**E22-11:**

SP Per unit= $150

VC Per unit= $90

Total Fixed Cost= $570,000

Net income for 2016= $210,000

In 2017, the net income will increase by $52,000.

1. Sales quantity of 2016:

Profit= (SP per unit\*Sales volume)-(VCP\*sales volume)-TFC

Or, 210,000= (150\*Q)-(90\*Q)-570,000

Q= 13,000 units

In 2016, The Company had sold 13,000 units of products.

1. Target net income for 2017= ($210,000+$52,000) =$ 262,000

CM per unit= (SP per unit- VCP) = (150-90) = $60.

Required sales in units= (TFC+ Target net income)/ CM per unit

= (570,000+ 262,000)/ 60

= 13,867 units

To achieve the target profit, the company needs to sell 13,867 units products.

1. Profit= (SP-VCP)\*Sales volume-TFC

Or, 262,000= (SP-90)\*13,000-570,000

SP= $154

To achieve the target profit, the company should sell its product at $154 per unit in 2017.

**P22-3A:**

1. CM ratio= (SP per unit- VCP)/SP per unit

SP Per unit= (Sales revenue/sales quantity)

= (2,500,000/500,000)

= $ 5

VCP = (Total VC/ sales quantity)

= (1,750,000/500,000)

= $3.5

CM Ratio= (5-3.5)/5= 0.3

Break –even point in dollars for 2017:

BEP in amount= TFC/CM ratio= 850,000/0.3= $2,833,334

The BEP in dollars for 2017 is $2,833,334.

1. Alternative 1:

Sales price will increase by 20%.

New selling price = 5\*1.2= $6

CM ratio= (SP-VCP)/SP

= (6-3.5)/6

= 0.42

BEP point in amount= (TFC/CM ratio) = (850,000/0.42)= Tk. 2,023,810.

Alternative 2:

Change $150,000 of fixed salary to ta total salary of $60,000 Plus 5% commission on sales.

TFC = (8,50,000-1,50,000+60,000)= $ 7,60,000

TVC = (17,50,000+ 25,00,000\*5%) = $ 18,75,000

VCP = (18,75,000/5,00,000)= $ 3.75

CM Ratio= (SP-VCP)/SP= (5-3.75)/5= 0.25

BEP in amount= (TFC/CM ratio) = 7,60,000/0.25= $ 30,40,000

Comment: Alternative 1 would be recommended as increasing selling price by 20% will result in lower break-even sales than changing cost structure.