

RELEVANT COST

In the **short term decision making** the management will consider the **relevant cost** of the cost element and **irrelevant cost** of the cost element.

For decision making purposes cost can be classified into:

1. Relevant cost
2. Irrelevant cost

Relevant cost - Cost that should be used in decision making is called as relevant cost. Accordingly, relevant cost can be described as the cost suitable to a specific management decision.

In short term decision making the relevant cost could incur in following ways:

1. **Incremental cost/differential cost** Incremental cost is the additional cost that should be incurred due to a management decision. These cost could be incremental variable cost and incremental fixed cost.
2. **Opportunity cost** - Opportunity cost can be explained as the value of the next best alternative sacrificed when one course of action is chosen in preference of others.
Opportunity cost will occur due to
 - Limited resources
 - Alternative uses are available for that resources

Irrelevant cost - Those cost that will be not affected by the decision is **irrelevant cost**.

Accordingly, following cost is irrelevant cost:

1. **Sunk cost:**
These are the cost incurred in the past and cannot be affected by a future decision. Sunk cost is therefore, irrelevant cost for decision making. Eg Development cost which has been already incurred.
2. **Absorption of fixed cost/General fixed overheads:**
Overhead Costs absorbed by using predetermined overheads rates are irrelevant cost.
3. **Committed cost:**
The costs that are agreed to pay, as a result of past decisions. Committed cost is the future cost flow that will be incurred anyway whatever the decision is taken now on the alternative opportunities.
Eg: Insurance premium, Rent.
4. **Notional cost /imputed cost –**
The cost used in product evaluation, decision making or performance evaluation to represent the cost of using resources which has no actual cost.
Eg: Notional rent, Notional interest.

Identification of relevant cost in variable cost

Variable cost could be:

1. Material
2. Labour
3. Using Machinery

1. Identification of relevant cost in material cost

<u>Nature of cost</u>	<u>Application of relevant cost</u>
(1) Material stock in regular use.	Current replacement cost
(2) Material stock has no other possible use and not replaced.	Current resale value
(3) Material stock has no other possible use and no resale value.	No relevant cost

2. Identification of relevant cost in labour

<u>Nature of cost</u>	<u>Application of relevant cost</u>
(1) Unused labour is available	No relevant cost
(2) Additional labour is needed	Cost of hiring
(3) No unused labour is available and no additional employees to be recruited	Contribution foregone from not being able to put the labour to its alternative use.

3. Identification of relevant cost of using machines

Using machinery will involve some incremental cost

- (1) Repair cost arising from user
- (2) Hiring charges
- (3) Fall in resale value of owned asset which results from their use

Monthly hire purchase payments are committed and therefore irrelevant cost.

Question No. 1

Following materials are needed for a special order:

Material Type	Total units required for Special order	Units already in stock	Book value of stock - Per unit (Rs.)	Realisable Value - Per unit (Rs.)	Replacement cost - Per unit (Rs.)
A	1,000	-	-	-	5
B	500	300	2	3	4
C	750	400	1	4	3
D	400	400	4	6	8

- **Material B** is regularly used by the company and if needed purchased from the market.
- **Material C** and **D** are in stock as a result of excess purchases and they are restricted in use. No other use is available for C. However, **Material D** could be used as a substitute for 500 units of **Material Y** which could be purchased at Rs. 5/= per unit. (As **Material Y** is not available as stock).

Compute the relevant cost of materials for this job.

Solution to question No. 1

- **Material A** is regularly used and not in the stock. Therefore it has to be purchased from the market at the rate of Rs5 per unit. The cost is Rs. 5,000/- for 1000 units.
- **Material B** is regularly used and 300 units are already in stock. If 300 units which are already in stock, used for this order it has to be replaced at the cost of Rs 4/-. Therefore the relevant cost of existing stock is Rs 1200/-. Balance 200 units are not in the stock and therefore have to be purchased at replacement cost of Rs 4/-. Additional purchases 200* Rs.4/- = Rs.800/-. Therefore, the relevant cost for **Material B** is Rs.2000/- (500* Rs.4/-)
- **Material C** 400 units are available due to excess buying and is not replaced and restricted in use but could be sold at the rate of Rs 4/= per unit thus getting a revenue of Rs 1600/=(400*4). But if used for this order they could not be sold @4/=.
Therefore, the opportunity cost of revenue foregone is Rs 1600/=.

Therefore,

Opportunity cost of 400 units of revenue foregone	=	Rs. 1600/=
Balance order of 350 units not in stock bought at Rs.3/-	=	<u>Rs. 1050/=</u>
The total relevant cost of 750 units	=	<u>Rs. 2650/=</u>

- **Material D** 200 units are required for this order which is already in stock and will not be replaced due to restricted use.

There are alternative opportunities available as below:

1. Either to sell the existing stock 400 units at the rate of Rs. 6 = Rs.2400
Or
2. Avoid purchasing 500units of material Y at Rs. 5/= per unit of Rs 2500/=.

If **Material D** is substituted for **material Y** the opportunity cost for material D is Rs 2500/=

Therefore the total materials cost for this order is,

	(Rs.)
Material A	5,000
Material B	2,000
Material C	2,650
Material D	<u>2,500</u>
Total materials cost	<u>12,150</u>

Question No. 2

A company has recently received an special order from a client to supply 10 gates within a month for Rs.80,000/- each. If the company decides to accept this order, following cost information would have to be considered:

- (1) **Material:** 7 meters of iron are required for a gate. At present, 10 meters of iron are available in the stores with the total book value of Rs.60,000/-. The current market value of iron is Rs.7000/- per meter.

- (2) **Labour:** Requirement is 27 hours per gate. The company expects to use 03 idle workers for the job. A worker is required to work 180 hours a month (20 working days) and is paid with a monthly salary of Rs.50,000/-. In addition, each worker is paid with an incentive commission of Rs.10,000/- per order.
- (3) **Overhead:** The budgeted overhead cost is Rs.100,000/- for a month and is absorbed at a rate of Rs.50/- per labour hour. It is estimated that monthly overhead cost of the company would increase by Rs.15, 000/- per gate with this order.

You are required to,

- (1) Identify and Compute the relevant costs and irrelevant costs of each cost element with reasons.
- (2) State whether the company should accept the order on the basis of relevant costs.

Solution to question No. 2

Materials – They are regularly used and available in stock also. If used for this order, the company has to purchase materials from the market at the rate of Rs. 7,000 per meter. (For 7 meters for 10 gates). Therefore, the current market value should be considered as the relevant cost for short term decisions such as accepting a special order.

Further Rs. 60,000/= worth of material in stock is a historical cost and it is a sunk cost and irrelevant for decision making.

Relevant cost considers future cost .If so the material cost for this special order is Rs. 490,000. (Rs. 7,000*7*10).

Labour- Currently 03 workers are in idle, therefore the labour cost of Rs. 150,000. (03 workers at the rate of Rs 50,000/=) has to be paid to these workers whether the order is accepted or not.

But incentive of Rs 10,000/= per order for 03 workers is an additional cost for this order. Therefore, the relevant cost of labor is Rs. 30,000. (10,000*3).

Overhead: The budgeted overhead cost is Rs.100, 000/- for a month and is a fixed cost. It does not increase with the order. Further the absorbed rate of Rs.50/- per labour hour is also irrelevant cost.

However as a result of this order, the incremental overhead is Rs. 150,000. (Rs.15,000 per gate for 10 gates)It is a relevant cost.

Accordingly, if the order is accepted,

	(Rs.)
Material cost	490, 000
Labor cost	30, 000
Overhead cost	<u>150,000</u>
Total incremental cost	<u>670,000</u>
Value of the order	800,000
Less: Total Incremental Cost	<u>670,000</u>
Profit of the order	<u>130,000</u>

The company would get a profit of Rs. 130,000/- by accepting this order.

Question No. 3

Fair Ltd. is considering the introduction of a new product A that will be sold in a tube. The product will be sold to wholesalers at Rs.80/- per tube. Fixed costs of Rs.1,000,000/- will be absorbed by the product when allocating a fair share of the company's present fixed costs to the new product.

Estimated production and sales for the first year will be 100,000 tubes.

Cost per unit including an empty tube is as follows:

	Rs.
Direct Materials	30
Direct Labour	20
Total overheads	15

The company is considering purchasing empty tubes from an outside supplier at Rs.9/- per tube. If the empty tubes are purchased from outside, the direct labour and variable overheads would be reduced by 10% while direct material costs would be reduced by 20%.

You are required to:

Assess whether the company should manufacture the empty tubes or buy the empty tubes from an outside supplier.

Solution to question No. 3

Current variable cost for making the product is as follows:

	Rs.
Direct Materials	30
Direct Labour	20
Variable overheads	5
	55

Fixed overhead cost per unit is Rs.10 (1000,000/100000) and it is irrelevant.

Cost of buying is as follows:

	Rs.
Direct Materials	24.00
Direct Labour	18.00
Variable overheads	4.50
Cost of empty tube	9.00
Total cost of buying	55.50

Therefore, the company should manufacture the empty tubes.

Question No. 4

AC Products Ltd. manufactures a single product (Product x) and selling price per unit is Rs.750. The manufacturing cost per unit is given below:

Cost Per Unit

Direct Material A	-	250g @ Rs.1,000 per kg
Direct Material B	-	750g @ Rs.400/- per kg
Direct Material C	-	01 unit @ Rs.25/- per unit
Skilled Labour	-	5 minutes @ Rs.240/- per hour
Unskilled Labour	-	10 minutes @ Rs.150/- per hour
Variable Overheads	-	Rs.30/-

Total Fixed Overheads for a month is Rs.2,880,000 and are absorbed based on machine utilization.

AC Products Ltd. has received an order from a new customer to supply 4000 units of product x at Rs.600 each before end of the current month and the following additional information is given:

1. Material A will have an excess stock of 1,500 kg of material which will expire by end of the current month.
2. Available stock of direct material B is just sufficient for the planned production and the next consignment from the usual supplier is due only on the 01st day of the next month. If the new customer's order is accepted direct material B will have to be purchased at Rs 500 per kg.
3. Skilled labour is sufficient only to meet the current production level and overtime premium of Rs.120 per hour has to be paid for any additional time.

Assess whether the order of the new customer should be accepted.

Solution to question 4

		Rs.	Rs.
Revenue from new order	(4000 units at Rs. 600)		2,400,000
Less: Cost			
Material A (<i>Note 01</i>)	No incremental cost	-	
Material B	Replacement cost (Rs. 500*750*4000/1000)	1,500,000	
Material C	(1 unit for 4000 units at the rate of Rs. 25)	100,000	
Skilled labour (<i>Note 02</i>)	Relevant cost of labor (5/60*4000*360)	120,000	
Unskilled Labour	(10 minutes per unit @ Rs.150/- per hour for 4000units)	100,000	
Variable Overheads	(Rs.30/- per unit for 4000units is Rs 120,000/=)	120000	
Total Fixed Overheads	This is absorbed based on machine utilization and irrelevant for decision making in accepting the new order.	-	
Total relevant cost			1,940,000
Profit from the order			460,000

Material A (*Note 01*)

Required for this order is 1000Kg. (250g per unit for 4000 units)

Material A will have an excess stock of 1,500kg of materials which will expire by end of the current month. Therefore, there is no additional incremental cost on material A.

Skilled labour (*Note 02*)

This is sufficient only to meet the current production level and overtime premium of Rs.120/- per hour has to be paid for any additional time. Therefore relevant cost of labour is Rs 120,000. ((5*4000) /60*360)

Question No. 5

A spare parts manufacturing company manufactures **product A** and cost per unit of **product A** is Rs.8.25. The same is available in the market at Rs7.75, with an assurance of continued supply.

The analysis of cost per unit of **product A** is as follows:

	Rs:
Direct material	2.75
Direct labour	1.75
Other variable costs	0.5
Fixed cost	3.25
	<u>8.25</u>

You are required to,

- (a) Assess whether to manufacture **product A** or buy it from the market.
- (b) Assess whether the offer should be accepted or not by the company, if an outside supplier offers a unit of **product A** at Rs. 4.

Solution to question No. 5

- (a) Total variable cost of making the product A is Rs 5. (2.75+1.75+.50).

The fixed cost is irrelevant cost.

Cost of buying from the market is Rs 7.75

Therefore it is advised to make the product.

- (b) Total variable cost of making the product A is Rs 5. (2.75+1.75+.50).

The fixed cost is irrelevant cost.

Cost of buying from the market is Rs 4.

There is a saving of Rs. 1 in buying the product from the market.

Therefore it is advised to buy the product from the market.

Question No. 6

TGL Ltd. received an order for T-shirts from overseas. These clothes are manufactured based on the specifications given by the customer. TGL Ltd recently received an order to manufacture 5,000 T-Shirts within 7 days at a price of Rs.300 per T-Shirt. The resource requirement for this order has been identified as given below:

- Material - 0.8 meters of material is required per T-Shirt. This material is not normally used by the company but there are 1,000 meters of material in the inventory which were purchased a few years ago at a cost of Rs.180/- per meter. If not used for this order, this quantity can be sold as scrap at Rs.50/- per meter. The current market price of this material is Rs.150/- per meter.
- Labour –30 minutes of labour time has been estimated for the completion of a T-Shirts. Since the order is urgent, TGL Ltd. needs to get the factory staff to work overtime for 1000 hours, for which they will be paid overtime at the rate of 1.5 times of the normal pay. The factory staff is currently paid a wage of Rs.200/- per hour. If this order is accepted, TGL Ltd. would need to postpone a regular order to the next week. In addition, the company needs to get the factory staff to work 400 overtime hours to complete the regular order on time.
- Supervisor - The factory staff is supervised by the Factory Supervisor of the company who is paid a fixed monthly salary of Rs.150,000/- per month.
- Overheads - The variable overheads are incurred at the rate of Rs.100/- per labour hour for this order. In addition as the design is different from regular orders, a special machine needs to be hired to complete the order at the rate of Rs.5,000/- per day for 7 days.
- Design cost - The design selected for this order was drawn few years ago incurring a cost of Rs.320,000/-.

You are required to:

- Assess whether **TGL Ltd.** should accept this order or not with supporting calculations. (Indicate clearly the relevant cost element and amount used in the computation.)

Solution to Question No. 6

	Rs.
Revenue from the order Rs.300/- for 5000 T-Shirts	1,500,000
Less : Cost	
Materials – (Already purchased 1000 meters material at the price of Rs.180/- per unit is a sunk cost.)	-
Materials – Scrap value (1,000 m x 50) - opportunity cost	(50,000)
Material to be purchased [(3,000 x 150)]	(450,000)
Labour:	
Overtime (200 x 1,000 hours x 1.5)	(300,000)
OT for regular order (400 hours x 200 x 1.5)	(120,000)
Supervisor – fixed salary (not relevant)	-
Variable overheads (2,500 x 100)	(250,000)
Machine hours (5,000 x 7)	(35,000)
Design cost – (sunk cost)	-
Profit	295,000
