**UNIT – 3**

**Break Even Analysis**

1. **From the following information, compute break even output and total revenue required to earn a profit of Rs.60,000.**

**Fixed Overheads: Rs.48,000/-**

**Variable Cost : Rs.4/- per unit**

**Selling Price : Rs.12/- per unit**

**Ans:**

**BEP in units: Fixed Costs**

**\_\_\_\_\_\_\_\_\_\_**

**Contribution margin**

**Per unit**

**Contribution margin = Selling price -**

**Per unit Variable cost/unit**

**= 12.00 – 4.00**

**= 8.00**

**B E P = 48,000 / 8 = 6000 units**

**Total Revenue =**

**Fixed cost + Targeted Profit**

**--------------------------------------**

**Contribution margin**

**= 48,000 + 60,000 / 8 = 13,500/-**

1. **Problem: A company makes a single product with a sales price of Rs.10/- and a variable cost of Rs.6/- per unit. Fixed costs are Rs.60,000/-. Calculate**
2. **Number of units to break-even.**
3. **Sales at Break-even.**
4. **Contribution to sales ratio (in terms of percentage)**
5. **What number of units will need to be sold at achieve a profit of Rs.10,000/-**
6. **What level of sales will achieve a profit of Rs.30,000/-?**
7. **Given an increase in variable cost by Rs.2/- per unit, and increase in the fixed cost by Rs.10,000/- per annum, What will be the new BEP in units.**

**Key to Text Book Page No. 7.15**

1. **Break Even point in Units:**

**Fixed Costs**

**\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contribution margin**

**Per unit**

**= 60,000 60,000**

**--------- = -------- = 15,000 units**

**10 – 6 4**

**b)BEP in : Fixed Costs**

**sales value \_\_\_\_\_\_\_\_\_\_**

**Contribution margin**

**Ratio**

**Contribution = Selling price - Variable**

**margin Ratio Cost**

**----------------------------**

**Selling Price**

**10-6 / 10 = 4 / 10.**

**= 60,000 = 1,50,000/-**

**---------**

**4 / 10**

**C) Contribution to Sales Ratio =**

**Selling price - Variable**

**Cost**

**---------------------------- X 100**

**Selling Price**

**= 10 – 6 / 10 X 100 = 4 / 10 X 100 =**

**40%**

**d) Volume of Sales to attain a targeted**

**Profit =**

**Fixed cost + Targeted Profit**

**--------------------------------------**

**Contribution margin**

**= 60,000 + 10,000 / 4 = 17,500 units.**

**e) What level of sales will achieve a profit of 30,000/-**

**Fixed cost + Targeted Profit**

**--------------------------------------**

**Contribution margin**

**= 60,000 + 30,000 / 4 = 22,500 units.**

**f) BEP = Fixed Costs**

**\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contribution margin**

**Per unit**

**= 70,000 / 10-8 = 35,000 units**

1. **Problem:**

**ABC wishes to know it’s (a) BEP of production and (b) Margin of Safety during the July to December, from the following information.**

**Jan-June July-Dec.**

**Sales 2,00,000 2,50,000**

**Net Profit 20,000 30,000**

**Hints: Fixed costs remain unchanged during the both periods**

**PV Ratio = Change in net profit / change in**

**Sales.**

**Solution: Jan-June**

**PV Ratio = Change in Net profit**

**-------------------------- x 100**

**Change in Sales**

**= 30,000 – 20,000**

**------------------------ x 100**

**2,50,000 - 2,00,000**

**= 10,000**

**----------- x 100 = 20%**

**50,000**

**PV Ratio = Fixed Costs + Profit**

**--------------------------**

**Sales**

**20 F.C + 20,000**

**---- = -------------------**

**100 2,00,000**

**20**

**---- x 2,00,000 = F.C + 20,000**

**100**

**40,000 = F.C + 20,000**

**F.C = 20,000/-**

**BEP = Fixed Costs**

**---------------**

**PV Ratio**

**= 20,000 20,000 x 100**

**-------- = ---------------= 1,00,000**

**20/100 20**

**Profit**

**Margin of Safety = ---------- x 100**

**PV Ratio**

**20,000**

**----------- x 100**

**20**

**= 1,00,000/-**

**In the same way, do it for July – Dec. sales also…..**

**Solution: July - Dec**

**PV Ratio = Change in Net profit**

**-------------------------- x 100**

**Change in Sales**

**= 30,000 – 20,000**

**------------------------ x 100**

**2,50,000 - 2,00,000**

**= 10,000**

**----------- x 100 = 20%**

**50,000**

**PV Ratio = Fixed Costs + Profit**

**--------------------------**

**Sales**

**20 F.C + 30,000**

**---- = -------------------**

**100 2,50,000**

**20**

**---- x 2,50,000 = F.C + 30,000**

**100**

**50,000 = F.C + 30,000**

**F.C = 20,000/-**

**BEP = Fixed Costs**

**---------------**

**PV Ratio**

**= 20,000 20,000 x 100**

**-------- = ---------------= 1,00,000**

**20/100 20**

**Profit**

**Margin of Safety = ---------- x 100**

**PV Ratio**

**30,000**

**----------- x 100**

**20**

**= 1,50,000/-**

1. **Problem:**

**A company making single product has the following sales and net profit for the two half of the financial year**

|  |  |  |
| --- | --- | --- |
| **Period** | **I half of the financial year** | **II half of the financial year** |
| **Sales in Rs.** | **8,00,000** | **10,00,000** |
| **Net profit Rs** | **1,00,000** | **1,50,000** |

**Find Break Even Point of production and Margin of Safety.**

**Ans:**

**PV Ratio: 25%**

**Fixed Costs: 1,00,000/-**

**BEP: 4,00,000/-**

**Margin of Safety: 4,00,000/-**

**For the 2nd half:**

**BEP: 4,00,000/-**

**Margin of Safety: 6,00,000/-**