

Short-Term Decision Making

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Marginal costing is an important managerial tool for short-term decision making. It facilitates decision making in the following specified areas :

- (a) Make or Buy
- (b) selecting most profitable product mix
- (c) Fixation of product price
- (d) Shut Down decision
- (e) Profit maximization based on Limiting Factor

(A) MAKE OR BUY :-

It is necessary to decide whether a part which is already being made, should be bought from outside or if it is already purchased from outside, whether it should be manufactured.

This can be done by comparing the price charged by outside supplier with the total cost of making the part. What we need to keep in mind is that fixed cost will remain unaffected whether the part is manufactured or bought from outside.

Let us see the implication through the following problem :-

①

Make or Buy

Make the
product in-house

?

°

Or

Buy product
from
outside

?

°

⇒ Fixed Cost : Does not affect
decision making procedure as
Fixed cost is incurred irrespective
of the decision taken by the company
regarding buying or making

∴ If,

Variable cost of
making

>

Purchase price

⇒ BUY from outside

∴ If,

Variable cost of
making

<

Purchase price

⇒ MAKE it inhouse

Problem - 1

Auto Parts Ltd. has an annual production of 90,000 units for a motor component. The cost structure is as given below

Material	£ 270 p.u.
Labour (25% fixed)	180 p.u.
<u>Expenses</u>	
Variable	90 p.u.
Fixed	135 p.u.
	<u>675 p.u.</u>

The purchase manager has an offer from a supplier who is willing to supply the component at ₹540. Should the component be purchased & production stopped?

Statement of Cost

Variable Cost

	<u>₹ per unit</u>
Material	270
Labour ($180 \times 75\%$)	135
Expenses	90
	<u>495</u>

∴ Cost of purchase from supplier is ₹540, therefore, the company will have to pay ₹45 ($₹540 - ₹495$) extra per unit if purchased from the market. Thus, Auto Parts Ltd. should not stop production.

Problem 2

The estimated costs of producing 8000 units of a product are as follows:

	<u>Per unit (₹)</u>
Direct Material	15
Direct Wages	10
Direct Expenses	2
Factory Overhead (Variable)	3
Factory Overhead (Fixed)	5
Total	<u>35</u>

The same product can be purchased from the market at a price of ₹32 per unit. If the product is purchased from the market, 60% of the fixed factory overhead will be saved. Should the company make the product or buy it?

Marginal cost of making the product

	<u>₹ per unit</u>
Direct Material	15
Direct Wages	10
Direct Expenses	2
Factory Overhead	<u>3</u>
	<u>30</u>

Cost of buying the product

Purchase price	₹ 32
(-) Saving in fixed factory overhead (5 × 60%)	<u>3</u>
	<u>29</u>

Cost of making is higher than the effective cost of buying. Thus, it is recommended to buy the product from the market.

Problem - 3

The production manager of a company wants to arrive at a decision whether to continue making of its existing product X or buy it from an outside supplier. The annual requirement of X is 15,000 units. The following costs are incurred in making Product X:

Direct Materials	—	₹ 1,60,000
Indirect Materials	—	₹ 10,000
Direct Wages	—	₹ 2,00,000
Indirect Wages	—	₹ 25,000
Power & Fuel	—	₹ 45,000
Repairs & Maintenance	—	₹ 30,000
Other variable overheads	—	₹ 10,000
Depreciation (fixed)	—	₹ 30,000
Rent & Insurance (fixed)	—	₹ 75,000
Other fixed overhead	—	₹ 25,000

The lowest quotation received from an outside supplier to buy the same quality product is ₹ 26 per unit. The following additional expenses will be incurred if the product is brought in from outside sources:

Transportation cost	—	₹ 4 per unit
Storage cost	—	₹ 3 per unit

Inspection charges - ₹ 30,000.

Would you recommend for making the product internally or buying it from an outside supplier.

Marginal cost of making X :

	<u>Amount (₹)</u>
Direct Material	1,60,000
Indirect Material	10,000
Direct Wages	2,00,000
Indirect Wages	25,000
Power & Fuel	45,000
Repairs & Maintenance	30,000
Other variable overheads	10,000
	<u>4,80,000</u>

$$\begin{aligned}\text{Marginal cost per unit} &= \frac{₹ 4,80,000}{15,000 \text{ units}} \\ &= ₹ 32 \text{ per unit}\end{aligned}$$

Relevant cost of buying X

	<u>₹ per unit</u>
Purchase price	26
Transportation cost	4
Storage cost	3
Inspection charges	2
(30,000 / 15,000 units)	
	<u>35</u>

The marginal cost of making X is less than the relevant cost of buying X. Thus, it is recommended to manufacture X in the factory.

(B) SELECTION OF MOST PROFITABLE PRODUCT MIX:

When a business concern is associated in manufacturing multiple products, it is essential to determine a product mix that ensures highest profit.

The contribution of each product mix is to be measured separately and the mix with highest contribution is chosen. If fixed cost changes due to change in product mix, the mix with highest profit is chosen.

Let us see the implication through the following problems.

Problem 1

A company produces and sells two products A & B. The company incurs ₹ 1,00,000 per annum towards fixed overhead and provides following information

	<u>Cost per unit (₹)</u>	
	<u>A</u>	<u>B</u>
Materials	200	250
Wages	100	150
Variable Overheads	100	150
Selling price	520	715

Depending on the availability of raw materials and labour hours, company considers two alternative sales mix

- (i) 1000 units of Product A & 600 units of Product B
- (ii) 600 units of Product A and 1000 units of Product B

Comparative Statement of Contribution

	<u>A</u> (£)	<u>B</u> (£)
Selling price	520	715
Less: Variable cost		
Material	200	250
Labour	100	150
Overhead	100	150
Contribution	<u>120</u>	<u>165</u>

Statement showing total contribution

Product	Contribution per unit (i)	<u>Sales Mix 1</u>		<u>Sales Mix 2</u>	
		Units (ii)	Contribution (i x ii)	Units (iii)	Contribution (i x iii)
A	120	1000	1,20,000	600	72,000
B	165	600	99,000	1000	1,65,000
Total Contribution			<u>2,19,000</u>		<u>2,37,000</u>

Sales mix 2, i.e., the combination of 600 units of A and 1000 units of B yields the highest contribution and thus is considered the most profitable mix.

Problem 2

Alfred Manufacturing company gives you the following information:

	<u>Cost per unit (£)</u>	
	<u>A</u>	<u>B</u>
Direct Materials	20	25
Direct Labour	10	15
Variable Overhead	10	15
Selling price	60	100

You are required to present a statement showing marginal cost of each product & recommend the sales mix to be adopted

(a) 900 units of A & 600 units of B

(b) 1800 units of A only

(c) 1200 units of B only

(d) 1200 units of A & 400 units of B

Comparative Contribution Statement

	<u>A</u>	<u>B</u>
Selling price	60	100
<u>Less: Variable Cost</u>		
Material	20	25
Labour	10	15
Overhead	10	15
Contribution	<u>20</u>	<u>45</u>

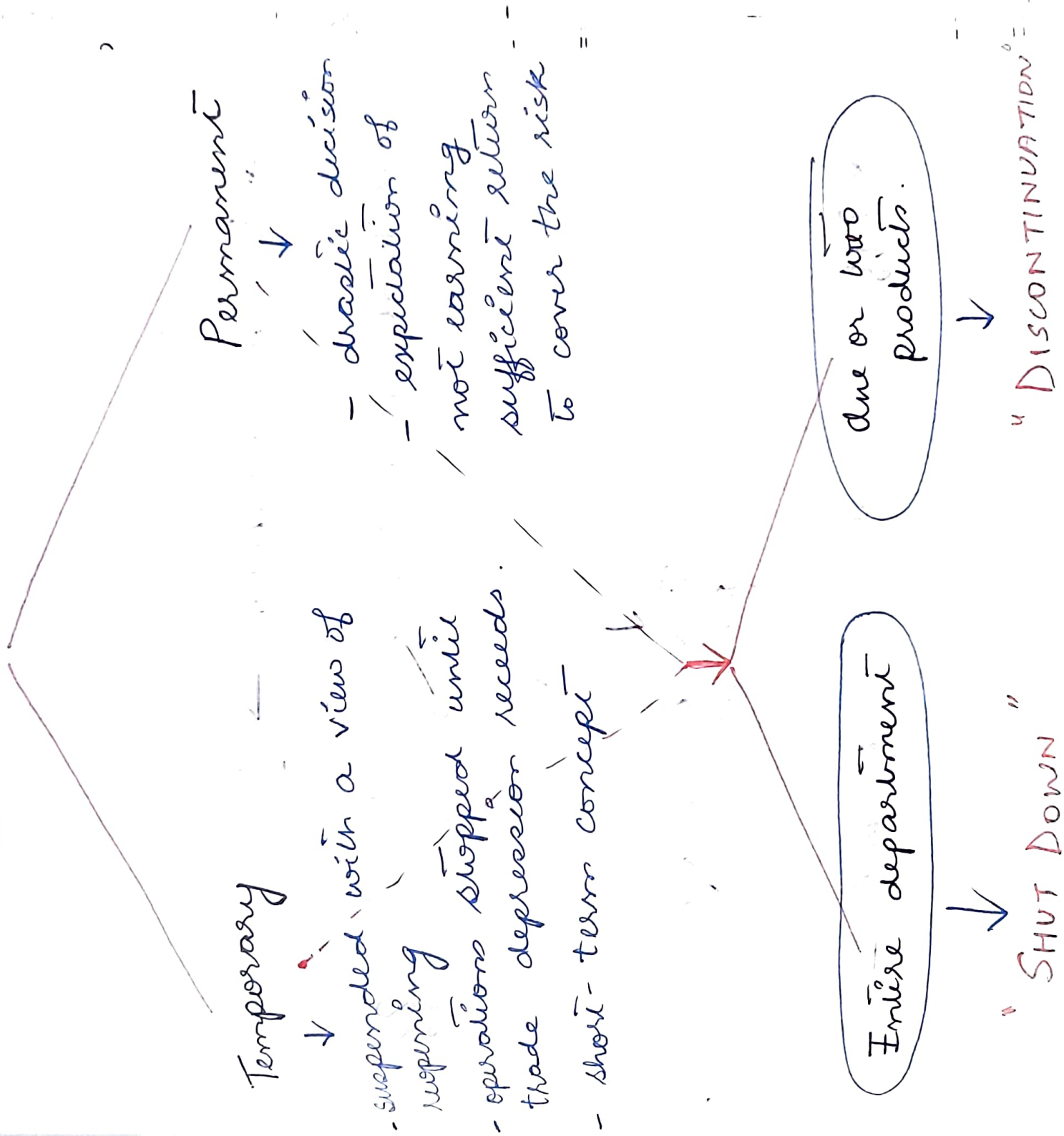
Statement showing profitable mix

		<u>Mix 1</u>		<u>Mix 2</u>		<u>Mix 3</u>		<u>Mix 4</u>	
<u>Product</u>	<u>Contribution per unit</u> (i)	<u>Unit</u> (ii)	<u>Contri</u> (ixii)	<u>Unit</u> (iii)	<u>Contri</u> (ixiii)	<u>Unit</u> (iv)	<u>Contri</u> (ixiv)	<u>Unit</u> (v)	<u>Contri</u> (ixv)
A	20	900	18,000	1800	36,000	-	-	1200	24,000
B	45	600	27,000	-	-	1200	54,000	400	18,000
Total Contribution			<u>45,000</u>		<u>36,000</u>		<u>54,000</u>		<u>42,000</u>

Sales Mix 3, i.e., production of only 1200 units of B renders the maximum contribution. Thus Sales Mix 3 is to be chosen adopted as the most profitable mix.

* Shut-down Decision Or Decision regarding Discontinuation of Product

Shut-down decision



→ Discontinuation of Product

↓
If a particular product does not perform well, management may decide to drop the production of such product.

Decision Guidelines

* Positive Contribution → No discontinuation

* Total Fixed Cost → Same ??
Decrease

If same ↓

To be borne by remaining products.

* Effect on sale of other products — ??

Problem - 1

A company manufactures four types of detergent powder :

(₹ in 000)

	A	B	C	D
Sales Revenue	825	1125	300	390
Variable Costs	495	825	150	240
Fixed Cost (allocated)	150	112	188	165
Profit/(loss)	180	188	(38)	(15)

It has been suggested that products C & D should be discontinued from production as both products are generating loss. Should C & D be discontinued?

Solution:

- ① Check whether C & D generates positive contribution.
- ② If yes, decide to continue production of C & D based on the effect on profit post discontinuation.

Statement showing contribution

	(₹ in '000)			
	A	B	C	D
Sales revenue	825	1125	300	390
(-) Variable costs	495	825	150	240
Contribution	330	300	150	150

Since, C & D is contributing positively, it is wise to continue the production of both the products - "C" & "D". Such decision needs to be justified by showing the effect on profits if C & D are discontinued.

Statement showing profit pre & post discontinuation

	Pre-disc. [ΣC-FC]			Post-disc. [ΣC-FC]		
	Coni	FC	Profit	Coni	FC	Profit
A	330	615	315	330	615	15
B	300			300		
C	150			-		
D	150			-		
	<u>930</u>			<u>630</u>		

Thus, if C & D are discontinued, there would
a significant loss in profit by
₹ 3,00,000 $[\text{₹}(3,15,000 - 15,000)]$.

So, it is justified that products
& D should not be discontinued.