Subject: Management Accounting

Class: B.com VI Sem

Topic Name: Break Even Point

Formulas:

1)B.E.P.= $\frac{\text{Fixed cost x Sales}}{\text{Sales – V.C}}$ OR $\frac{\text{Fixed cost x Sales}}{\text{Contribution}}$ OR BEP= $\frac{\textit{Fixed cost}}{1-\frac{\textit{Variable cost per unit}}{\textit{Sales per unit}}}$ OR $\frac{\text{Fixed cost}}{\text{PVR}}$

2)B.E.P. in unit = $\frac{\text{Fixed cost}}{\text{ContributionPer unit}}$ OR $\frac{\text{Fixed cost}}{\text{SP per unit} - \text{VC per unit}}$

3)Profit Volume Ratio:= $\frac{\text{Sale} - \text{VC}}{\text{Sale}} x100$ OR $\frac{\text{Contribution}}{\text{Sale}}$x100 (Contribution = Sale –VC)

OR P/V Ratio when two profits are given = $\frac{\text{Difference between two year P \&L}}{\text{Difference between two year sale}}$x100

4)Margin of Safety = Total Sale – B.E.P. Sale

5) Desired profit if sale is given = New sale x PVR – fixed Cost

6)Desired sale if profit is given= $\frac{\text{New profit} + \text{FC (New Contribution)}}{\text{PVR}}$

7)Desired sale in units = $\frac{\text{New Profit} + \text{FC}}{\text{Contribution per un it (Sale} - \text{VC per unit)}}$

8)B.E.P. on profit…… = $\frac{\text{Profit}}{\text{PVR}}$

9)B.E.P. on new PVR given = $\frac{\text{Contribution}}{\text{New PVR}}$

Q1. Given data :-

Selling Price ` 8,00,000

Variable cost `6,00,000

Profit volume Ratio--- 25%

Unit sold 40,000

Net profit ` 1,80,000

Find out :

(i) Break Even point in Rs`
(ii) Break even point in Units
(iii) Margin of safety
(iv) Sales on a desired profit of `50,000
(v) Profit on the desired sales of ` 6,00,000
(vi) Break Even point if selling price is reduced by 10%

Ans:-		
Selling Price per unit =8,00,000/40,000=20 VC per unit =6,00,000/40,000=15 Fixed cost not given =Sale –VC-Profit 8,00,000-6,00,000-1,80,000=20,000		
1) Break Even Point	$= \frac{Fixed\ Cost}{1 - \frac{VC\ Per\ unit}{Sale\ per\ unit}}$	$=\frac{20,000}{1-\frac{15}{20}}$ $==\frac{20,000}{1-0.75}$ $=\frac{20,000}{0.25}$ =` 80,000
2)Break Even Point (in Unit)	$=\frac{Fixed\ Cost\ .}{Sale\ PU-VC}\ PU$	$=\frac{20,000}{20-15}=\frac{20,000}{5}$ =4,000Unit
3) Margin of Safety	Sale – BEP Sale	8,00,000- 80,000 =7,20,000
4) Sales on desired profit `50,000	$=\frac{Desired\ \ Profit\ + Fixed\ \ Cost}{PVR}$	$=\frac{50,000+20,000}{25\%}$ =2,80,000
PVR not given PVR	$=\frac{Sales-VC}{Sale}x100$	$=\frac{8,00,000-6,00,000}{8,00,000}x100$ =25%

5) Profit on desired sales are `6,00,000	=New sale x PVR – fixed cost	=6,00,000 x 25% – 20,000 =1,30,000
6).BEP if selling price is reduced by 10% Selling Price PU =20 -10%=2 20-2=18	$=\frac{Fixed\ Cost}{1-\frac{VC\ Per\ unit}{Sale\ per\ unit}}$ OR=$\frac{Fixed\ Cost\ x\ Sale.}{Sale-VC}$	$=\frac{20,000}{1-\frac{15}{18}}$ ==$\frac{20,000}{1-0.8333}$ =$\frac{20,000}{0.1667}$ =` 1,20,000 Rounded off Or may be solved by second formula

Q2. Rahul Company submitted following information :

Year	Sales	Profit ` `
2002	4,80,000	36,000
2003	5,60,000	52,000

Find out :

1)Profit Volume Ratio.

2)Break Even Point

3)Profit on sales of `.4,20,000

4)Amount of Sales for the profit of `. 84,000

Ans;-

i) Profit Volume Ratio =$\frac{\text{Change in Profit}}{\text{Change in Sale}}$ x100 Or $\frac{\text{Diff in Profit}}{\text{Diff in Sale}}$ x100 =$\frac{16,000}{80,000}$ x100 =20%	ii) Break Even Point =Fixed cost = Sale x pvr – Profit =(4,80,000 x 20%) – 36,000 =`60,000
BEP for 2002 = BEP = $\frac{\text{Fixed costxSale}}{\text{Sale}-VC}$ BEP = $\frac{60,000 x\ 4,80,000}{4,80,000-3,84,000}$ =`3,00,000	BEP for 2003 BEP = $\frac{\text{Fixed costxSale}}{\text{Sale}-VC}$ BEP = $\frac{60,000 x\ 5,60,000}{5,60,000-4,48,000}$x =`3,00,000

iv)Profit if sales are `4,20,000= Contribution = New sale x PVR =4,20,000 x 20% = 84,000 Profit = Contribution – Fixed costs =84,000 – 60,000 =`24,000	iv) Sales for desired profit `84,000 $\text{New Sale} = \frac{\text{Desired Profit} + \text{Fixed x cost}}{\text{PVR}}$ $\text{New Sale} = \frac{84,000 + 60,000}{20\%}$ $\text{New Sale} = \frac{1,44,00 \times 100}{20}$ =` 7,20,000

Note:- if Both year profit will be given under such condition difference of profit will take for calculation

But if in 1 year profit given and in 2 year loss given under such condition total of both year profit & loss will be taken for Calculation for the PVR

For Ex:

	2006 `	**2007 `**
Sales	2,40,000	4,40,000
Profit	-	30,000
Loss	20,000	-

PVR= Difference in profit / difference between sales *100

50000/ 200000 *100 = 25%

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