**REVISION 1 – Questions & Suggested Answers**

You are an intern working for a management consultancy firm. You are asked to advice AB plc on the following 2 potential opportunities.

**Scenario 1**

The following are relevant to a new product that AB plc expects to launch

next year.

Selling price per unit £50

Variable cost per unit. £30

Incremental annual fixed costs £2,000,000

Budgeted production and sales are 150,000 units.

Maximum capacity is 200,000 units.

**Required:**

**(a) Calculate the budgeted profit and margin of safety [6 marks]**

**Answer:**

**Contribution per unit = £[50 – 30] = £20.**

**Budgeted profit = £20 x 150,000 units - £2m**

**= £3m - £2m = £1m**

**BEP [units] = £2,000,000 / £20 per unit = 100,000 units**

**Margin of safety = 150,000 – 100,000 = 50,000 units**

**(b) Sales volume required to make a profit of £1,200,000. [5 marks]**

**Answer:**

**Profit required = £1.2m**

**Contribution required = Total fixed costs + Profit**

**= £2m + £1.2m = £3.2m**

**Sales volume required = Total contribution / Contribution per unit**

**= £3.2m / £20 = 160,000 unit**

**(c) AB plc’s marketing director suggests an alternative strategy:**

* **Selling price to increase by 10%**
* **Fixed costs to decrease by 1%**
* **Sales volume to decrease to 135,000 units.**

**Calculate the profit, breakeven point and margin of safety for**

**this strategy. Comment on this strategy. [9 marks]**

**Answer:**

**Revised selling price = £50 x 1.1 = £55 per unit**

**Revised fixed costs = £2m x 0.99 = £1.98m**

**Revised sales volume = 135,000 units**

**Revised contribution per unit = £(55 – 30) = £25**

**Profit = £25 x 135,000 - £1.98m = £3.375m - £1.98m = £1.395m**

**BEP {unit) = £1,980,000 / £25 = 79,200 units**

**Margin of strategy = 135,000 – 79,200 = 55,800 units**

**Comments on this strategy: Higher profit, lower BEP and a higher margin of safety; hence it is an improvement on the original budget.**

**(d) A proposal is being considered by AB plc to supply 25,000 units**

**per annum of the same product to an online retailer. The retailer**

**requires modifications which will increase its variable costs by**

**£3 per unit. Delivery costs to the retailer will amount to**

**£50,000 per annum.**

**Assume AB plc has the excess capacity for the next one year**

**to consider the special order.**

**(i) the minimum price per unit to the retailer. [5 marks]**

**Answer:**

**Revised variable cost / unit = £(30 + 3) = £33 per unit**

**Incremental fixed cost per unit = £50,000 / 25,000 units = £2**

**Total cost / unit = £(33 + 2) = £35**

**Minimum price = £35 / unit**

**(ii) the selling price per unit for the above proposal if a profit of £5**

**per unit is required by AB plc. [4 marks]**

**Answer:**

**Selling price for the special offer = £35 + £5 = £40**

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

**Scenario 2**

AB plc has provided you the following details for the new investment which involves introducing one of its successful products to a new market.

Product’s contribution is £10 per unit for all 5 years.

Incremental fixed costs are £100,000 for each of the 5 years.

Initial investment in new machinery (in year 0) is £2,200,000

Scrap value from the machinery from this investment in year 5 is expected to be £400,000

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 1 | 2 | 3 | 4 | 5 |
| Sales volume (units) | 100,000 | 120,000 | 110,000 | 90,000 | 70,000 |

AB plc’s cost of capital is 10% and it requires a payback of 2.75 years for this investment.

Discount factors @ 10% are as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 1 | 2 | 3 | 4 | 5 |
|  | 0.909 | 0.826 | 0.751 | 0.683 | 0.621 |

**Required:**

**(a) The payback and NPV of the investment. [12 marks]**

**Answer:**

**Project’s cashflows in £000s**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **1** | **2** | **3** | **4** | **5** |
| **Product’s contribution @ £10 unit** | **1000** | **1200** | **1100** | **900** | **700** |
| **Incremental fixed costs** | **(100)** | **(100)** | **(100)** | **(100)** | **(100)** |
| **Scrap value** |  |  |  |  | **400** |
| **Product’s net cashflow** | **900** | **1100** | **1000** | **800** | **1000** |

**Payback**

**Cumulative cashflow in year 2 [£000s] = 2000**

**Cumulative cashflow in year 3 {£000s] = 2000 + 1000 = 3000**

**Payback lies between years 2 and 3.**

**Payback = 2 + [2200 – 2000]/ 1000 = 2 + [200 /1000] = 2.2 years.**

**NPV @ 10% [in £000s]**

**= 900 x 0.909 + 1100 x 0.826 + 1000 x 0.751 + 800 x 0.683 + 1000 x 0.621 – 2200**

**= 818.1 + 908.6 + 751 + 546.4 + 621 – 2200 = 3645.1 – 2200 = 1445.1**

**NPV @10% = £1,445,100**

**(b) Advice AB plc on the financial viability of the investment and**

**explain the basis of your advice. [5 marks]**