Marginal Costing

A) Definitions

In the Marginal Costing approach, only the *variable cost* of products are taken into account – **fixed costs are ignored**. Fixed costs are ignored in this approach as it is assumed they do not change according to the amount of products produced by the firm.

The Marginal Cost is the variable cost of making one extra unit of an item.

B) Important equations for you to know

1. **Contribution = Sales Price – Variable Cost (marginal cost)**
   OR
   Contribution = Fixed Costs + Profit (Profit = Contribution – Fixed Costs)

2. **Contribution/Sales Ratio = $\frac{\text{Contribution}}{\text{Sales}}$ x 100**

3. **Marginal cost = direct labour + direct materials + variable expenses**

4. **Marginal costing is also used to value the final stock at the end of a financial year:**

   $$\frac{\text{Unsold units}}{\text{Total units produced}} \text{ x total } \textit{variable cost} \text{ of goods completed}$$

C) **Usefulness of Marginal Costing in Management decisions**

1) **Proposed reduction in selling price**

Management may think that more profit could be made if they decrease the selling price and sell a higher volumes of goods.

Example:

ABC Company sells candles for $30 each. Each year they sell 6000 candles. A director suggests that if the price is reduced to $28, then sales will increase to 8000 candles. The sales manager thinks that sales will increase to 11000 candles if the price is reduced to $25.

The costs of producing 6000 candles are:

Direct materials	48 000	($8 per unit)
Direct Labor	66 000	($11 per unit)
Variable expenses	12 000	($2 per unit)
Fixed expenses	48 000	

The solution is to calculate which level of production will yield the highest amount of profit.

Step 1 – calculate the Contribution

Selling Price	30	28	25
Direct material	8		
Direct Labor	11		
Variable expenses	2		
Marginal Cost	21	21	21
Contribution	9	7	4

Step 2 - Calculate the profit at the different levels of production

	6000	**8000**	**11000**
Total Contribution	54000	56000	44000
Fixed expenses	48000	48000	48000
Profit/Loss	6000	8000	(4000)

Answer – reduce the price of the candles to $28

2) <u>Any additional/ special order</u>

An order received by the firm where the customer is demanding a cheaper price is accepted or rejected on the basis as to whether or not the new order *will make a <u>contribution</u> to cover the fixed costs ie whether the cheaper selling price is higher than the marginal cost.* All fixed costs are already covered by regular business contracts so it can be assumed that a new special order price needs to only cover the variable costs.

Approach – *1) Calculate the Contribution (lower selling price – Marginal cost)*
2) If the contribution is positive- then ACCEPT the order (vice versa)

There are circumstances when a company may sell at below the normal selling price:

a) to combat competitors
b) maintain production during difficult times
c) get rid of obsolete or perishable goods
d) to promote a new product

The owner must consider the following before accepting the new order at the lower price:

1. is the contribution <u>higher</u> than the lower selling price
   (Selling price – Marginal cost). If it is positive then ACCEPT the order.
2. does spare capacity exists to produce the order in addition to regular work?
3. no other business is available?
4. it will not result in other customers seeking the same low price

3) <u>Make or buy-in decisions:</u>

Should the firm continue to manufacture the product or should they buy it from an outside supplier?
The decision will be based on whether the *<u>cost of buying the goods is more or less than the marginal cost of production or whether the loss in contribution is more or less than the savings to be made</u>*

RULE: a)If the marginal cost per unit is higher than the outside suppliers' selling price then rather buy from the supplier.

Example:
The directors

Direct materials	5	
Direct labor	7	
Variable expenses	<u>3</u>	
Marginal cost	<u>15</u>	*any price from an outside supplier lower than $15 should be accepted*

b) If the lost contribution is lower than the savings to be made then rather buy from the outside supplier.

Example:
Firm A produces one million units of a product. Sales price is $31 per unit; variable(marginal) costs are $11 per unit; fixed costs are $10 million.

An outside manufacturer can manufacture and sell the goods and sell them to Firm A for $19 each. Firm A would save $9 million of fixed costs if they bought the goods from the supplier instead of manufacturing them.
Solution:
COMPARE THE LOST CONTRIBUTION WITH THE SAVINGS TO BE MADE

Step 1 – calculate the value of the lost contribution:

Manufacturing contribution: $31 - $11 = $20
Buying-in contribution: $31 - $19 = $12
Lost contribution: $20 - $12 = $ 8

Value of lost contribution: $8 x 1 million products = $8 million
Savings to be made: $9 million

Savings are greater than the lost contribution, so the product should rather be bought from the supplier. This is provided the quality will be maintained and that the supplier will not be expected to exploit his position and increase prices later on.

4) Comparing the Contribution of different products

Marginal costing can also be used to determine if a manufacturer should discontinue producing one of its' products or not.

RULE: If the product is making a *positive* contribution then consider continuing to produce it.

Note: using the Absorption costing method a product may be showing a loss, but using the Marginal costing method it may still have a positive contribution.

Example:

Absorption Costing:

	Product			
	A	**B**	**C**	**Total**
Sales	25	20	26	71
Variable costs	15	12	19	46
Apportioned Fixed costs	7	6	8	21
Profit/Loss	3	2	(1)	4

Discontinue product C as it is making a loss.

Marginal Costing:

Sales	25	20	26	71
Variable costs	15	12	19	46
Contribution	5	8	7	25

Less 21 fixed costs = 4

Under the marginal costing approach each product is making a positive contribution to the total fixed costs of $21 – there is no attempt to share out the fixed costs between the three products. *Product C will continue to be produced.*

5) Making the most profitable use out of limited resources (limiting factor)
Eg: which product should a firm produce more of with a maximum number of machine hours / materials / labor available?

This problem can be solved as follows:

1. Calculate the contribution to sales rate:

   Contribution divided by sales x 100

   The product which gives the HIGHEST contribution to sales rate should be produced to its' maximum level.

2. Calculate how many of each product can be produced per hour:

   Total products manufactured divided by total hours taken to produce

3. Calculate how many hours it will take to produce ALL of the product with the highest contribution to sales rate:

   Total number to be produced divided by products produced per hour from (2) above)

4. Subtract the answer in (3) above from the total machine hours available to find how many hours are available to produce the second product with the lower contribution to sales ratio.

5. Multiply the remaining machine hours from (4) above by the number of products produced per hour for the second product in (2) above.

Example:

A company produces two products which use the same machinery: Kays and Ells.
Last year the company produced 10 000 Kays and 5 000 Ells
It took 5 000 hours to make the Kays and 1 000 hours to make the Ells.
The machine has a maximum capacity of 5 000 hours per year. (machine hours is the limiting factor)
This year the company wants to make 20 000 Kays and 18 000 Ells.
The contribution to sales ratio is 16% for Kays and 20% for Ells.

Calculate the best product mix to produce for this year.

Solution:

1. Step one (contribution to sales rate) has been given to you : Kays 16% and Ells 20%. This means that the maximum quantity of Ells should be produced and that the remaining available machine hours should be used to produce Kays.

2. How many of each product can be produced per hour?

Kays: 10 000 divided by 5 000 hours = **2 per hour**
Ells: 5 000 divided by 1 000 = **5 per hour**

3. How many hours to produce All of Ells (as it has the highest contribution to sales rate)?

   Ells : 18 000 divided by 5 per hour = **3600 hours**

4. How many hours left for Kays?

   Kays: 5 000 – 3 600 = **1 400 hours left to produce Kays**

5. How many Kays can be produced?

   Kays: 1 400 hours x 2 per hour = **2 800 Kays**

Final Answer therefore is for the company to produce all the Ells - 18 000; and 2 800 Kays with the remaining machine hours available.