale	400,000	640,000
(–) Variable Cost @ 60%	(240,000)	(384,000)
Total Contribution	160,000	256,000
(–) Fixed Cost	(80,000)	(120,000)
Profit before tax	80,000	136000
(–) Tax @ 60%	(48000)	(81600)
Profit after tax	32000	54,400

From the Above Computation, it was Found the profit will Increase by 22,400 after Expansion of plant Which is much higher than the Additional income, So it advice that Expansion of plant is Best option.

Q11.

Statement showing Contribution

Sale / unit	=	1009.99
(-) Variable Cost		
D. Material	-	(320)
D. Labour	-	(192)
Variable o/h	-	(132)
Contribution / unit		365.99
Total Contribution [1000 × 365.99]	=	3,65,990
(-) Fixed Cost	=	(100,000)
Profit		2,65,990

Q12 Statement showing Contribution & profit

	10,000 Beauties	15 000 Beauties	20,000 Beauties	17000 Beauties
Sale @ 10/unit	100,000	150,000	200,000	170,000
Less:- Variable Cost @ 6/unit	(60,000)	(90,000)	(120,000)	(102,000)
Total Contribution	40,000	60,000	80,000	68000
Less: Fixed Cost	(45000)	(45000)	(45000)	(45000)
Profit/loss	(5000)	15000	35000	23000
Profit/unit	(0.5/unit)	1/unit	1.75/unit	1.3529/unit
Cont/unit	4/unit	4/unit	4/unit	4/unit

Q13

(1) Statement showing Annual Requirement of Component A for Switch.

	Semi - Automatic Machine	Automatic Machine
Cost of purchase from Supplier	30	30
less :- Variable Cost	(12)	(10)
Saving in Cost	18	20
Fixed Cost	18,00,000	30,00,000
Annual Requirement [Fixed Cost / Saving/unit]	$\frac{18L}{18}$ = 100,000 unit	$\frac{30L}{20}$ = 150,000 unit

(II) If Annual Requirement = 500,000 unit

	Semi Automatic Machine	Automatic Machine
Variable Cost @	60 lakh	50 Lakh
(+) Fixed Cost	18 lakh	30 lakh
Total Cost	78 lakh	80 lakh

Comment

At 500,000 unit of Annual Requirement it is Best to install Semi Automatic Machine because it Reduce the Cost of ₹ 2lakh

(III)

Indifference point = $\frac{\text{Change in FC}}{\text{Change in V.C/unit}}$

$= \frac{30\text{L} - 18\text{L}}{12 - 10} = \frac{12 \text{ lakh}}{2}$

= 600,000 unit

If the Annual Requirement of the Component is Exceed of 600,000 unit then it advice to the Company to Install Automatic Machine to Reduce the Cost

Q15 Income stmt under absoption Costing

Particular	₹
Sale	Nil
less:- Cost of Good Manf"	
/ Variable [1100 × 6]	6600
- Fixed [1100 × 4]	4400
Cost of Good Manf"	11000
less: c/s of FG [1100 × 10]	(11000)
Cost of Good sold	Nil
less: under absoption	-
Add:- over absoption [100 × 4]	400
	400
less:- other Expense	(300)
Net profit before tax	100

Income stmt under marginal Costing

	₹
Sale	Nil
(-) Variable Cost [1100 × 6]	(6600)
Cost of Manf"	(6600)
(-) c/s of FG [1100 × 6]	6600
Contribution	Nil
(-) Fixed Cost	(4000)
other Expense	(300)
Net loss	(4300)

Q14

Statement showing Computation of Fixed overhead

	Amount
Sale (15000 unit x 100/unit)	15 00,000
less: Variable Cost	
D. Material @ 30% on sale	(450,000)
D. labour @ 20% on sale	(300,000)
Variable o/H 10/unit	(150,000)
Total Contribution	6 00,000
less:- Fixed o/H (Bal. Fig)	(3 50,000)
Profit (16.66/unit)	2 50,000

Statement showing profit in different Alternative

Particulars	Present (15000 unit)	Max Capacity (20,000 unit)	New order (25000 unit)
Sale (100 unit)	1500,000	20,00,000	24 00,000 [15L + 9L]
less:- Variable Cost			
D. Material [30% + 10%] = 33%	(495 000)	(6, 60,000)	(825,000)
D. Labour [20% + 25%] = 25%	(375 000)	(5,00,000)	(6 75000)
Variable o/H (10 unit)	(1 50,000)	(200,000)	(2 50,000)
Total Contribution	480,000	6, 40,000	700,000
less:- Fixed o/H [350,000 + 50,000]	(400,000)	(400,000)	(450,000)
Sale drive		(60,000)	-
Dep on New Equipment [10L/10]			(100,000)
Profit	80,000	1, 80,000	150,000

Q20 (a)

Statement showing selling price per unit

	L	T
Variable Cost	12	15
Fixed o/H Cost (1/Hour)	2	3
Total Cost/unit	14	18
(+) Profit @ 20%	2.8	3.6
Sale price	16.8	21.6

WN-1

$$\text{o/H abaption Rate} = \frac{\text{Total o/H Cost}}{\text{Direct labour Hr}} = \frac{30,000}{30000\text{ Hr}}$$

$$= \boxed{1 \text{ / Direct lab Hr}}$$

$$\text{Profit} = (7500 \times 2.8) + (5000 \times 3.6) = \boxed{39000}$$

(b)

Statement showing selling price per unit

	L	T
Variable Cost	12	15
Fixed o/H Cost (2.4/Mach Hr)	2.4	2.4
Total Cost/unit	14.4	17.4
(+) Profit @ 20%	2.88	3.48
Sale price	17.28	20.88

WN-1

$$\text{o/H abaption Rate} = \frac{\text{Total o/H Cost}}{\text{Machine Hour}} = \frac{30,000}{12500\text{ Hr}}$$

$$= \boxed{2.4 \text{ / Mach Hr}}$$

$$\text{Profit} = (7500 \times 2.88) + (5000 \times 3.48) = \boxed{39000}$$

(c) Interpret the Result

The different Base of Changing o/H absoption Rate result in different S.P of Both the product L & T. In the other word the profit of Both the product is same as ₹39,000. But the S.P is different so it is difficult to make the decision

Q20

① Calculating total Fixed Cost

X -	3000 x 5	=	15000
Y -	2000 x 8	=	16000
Z -	5000 x 9	=	45000
	Total FC		76000

② Calculating Cont / unit of each product

X = 40 - 27 = 13

Y = 60 - 38 = 22

Z = 61 - 43 = 18

Option 1 :- Discontinued product X

Sale unit Pased by 50% : Y = 3000 unit , Z = 7500 unit

Total Contribution	Y - 3000 x 22	=	66000
	Z - 7500 x 18	=	135000
	Total Cont		201,000
	(-) Fixed Cost		(76000)
	Profit		125000

Option 2 :- Discontinued product Y

Sale unit Pased by 50% : X = 4500 unit , Z = 7500 unit

Total Contribution	X - (4500 x 13)	=	58500
	Z - (7500 x 18)	=	135000
	Total Cont		193 500
	(-) Fixed Cost		(76000)
	Profit		1,17,500

Option3 :- Discontinued product Z

Sale unit Pased by 50% : X = 45000unit
Y = 30000unit

Total Contribution	Y - (4500 x 13) =	58500
	Z - (3000 x 22) =	60,000
Total Cont		1,18,500
(-) Fixed Cost		(76000)
Profit		42 500

After Considoration all 3 option it is clear that If product X discontinued then we will get Higher profit as Compare to other 2 option of ₹ 125000. so we are agree with the management to discontinued the product X

Q21

Fixed Cost = 40% of Current Sale
= 40% of 250,000
= 100,000

Salary = FC x 20%
= 100,000 x 20% = 20,000

Bonus = 20,000 x 30% = 6000

Bonus Commission = $\frac{6000}{250000} \times 100 = 2.4\%$

Additional sale = 250000 x 15%	
=	37500
less :- Variable Cost@40%	(15000)
	22500
less :- Commission@2.4%	(900)
Profit	21,600

Evaluation of Alternative Choices

① A major part of decision making involves the Analysis of a defined set of alternative against selection criteria.

② These criteria usually include costs and Benefit, advantage and disadvantage

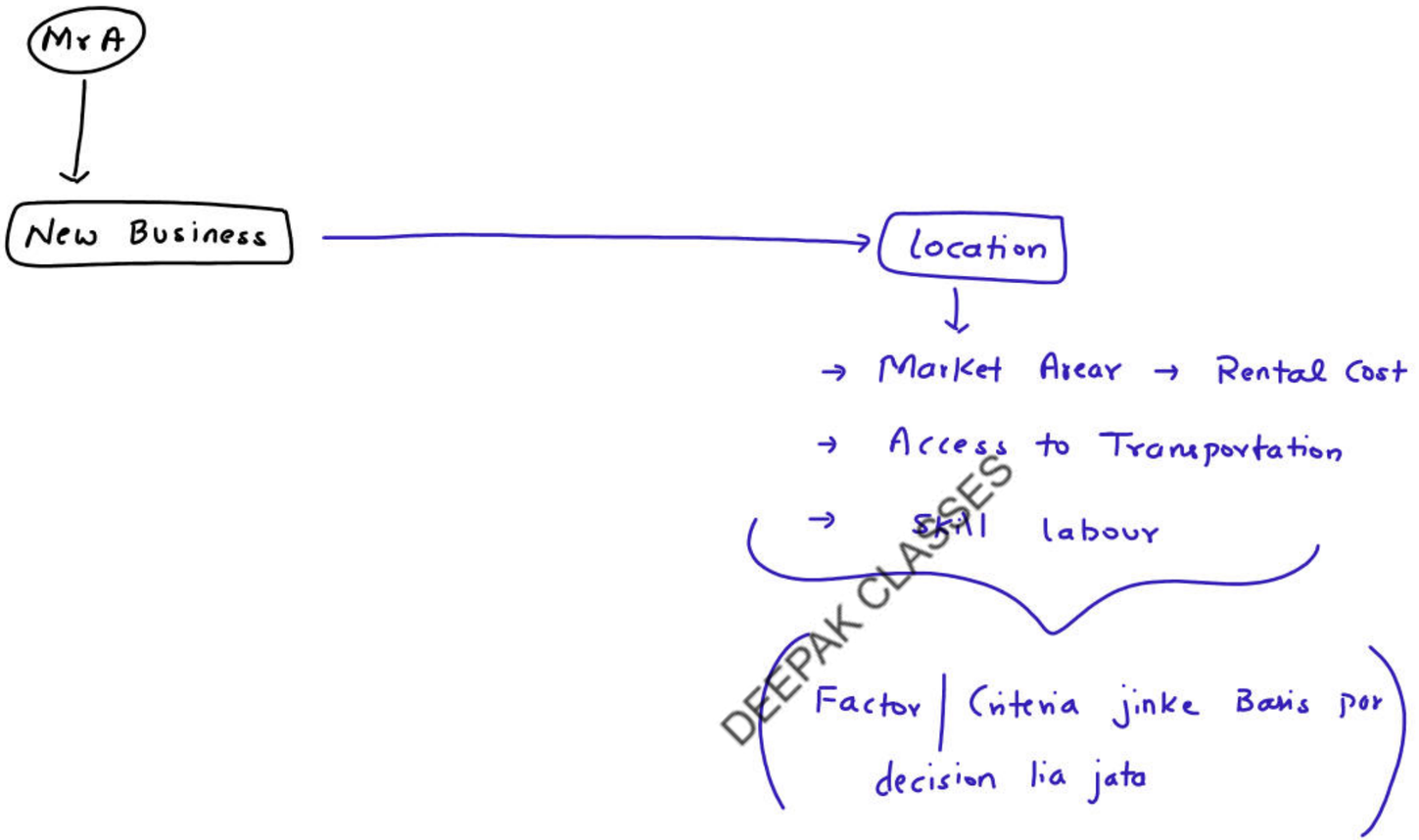
③ Sometime the management has to select a course of Action from Among various alternative choice. Each course of Action has its own merits & limitation.

④ The course of Action to be selected should ensure maximum profit to the Business Concern.

⑤ The Atemative provide maximum Contribution per unit shall be Consider to be more profitable

⑥ However, the limiting Factor if any involved in the method of production must be give proper Consideration.

Example



Q6

Statement of Budgeted profit

Particulor	₹
unit produce & sell [25Lakh / 125]	20,000 unit
Sale	125
(-) Variable Cost [16 + 40 + 12]	(68)
Cont / unit	57
Total Contribution [20,000 x 57]	11,40,000
Less:- Fixed Cost	(6,75,000)
Profit	4,65,000

(11) If the Technical director view are Accepted

Direct Mat = 16 + 10% = 17.6/unit

Variable o/H = 12 + 5% = 12.6/unit

* Direct labour = (40 + 5%) = 42/unit / 112% = 37.5/unit

Unit produce & sell = 20,000 unit

Variable cost/unit = 17.6 + 12.6 + 37.5

= 67.7/unit

Total Variable Cost = 20,000 x 67.7

= 13,54,000

Statement of profit

Particular	£
unit produce	20,000
Sale (BIF)	26,19,000
less:- Variable Cost	(13 54 000)
Contribution	12, 65,000
less:- Fixed Cost [6,75000 + 125000]	(800,000)
Profit	4,65,000

Selling price per unit $= \frac{26,19,000}{20,000} = \boxed{130.95}$

Increase in Selling price $= 130.95 - 125$

$= \boxed{5.95/\text{unit}}$

% Increase in Selling price $= \frac{5.95}{125} \times 100$

$= \boxed{4.76\%}$

③ statement of evaluating the Four proposal given by Marketing director

Particular	Proposal - 1	Proposal - 2	Proposal - 3	Proposal - 4
Unit produce	22000 unit	24000 unit	26000 unit	28000 unit
Sale @ 125/unit				
less :- Variable Cost @ 67.7/unit				
Cont per unit [125 - 67.7] = 57.30/unit	12,60,600	13,75,200	14,89,800	16,04,400
less :- Fixed Cost [800,000 + Adv. Cost]	(8,80,000)	(9,94,000)	(11,20,000)	12,46,000
Profit	3,80,600	381,200	369,800	358,400
		↓ (Best proposal)		

★ only Explaination with another Example

Direct wage = 40/unit

Ex

unit = 2000 unit

labour Hour = 5 Hr/unit

efficiency ↑ = labour Hour ↓
efficiency ↓ = labour Hour ↑

Total labour Hour = 2000 × 5

= 10,000 Hour

If efficiency of labour increase by 12%.

Hour/unit = 5 Hour × 112%

= 5.6 Hour

100 + 12 = 112%

Hour/unit = 5 Hour / 112%

= 4.46 Hour

decrease by 12%.

100 − 12% = 88%

Hour/unit = 5 Hour × 88%

= 4.4 Hour

Hour/unit = 5 Hour / 88%

= 5.68

Expansion of Business

To Understand this Concept with the help of Question :-

Particular	Munaging Director		Work director		Marketing director	
	I	II 5%↑	I	II	I	II
Unit produce	100,000 unit	105,000 unit	110,000 unit	105000 unit	120,000 unit	110,000 unit
Selling price	100	100	95	95	90	90
Total sale	100,00,000	105,00,000	1,04,50,000	99,75,000	108,00,000	99,00,000
(-) Variable cost / unit	50	55	47.5	47.5	(43.2)	(43.2)
(₹)	(50,00,000)	(57,75,000)	(52,25,000)	(49,87,500)	✓	✓
Cont per unit (₹)	50	45	47.5	47.5	46.8	46.8
	50,00,000	47,25,000	52,25000	49,87,500	56,16,000	51,48000
Less:- Fixed Cost	(30,00,000)	(30,25,000)	(32,25000)	(32,25000)	(35,16,000)	(35,16,000)
Profit	20 lakh	17 lakh	20 lakh	17,62,500	21,00,000	16,32,000

P/V Ratio = $\frac{\text{Cont}}{\text{Sale}} \times 100$	50%	45%	50%	50%	52%	52%
BEP = $\frac{\text{FC}}{\text{Cont/unit}}$	60,000 unit	67,222 unit	67,895 unit	67,895 unit	75128 unit	75,128 unit
MOS = $\frac{\text{Profit}}{\text{Cont/unit}}$	40,000 unit	37,778 unit	42105 unit	37105 unit	44,872 unit	34872 unit

Optimum Utilization of Factor of production [Limiting Factor] (V. Imbt)

(1) Limiting Factor also known as **Key Factor.**

(2) Any Factor Concerned with production or sale which impose "LIMIT" on the production or sale is known as Limiting Factor or key Factor.

(3) Some Example of key Factor are :-

a) Shortage of Raw Material

b) Shortage of labour

c) Plant capacity available (Machine)

d) Sale Capacity available

e) Cash available.

Example

	A	B
Demand (unit)	5000	4000
Raw Material	10kg/unit	15kg/unit
Cont per unit	₹50	₹45

[Shortage of Raw Material => 100,000 kg]

Raw Material Required

A = 5000 × 10kg = 50,000kg

B = 4000 × 15kg = 60,000kg

1,10,000kg

Shortage of R.M = 1,10,000kg − 100,000kg

= 10,000kg

[limiting Factor / key Factor]

Alternative 1

	A (Perf)	B
	5000 unit	$3333.\overline{33}$
Cont	5000×50	$3333.\overline{33} \times 45$
$\therefore \Rightarrow$	250,000	150,000

400,000

(Best option after Consideration Limiting Factor)

Alternative 2

	A	B (Perf.)
	4000 unit	4000 unit
Cont =	4000×50	4000×45
=	200,000	180,000

380,000

Steps to Solve problem on Key Factor

step 1 :- Find Key Factor

step 2 :- Find Contribution per unit

step 3 :- Find Key Factor Per unit

step 4 :- Find Contribution per key Factor [step 2 ÷ step 3]

step 5 :- Statement of Ranking

Step 6 :- Find optimum product mix

Step 7 :- Find Maximum profit.

Example

	A	B	C
SP	100	50	200
DM/unit	20	10	70
DL/unit	30	20	30
Cont/unit	50	20	100

Raw Material availability : 200,000 kg

Product demand =	2000 unit	5000 unit	2000 unit
Raw Mat in kg	20kg/unit	10kg	70kg

Fixed Cost = 150,000

Find Maximum profit

Step1 :- Find Key Factor

Raw Material = 200,000 kg

Step2 :- Find Cont/unit

	A	B	C
Cont/unit	50	20	100

Step 3 :- Find Key Factor Per unit

	A	B	C
R.M per unit	20kg	10kg	70kg

Step4 Find Contribution per Key Factor

Agar 1 kg Raw Material lagye toh uske Badle mai kitna Contribution Milega

	A	B	C
Con/Key Factor	$\frac{50}{20} = (2.5)$	$\frac{20}{10} = (2)$	$\frac{100}{70} = (1.428)$

Step 5 Statement of Ranking

	A	B	C
Cont/key Factor	2.5	2	1.428
Ranking	I	II	III

Step 6 Calculating optimum Product Mix

Kis product ki kitni unit Banani chaiye Key Factor/limiting Factor and Ranking ko dyan mei Rakhte hue

	A	B	C
Rank	I	II	III
Production	2000 unit	5000 unit	1571.42 unit
RM/kg	20kg	10kg	70kg
	40,000kg	50,000kg	1,10,000(Bal) → 200,000kg

Step 7 Calculating Maximum profit

	A	B	C
Unit produce	2000	5000	1571.42
Cont/unit	50	20	10
Contribution	100,000	100,000	15715

Total Contribution	= 2,15,715
(-) Fixed cost	= (150,000)
Profit	65,715

Q

Calculation Cont / unit

	A	B
Sale	75	80
(-) Variable Cost	(55)	(62)
Cont/unit	20	18

Calculating Cont per key Factor

(i)/(ii) Sale unit/₹

	A	B
Cont / key Factor	20/75	18/80
Cont per (1 Rupee) Sale	0.267	0.225
Ranking	I	II

Product A is more profitable

(iii) Key Factor = R.M

	A	B
Cont / key Factor	20/2kg	18/2kg
Cont / kg	= ₹10	= ₹9
Ranking	I	II

Product A is more Profitable

(iv) Key Factor = Machine Hour

	A	B
Cont / key Factor	20/3Hr	18/2Hr
Cont / Mach Hour	6.67	9
Ranking	II	I

Product B is more Profitable

Q

Ztd Ltd

	A	B	C	D
SP	100	150	200	300
VC	50	70	100	125
Cont/unit	50	80	100	175
Mat in kg	1kg	2kg	5kg	7kg
Demand (unit)	20,000	15000	8000	10,000

Total R.M available = 150,000 kg

Find Maximum profit ?

① Key Factor = Raw Material

② Cont/unit = 50, 80, 100, 175

③ key Factor/unit = 1kg, 2kg, 5kg, 7kg

④ Statement of Ranking

	A	B	C	D
cont / kg of RM (step 2 ÷ step 3)	50	40	20	25
Ranking	I	II	IV	III

⑤ Optimum Product Mix

	A	B	C	D
Product Mix	20000 kg	30,000 kg	30,000 kg	70,000 kg
unit	20,000 unit	15000 unit	6000 unit	10,000 unit

Statement showing Profit

	A	B	C	D
Contribution / unit	50	80	100	175
unit produce	20,000	15000	6000	10,000
Total Contribution	10 lakh	12 Lakh	6 Lakh	17.50 L

If Fixed Cost is Assumed to be 35 lakh then what will be your profit

Total Contri. = 10L + 12L + 6L + 17.50L

= 45,50,000

(-) Fixed Cost = 35,00,000

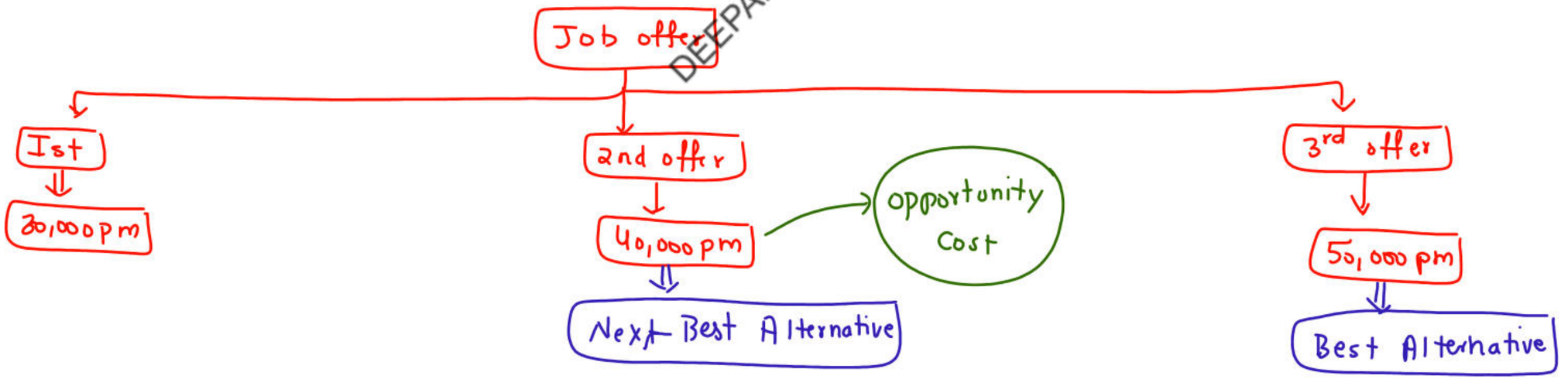
Profit 10,50,000

Make or Buy Decision

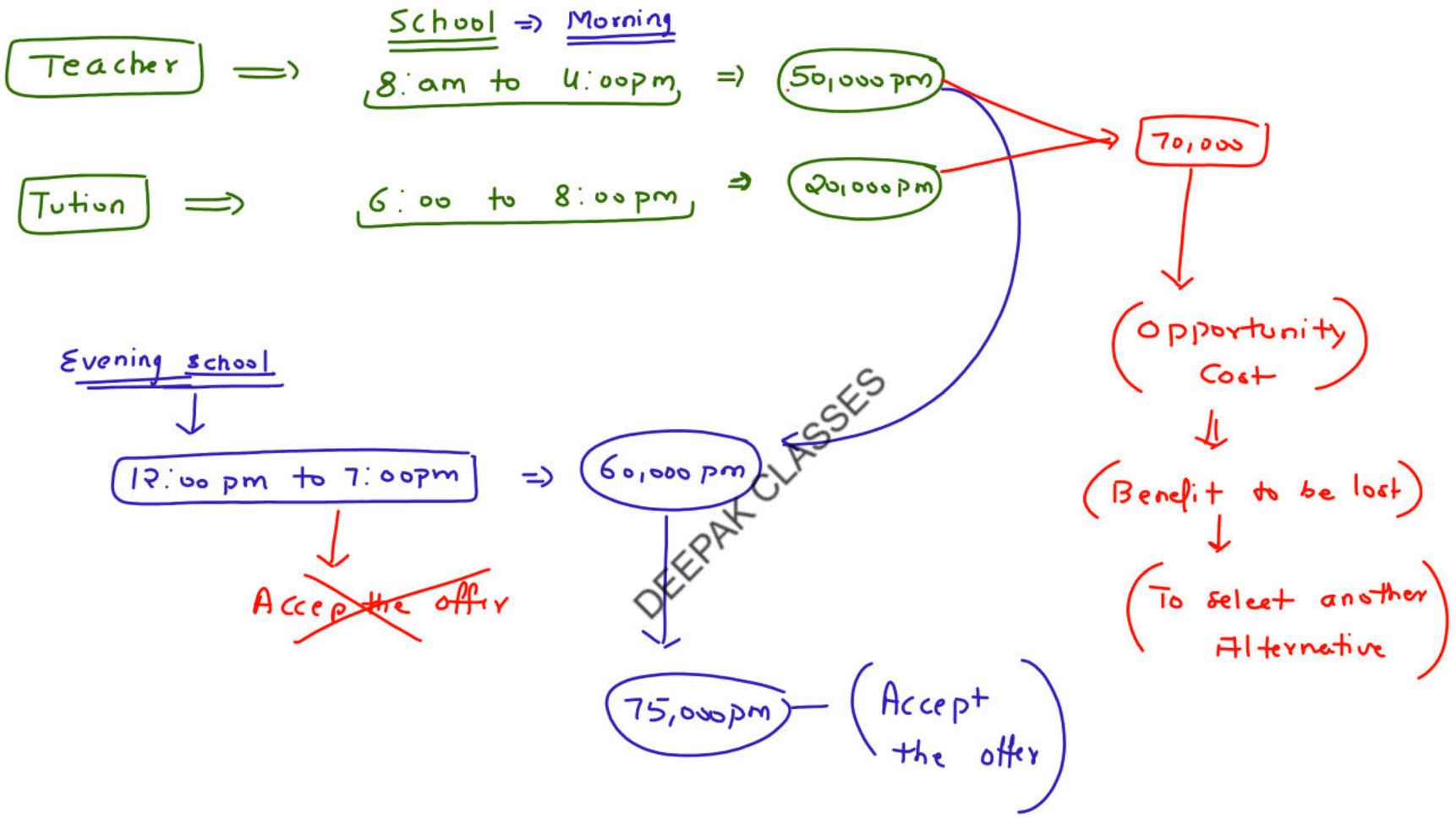
First we have to clear about the Concept of opportunity Cost Concept

Where the choice of one Course of Action Requires that an alternative Course of Action be given up the Financial Benefits that are foregone or sacrificed are known as opportunity Cost

opportunity Cost thus represent the lost Contribution to profit arising from the Best alternative foregone.



Detail Example



Q 17

Statement showing Contribution of each product

	X	Y	Z
Sale	10	12	12
(-) V.C	(6)	(9)	(7)
Cont/unit	4	3	5
Unit produce	2000	2000	900
Total Contribution	8000	6000	4500
Opportunity Cost	6000 + 4500	8000 + 4500	8000 + 6000
	10,500	12,500	14000

Make or Buy decision

Comparative statement

Case 1

		₹
Cost of Making a product	=	50,000
Cost of Buying a product	=	55000

Decision is to Make a product

Case 2

		₹
Cost of Making a product	=	65000
Cost of Buying a product	=	55000

Decision is to Buy the product

Example

ABLtd → Manf'' of Labtop → (each Component) → Processor = Make

XYZ Ltd → Supplier of processor

Processor = 4000 → Buying Cost = 4000

D. Material = ₹ 2000

D. labour = ₹ 800

V. overhed = ₹ 700

~~Fixed overhead = ₹ 1000~~

Total Cost ~~4500~~ 3500

⟹ Decision to Make a process

Advance Example

ABC Ltd ⇒ product = Calculater

Component = Battery Cell

Buying Cost = 22/unit

[purchase from XYZ Ltd = £20/unit]

[Packing & delivery cost = £2/unit]

[If we manf^n the Battery Cell then what will be the Battery Cost] ⇒ [Requirement = 10,000 unit Battery Cell]

D. Mat = 8/unit

D. Labour = 6/unit

V. O/H = 5/unit

F O/H = 50,000

	Cost to Make	Cost to Buy
D. M @ 8	80,000	
D. L @ 6	60,000	
V. O/H @ 5	50,000	
Purchase, packing & delivery Cost @22		2,20,000
Total Relevant Cost	190,000	2,20,000

As per the Above Information it is advice to the Company to Make a Battery Cell so that the Cost will be Reduced by 30,000 it affect on profit by increasing 30,000

In the question

Jab ABC Ltd Battery Cell Bahare se purchase kar rha hai tab uski Remaing capacity mai vo New product Bana rha tha jo her saal 4000 unit sell hot thy @ 10 each Contribution deta tha.

New product

Total Contribution = 4000 X 10

= 40,000

What will be your decision?

	Cost to Make	Cost to Buy
Purchase & packing de cost (22)		2,20,000
D.M @ 8/unit	80,000	
D.L @ 6/unit	60,000	
V.O/H @ 5/unit	50,000	
opportunity Cost (Cont to be lost)	40,000	
Relvant Cost	2,30,000	2,20,000

Comment →

It is advice to the Company to Buy the Product from outside Supplier so that you will Save 10,000 Cost. it will increase the profit by 10,000

Q23 Comparative statement for make or Buy decision

	Cost to Make	Cost to Buy
Total Cost to Buy	–	11.50
D. Material	5.50	
D. Labour	3.50	
V. O/H	1	
Relvant Cost	10	11.50

It is advice to the Company to the make the product because it Reduce the Cost of ₹ 1.50 as Compare to purchase Cost

② If Purchase Cost is 9.70 then our decision should be change to Buy a Component X because it Reduce the Cost by 0.30. ②

Q11 Comparative statement for make or Buy decision

	Cost to Make	Cost to Buy
Total Cost to Buy	–	5.75
D. Material	2.75	
D. Labour	1.75	
V. O/H	0.50	
Relvant Cost	5	5.75

It is advice to the Company to the make the product because it Reduce the Cost of ₹ 0.75 as Compare to purchase Cost

If Purchase Cost is 4.85 then our decision should be change to Buy a Component because it Reduce the Cost by 0.15

Q27 Comparative Statement for make or Buy decision

(500 unit)

	Buy	Make
Sale @ 350/unit	175,000	175,000
less:- Variable Cost		
For Buy @ 88	(44000)	
For Make @ 95		(47500)
Purchase Cost in Case Buy @ 8/unit	(4000)	
Contribution	127,000	127,500
less:- Fixed Cost	(4700)	(5500)
Profit	122,300 ✓	122000

It is advice to Buy of Component because it give Higher profit of 300 as Compare to Make

Q12 Component (unit) = 90,000 unit

(a) Cost to Make = 90,000 × 675

= 60,75,000

Cost to Buy = 90,000 × 540

= 48,60,000

Yes the Component be purchase from the supplies because it Reduce the cost by ₹ 12,15,000

(b) Statement of profit

	₹
Sale (90000 × 485)	43,65,000
Less:- Variable Cost	
Mat. [90,000 × 200]	(18,00,000)
Labour [180 × 75%] × 90000	(12,15,000)
Variable o/H [90,000 × 90]	(8 10,000)
Total contribution	5 40,000
Less:- Fixed Cost (90,000 × 180)	(16,20,000)
Loss	(10,80,000)

However, diverting the Resources to produce the New product would not cover the Fixed cost so, making the New Product is NOT advisable.

APPLICATIONS OF MARGINAL COSTING IN

SHORT TERM DECISION MAKING

THIS STUDY NOTE INCLUDES

1. Pricing Decision
2. Make or Buy decisions
3. Accept an Order or Reject
4. Optimum Utilization of Factor of Production [Limiting Factor Analysis]
5. Replacement Decision
6. Evaluation of Alternative Choices
7. Subcontracting and Ancillarisation
8. Expansion of Business
9. Shutdown or Continue

PRICING DECISION

- The price to be charged for a product or service is often one of the most important decisions made by manager.
- One of the most important decisions that the management has to take is about the price for its company's product.
- In case of a new product, it is necessary to determine the price at which the product is to be sold.
- In the case of an existing product, it is necessary to determine the extent to which the price is to be revised in the light of cost hikes which the company has painfully be experiencing.
- Pricing is considered as both an important and difficult one. This is considered as an important one as this is one of a few determinants of profitability of the company.

PRICING DECISION

- Pricing is a difficult task for two important reasons.
- Firstly, there are a large number of factors, both internal and external, which are to be taken into consideration before deciding the price for a product.
- Secondly, there is no ready formula which can be used to determine, and/or revise, the price of a product.
- If at all a company wants to earn profit, its price should be higher than its costs. This implies that the companies should base their prices on costs.

A) PRICING ADDITIONAL OR SPECIAL SALES

- In the case of the companies operating below their capacity, idle capacity exists. That means, the normal demand from their regular customer is for lower volume than what the companies are capable of producing and selling.
- For example, a company with an annual capacity of 10,000 units of a product may be producing and selling only 8,000 units due to the lack of demand.
- This type of companies also receives additional offer either from new customer or from their regular customer.
- Therefore, the companies have to take decision about accepting or rejecting the offer. For the purpose of taking proper decision in this regard, it is necessary to look into the impact of acceptance of the special offer on costs, revenue and profit.

Basic Example

Capacity = 10,000 unit

Demand = 8000 unit

SP = 80

V.C = 50

F C = 50,000

Sale	640,000
(-) VC	(400,000)
Cont	240,000
(-) F C	50,000
Profit	190,000

8000

23.75

1000 unit

50 => 50,000

min = 50

23.75

73.75

(Price to charge)

A) PRICING ADDITIONAL OR SPECIAL SALES

- All the costs which are going to change due to the acceptance of the offer are relevant for the purpose of deciding whether to accept the offer or not.
- Usually, the acceptance of the offer increases the items of variable costs. The items of fixed costs may or may not register an increase. If these costs change, they are to be reckoned as relevant.
- Otherwise, they are irrelevant. So, the aggregate of changes in the items of costs is the incremental cost which is attributable to the additional sales or special offer
- As far as revenue is concerned, two types of special business can be found. One, in the form of asking for the price which the company wishes to quote for certain number of units of its product. In this case, the company has to consider the incremental cost.
- The price to be quoted should be at least equal to the incremental cost. Any price in excess of this incremental cost is a profitable price. The price should not be quoted on the basis of total costs

A) PRICING ADDITIONAL OR SPECIAL SALES

- Further, a company receives an offer wherein the offer states that the prospective buyer is willing to buy certain quantity of the company's product at a specific price. In this case, the company has to decide about the acceptance of the offer.
- In order to take decision, the price offered by the buyer is to be compared with the incremental cost.
- If the offered price exceeds the incremental cost, it is better to accept the offer. Otherwise, it is not a profitable proposition

A) PRICING ADDITIONAL OR SPECIAL SALES

- Yet, there may be a third type of offer and this relates to the pricing of export business. In this case, some additional costs and benefit associate with the exports. Special care is to be given to the packing, insurance, transportation, quality of the product, etc. These are some of the aspects which cause an increase in the costs.
- Therefore, they fall into the category of relevant costs. Some additional benefits also accrue to export sales such as cash subsidy, duty drawback, etc. Hence, these are relevant items.
- The amount of these benefits may be used to reduce the total of incremental costs. The net incremental cost should be used to quote the price for international market or the net incremental cost may be compared with the price offered and on the basis of this comparison, the decision is to be taken.

Example

Export offer = 1000 unit @ 80 per unit → Accept

@ 70 per unit → Accept

@ 60 per unit → Reject

	V.C @ 50	=	50,000
Revelent cost	packing cost	=	10,000
	Insurance & Freigh	=	20,000
	Quality Cost	=	5000
	Total Cost		85000
Relevant item	(-) Govt subsidy		(5000)
	(-) Duty drawback		(10,000)
	Net Cost		70,000

$\frac{70,000}{1000} = 70/\text{unit}$

Accept the offer

profit = 1000 × 10

= 10,000

B) PRICING UNDER NORMAL AND FAVOURABLE CONDITIONS:

- When the conditions prevailed both internally and externally are favourable to the companies, they usually plan to earn some planned profit.
- Consequently, the companies wish to price their products on the basis of cost plus profit.
- The desired profit which the companies plan to earn may be expressed either as a percentage of sales revenue or as percentage on their investments

C) PRICING UNDER ABNORMAL CONDITIONS:

- As already stated, a large number of factor influence the pricing aspect and a number of changes take place in these influencing factor on a continual basis.
- Consequently, the conditions which were favourable to the companies start changing. The companies should have a vigilant eye on the market conditions.
- Hence, whenever the conditions start changing, the companies make some appropriate changes in their policies, programmes, etc.
- One of the variables wherein the companies make adjustments is the price. The extent to which the price is to be lowered depends upon the gravity of the problem and also the composition of price.

C) PRICING UNDER ABNORMAL CONDITIONS:

- In some cases, a 10% reduction in the price may be adequate and in some other cases, a 40% reduction in the price may be necessary.
- Further, a company may be willing to forego the entire profit in case the market demands such a drastic move. Another or the same company may be forced to sell at below the cost price. Otherwise, the company will be out of market. It is therefore necessary to decide whether to sell the product at reduced price or to suspend the activities temporarily

C) PRICING UNDER ABNORMAL CONDITIONS:

- Two alternatives are available to the companies in the above cases. One, continuing to produce and sell the goods and services at the reduced prices. Depending upon the quantum of reduction in the selling price, the company earns reduced amount of profit or incur loss.
- If the company is not ready to incur the loss or if it does not satisfy with the reduced profit or if it is not willing to operate at BEP, the company has to take the second alternative of suspending its sales activities till the conditions improve for the company.
- Hence, it is necessary to compute the loss under each of these two alternatives and whichever involves the minimum loss is to be preferred, if the company takes the decision purely on the basis of financial aspects

SPECIAL ORDER

- Special order requires a relevant cost approach to the calculation of the price.
- A special order is a one-off revenue earning opportunity. These may arise in the following situations:

a) When a business has a regular source of income but also has some spare capacity allowing it to take on extra work if demanded. For example, a brewery might have a capacity of 5,00,000 barrels per month but only be producing and selling 3,00,000 barrels per month. It could therefore consider special order to use up some of its spare capacity.

SPECIAL ORDER

b) When a business has no regular source of income and relies exclusively on its ability to respond to demand.

A building firm is a typical example as are many types of sub-contractor. In the service sector consultants often work on this basis.

Q1 Calculation of profit after increasing the cost

	60% (6000 unit) ₹
Sale	14.30
less:- Variable Cost	
D. Mat [3.50 + 6%]	3.71
D. labour [1.25 + 8%]	1.35
work o/H [6.25 × 50%]	3.125
Sale o/H [0.80 × 25%]	0.20
	→ 8.385
Cont/unit	5.915
Total Contribution [6000 × 5.915]	35,490
less:- Fixed Cost	
work o/H [6000 × 3.125] + 10%	(20,625)
Sale o/H [6000 × 0.60] + 10%	(3960)
Profit	10,905

Required profit = 16730 − 10,905

= 5825

Sale offer (20%) = $\frac{6000 \text{ unit}}{60\%} \times 20\%$

= 2000 unit

Sale = Variable Cost + Required profit

= (2000 × 8.385) + 5825

= 16770 + 5825

= 22,595

SP/unit = $\frac{22,595}{2000 \text{ unit}}$ = 11.30/unit

Q19

Sale [5000 x 6.50]	=	32500
(-) Variable Cost [5000 x 6]	=	30,000
Contribution		2500
(-) Fixed Cost		Nil
Profit		2500

It is advice to Company to Accept the offer

Total loss	=	20,000
(-) Profit on export Sale	=	(2500)
Net loss		17500

Q22 It is advice to the Company to Consider the following points [Module Answer]

(1) The pricing in this Case Based on relevant cost of Accepting the offer

(2) To Consider the Recovery of variable OIH Cost only on the Basis of direct wages

(3) The pricing policy of the Company is following on the Basis of Full Cost + markup, which is Not Applicable in the Context of Additional order (VC + Profit)

(4) It is also be Assumed that, Capacity exist otherwise opportunity Cost should be taken into Consideration

Q24 Statement showing profit at 50% capacity

		₹
Sale (10,000 × 1.25)	=	12500
less:- Total Variable Cost	=	(4645)
Contribution		7855
less:- Fixed Cost		(7955)
Loss		(100)

Statement of Profit for additional order

		₹
Sale [10,000 × 0.75]	=	7500
less:- Variable Cost	=	(4645)
Profit		2855
(-) loss of Previous sold unit		(100)
Net profit		2755

Accept the order

Unsolved Case

① Statement showing minimum price to be charge

Variable Cost	₹
Cost of production $\left[\frac{120,000-40,000}{20,000\text{ unit}} \times 4000\right]$ =	16000
S & D Exp $\left[\frac{30k}{20k} \times 4k\right]$ =	6000
Packing Cost [4000 × 0.80] =	3200
Total Cost	25,200

② Minimum Export Price = $\frac{25,200}{4000}$ = 6.3 / unit

③ If the order size is increase upto 8000 unit so we cant tell the minimum price because we have No Additional Capacity to produce extra 8000 unit

Replacement Decision

(1) one of the most important decision involving alternative choice is wheather or not to buy a New Capital Equipment.

(2) Replacement of Equipment is Capital investment or long term decision but one aspect of Asset Replacement decision that will Consider at this stage is How to deal with the **Book Value (i.e. writtern down value)** of old Equipment.

(3) This is a problem that has been known to cause difficulty, but the Correct Apporach is to apply relevant Cost principles.

(i.e, Past or Sunk Cost are irrelevant for Decision Making)

Cost Indifference point

Cost indifference point is the **level of output** at which the **total cost** of two different alternative remain **same / equal**.

Example

Machine - 1	Machine - 2
Fixed Cost = 100,000 p.a	Fixed Cost = 200,000 p.a
Variable Cost = 25 / unit	Variable Cost = 20 / unit

Unit produce = 30,000 unit

Machine 1 →
- Fixed Cost = 100,000
- Variable Cost = 750,000 (30,000 x 25)

850,000

Machine 2 (Best)

Fixed Cost = 200,000

Variable Cost = 600,000 (30,000 x 20)

800,000

50,000

Unit produce = 10,000 unit

Machine 1 (Best)

Fixed Cost	=	100,000
Variable Cost (10,000 × 25)	=	250,000
		350,000

↓

50,000

Machine 2

Fixed Cost	=	200,000
Variable Cost [10,000 × 20]	=	200,000
		400,000

Decision on the Basis of Total Cost

Unit produce = 20,000 unit

Machine 1

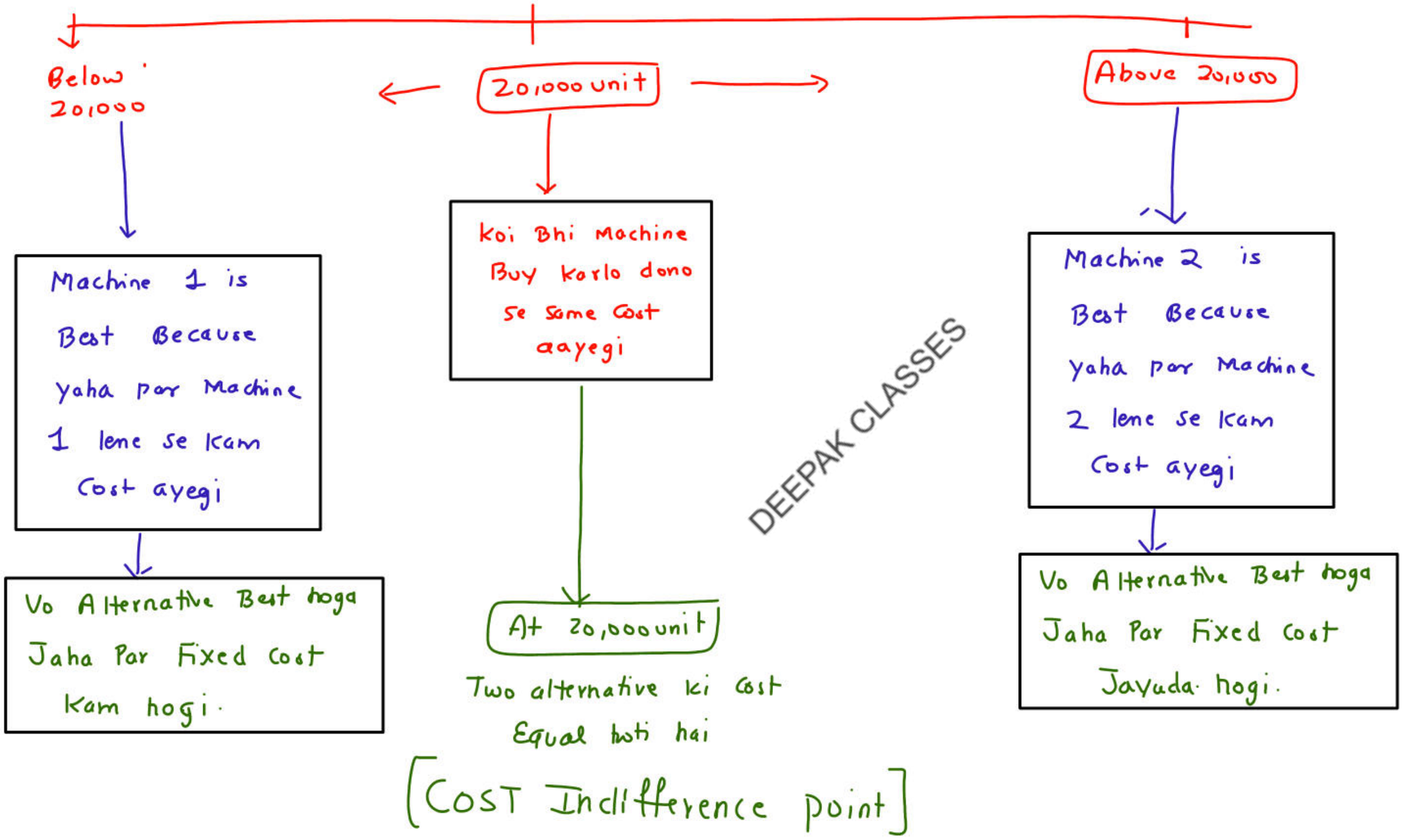
Fixed Cost	=	100,000
Variable Cost (20,000 × 25)	=	500,000
		600,000

Machine 2

Fixed Cost	=	200,000
Variable Cost (20,000 × 20)	=	400,000
		600,000

Total Cost Same

Advice


Below 20,000
20,000 unit
Above 20,000
Machine 1 is Best Because yaha par Machine 1 lene se kam Cost ayegi
Vo Alternative Best hoga Jaha Par Fixed cost kam hogi.
koi Bhi Machine Buy karlo dono se same Cost aayegi
At 20,000 unit
Two alternative ki cost Equal hoti hai
[COST Indifference point]
DEEPAK CLASSES
Machine 2 is Best Because yaha par Machine 2 lene se kam Cost ayegi
Vo Alternative Best hoga Jaha Par Fixed cost Jayada hogi.

Indifference point → level of output

Let the unit produce = x

Total Cost as per Machine - 1	=	Total Cost as per Machine - 2

$$VC + FC = VC + FC$$

$$(x \text{ unit} \times 25) + 100{,}000 = (x \text{ unit} \times 20) + 200{,}000$$

$$25x + 100{,}000 = 20x + 200{,}000$$

$$25x - 20x = 200{,}000 - 100{,}000$$

$$5x = 100{,}000$$

$$x = \frac{100{,}000}{5}$$

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

Indifference point	=	Change in Fixed Cost / Change in V.C per unit

$$= \frac{200{,}000 - 100{,}000}{25 - 20}$$

$$= \frac{100{,}000}{5}$$

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

05 Calculating Cost indifference point

Alternative 1 Machine X_1 & X_2

$$\text{Indifference point} = \frac{\text{Change in FC}}{\text{Change V.C Per unit}}$$

$$= \frac{2.5L - 1.5L}{200 - 100}$$

$$= \frac{100{,}000}{100}$$

$$= \boxed{1000 \text{ unit}}$$

Alternative 2 Machine X_2 & X_3

$$\text{Indifference point} = \frac{1.5L - 70K}{400 - 200}$$

$$= \frac{80{,}000}{200} = \boxed{400 \text{ unit}}$$

Alternative 3 Machine X_1 & X_3

$$\text{Indifference point} = \frac{2.5L - 70K}{400 - 100}$$

$$= \frac{180{,}000}{300} = \boxed{600 \text{ unit}}$$

Level of outbut	Machine preference
less than 400 unit	X_3
Exactly 400 unit	Either X_2 or X_3
Above 400 unit but less than 1000 unit	X_2
Exactly 1000 unit	Either X_1 or X_2
Above 1000 unit	X_1

(b) If the annual production is 1200 unit then As per the Above table Machine X_1 is Best Alternative because it give us lowest cost.

Shutdow or Continue (V. Impt)

1) Shutdown point is a point at which a Businessman thinks that there is No benefit in Continuing the Business operation and decides to shutdown the Business either temporarily or permanently is called the shutdown point.

2) Shutdown point occurs exactly when the morginal profit of the Business reaches a Negative Scale.

3) At shutdown point, No Economic Benefit is seen to Continued production

4) Shutdown Cost are those cost which have to be inwred under all situations in the Case of Stopping manufacture of a product (or) closing down a department or division.

5) Shutdown Cost is always a **Fixed Cost.**

Decision Making in Context of Shutdown point

Level of Sale		shutdown point
	<	

⇓

To close down operation Because avoidable Fixed Cost itself are Not Fully Recovered

Level of Sale		shutdown point
	=	

⇓

To Continued operation Since avoidable Cost are Just Recovered.

Level of Sale		shutdown point
	>	

⇓

To Continued operation Since avoidable Fixed Cost are Recovered. and Further Contribution lead to Recovery of Balance Fixed Cost.

↓

(Unavoidable)

Example

Sale = @ 100 / unit

V.C = @ 60 / unit

F.C = Avoidable + unavoidable

= 20,000 + 10,000

= 30,000

$$\text{Shutdown point (unit)} = \frac{\text{Avoidable Fixed cost}}{\text{cont/unit}}$$

$$= \frac{20,000}{40} = 500 \text{ unit}$$

Sale = 1000 unit

Sale =	100,000
(-) VC =	(60,000)
Cont. @40	40,000
(-) A.FC	(20,000)
UnFC	(10,000)
Profit	10,000

Sale = 400 unit

Total Cont (400 x 40)	= 16000
(-) Avoidable FC	= (20,000)
	(4000)

Shutdown the operation

Sale = 500 unit

Total Cont (500 x 40)	= 20,000
(-) Avo. FC	= (20,000)
	0

Continue the Business operation

Sale = 600 unit

Total Cont (600 x 40)	= 24000
(-) Av. FC	= (20,000)
	4000
(-) un FC	= (10,000)
	(6000)

Continue the operation

$$\text{Shut down Point (unit)} = \frac{\text{Avoidable Fixed Cost}}{\text{Contibution per unit}}$$

$$\text{Shut down Point (₹)} = \frac{\text{Avoidable Fixed Cost}}{\text{P/V Ratio}}$$

★ Some Fixed Cost associated with the product become avoidable and need not to be incurred in Case of production stopped. Such as. Supervisor salary, factory manager salary, Lighting etc.

Q9

Statement showing Computation of overall profit before Shutdoun the division C

	division A	division B	division C	Total
Sale	1,12,000	56000	84000	
(-) Variable Cost				
Direct Material	(14000)	(7000)	(14000)	
Direct Labour	(5600)	(7000)	(22400)	
Direct Expense	(14000)	(7000)	(28000)	
Contribution	78,400	35000	19600	133,000
(-) Fixed Cost	—	—	—	(70,000)
Profit	—	—	—	63000

Q9

Statement showing Computation of overall profit After Shutdoun the division C

	division A	division B	Total
Sale	1,12,000	56000	"
(-) Variable Cost			
Direct Material	(14000)	(7000)	"
Direct Labour	(5600)	(7000)	"
Direct Expense	(14000)	(7000)	"
Contribution	78400	35000	1,13,400
(-) Fixed Cost			(70,000)
Profit			43,400

It is advice to the mangement to not shutdown the division C.

Sub Contracting & Ancillarisation

① Capacity Planning is Necessary when an organisation decide to

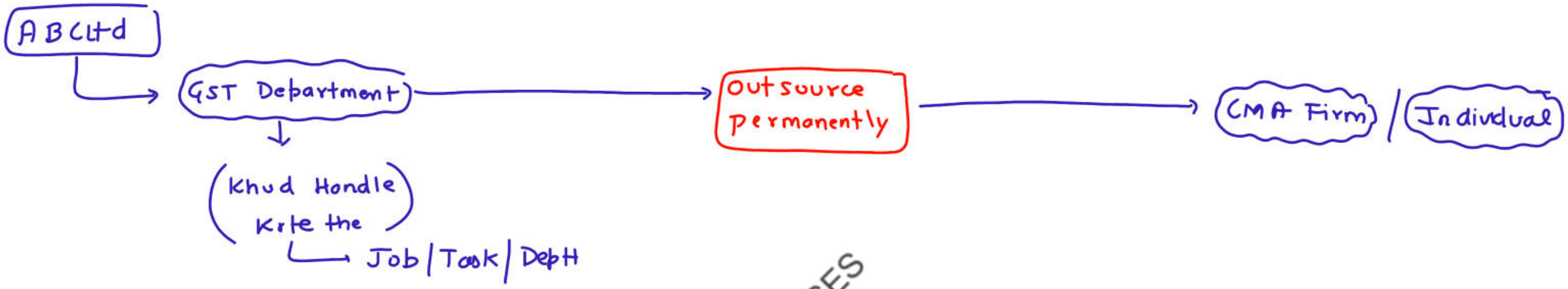
a) Increase its production or

b) Introduce a New product into the market

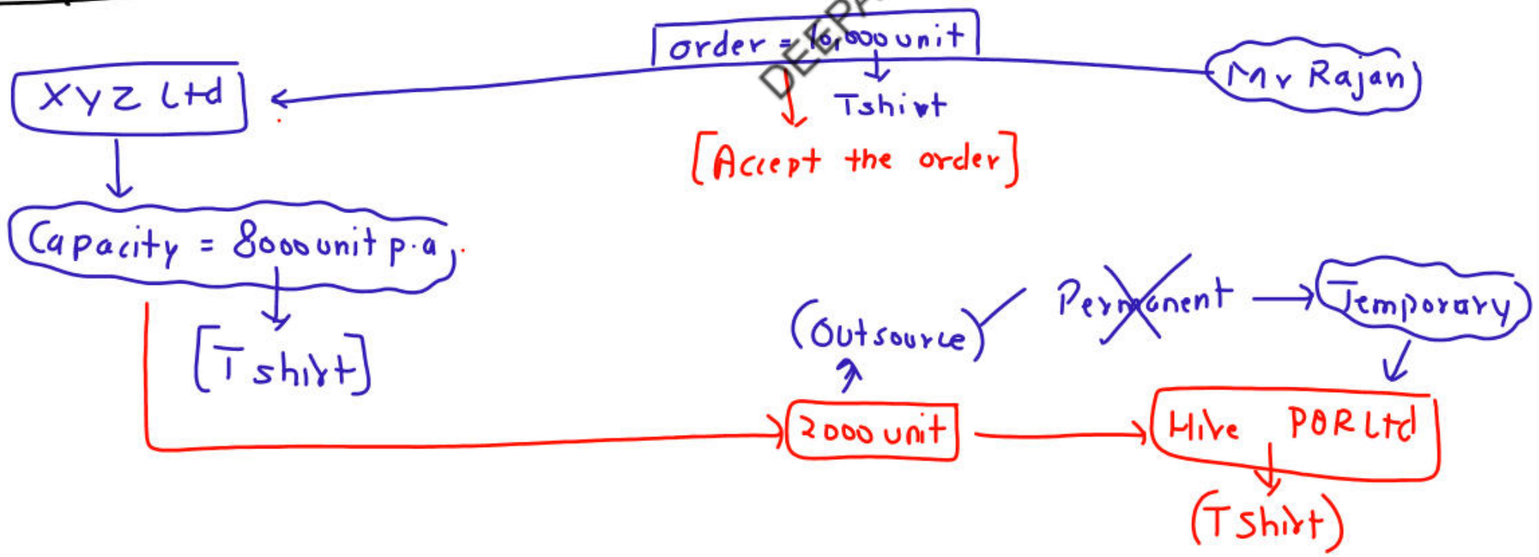
② Sub contracting refer to off-loading, Some of Jobs to Outside vendor thus Hiring the Capacity to meet the requirement of organisation. In Subcontracting outsource the task or Job to Subcontractor on **Temporary Basis**

③ Ancillarisation is when a Company Outsources the entire Job or Task or department to External Individual or Firm **Permanently**.

Concept of Ancillarisation



Concept of Sub contracting



Q7 statement showing Comparative profit

Best

	Present (8000 unit)	Sub Contracting (8k + 2k)	own Expansion (10,000 unit)
Sale @ 250/unit	20,00,000	25,00,000	25,00,000
less:- Variable Cost			
R. Mat	(12,00,000)	(12,00,000)	(15,00,000)
D. wages	(3,00,000)	(3,00,000)	(3,00,000)
Work o/H (50% Variable)	(70,000)	(70,000)	(87,500)
S & D o/H (20% Variable)	(20,000)	(20,000)	(25,000)
Sub Contracting Cost	—	(4,50,000)	—
Add worker [(600pm X12) X10] + 25%	—	—	(75,000)
Contribution	4,10,000	4,60,000	5,12,500
less:- Fixed Cost			
Work o/H (50% Fixed)	(70,000)	(70,000)	(70,000)
Adm o/H (All Fixed)	(60,000)	(70,000)	(70,000)
S & D o/H (80% Fixed)	(80,000)	(1,00,000)	(1,00,000)
Dep. on Machine (2,00,000/20)	—	—	(10,000)
Interest on Capital (2L X 15%)	—	—	(30,000)
Profit	2,00,000	2,20,000	2,23,500