

Marginal Costing		
Time Allowed: 35 Minutes	TEST – 4 (Solution)	Total Marks: 35 Marks

Answer to Question no.1:

Benefits of Study of Marginal Costing

1. Marginal costing is very effective in cost control. It is necessary to segregate various expenses into fixed and variable parts. Such behaviour of cost is also compared with past data. As such, the management is able to control if there is variance as compared to past period or standard cost.
2. It is helpful in taking the decision regarding price fixation. Normally the price is to be fixed above total cost for earning some profit. But, under certain circumstances, price can be fixed at below total cost but above variable cost because fixed cost becomes irrelevant in the decision - making process.
3. It is helpful in deciding the most suitable sales mix for obtaining the maximum profit. If the situation of key factor or limiting factor is prevailing, the product which yields highest contribution per unit of key factor is considered most profitable.
4. In case of "Make or Buy decisions", the decision is to be taken by comparing the supplier's price with the variable manufacturing cost. Here, fixed cost is to be ignored. The study of Marginal Costing is helpful in taking such decisions.
5. If new product has been developed & management is faced with the problem of deciding whether to employ machine or labour oriented activities, the management should select such method which yields maximum contribution.

Answer to Question no.2:

$$(i) \text{ P/V Ratio} = \frac{S - V}{S} \times 100 = \frac{80 - 48}{80} \times 100 = 40\%$$

$$\text{BEP (Value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{\text{₹ } 18,00,000}{40\%} = \text{₹ } 45,00,000$$

$$(ii) \text{ Desired increase in Sales} = \frac{\text{Desired increase in profit}}{\text{P/V Ratio}} = \frac{\text{₹ } 3,60,000}{40\%} = \text{₹ } 9,00,000$$

$$(iii) \text{ SP/Unit} = \text{₹ } 80 \text{ (unchanged)}$$

$$\text{VC/Unit} = \text{₹ } 48 + \text{₹ } 7 = \text{₹ } 55$$

$$\text{C/Unit} = \text{₹ } 80 - \text{₹ } 55 = \text{₹ } 25$$

$$\begin{aligned} \text{Future Desired Profit} &= \text{Present Actual Profit} = \text{Present contribution} - \text{fixed Cost} \\ &= (1,00,000 \text{ units})(\text{₹ } 32/\text{Unit}) - \text{₹ } 18,00,000 = \text{₹ } 14,00,000 \end{aligned}$$

Units to be sold in the future to maintain the present profit is computed below: -

$$= \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} = \frac{\text{₹ } 18,00,000 + \text{₹ } 14,00,000}{\text{₹ } 25 \text{ per unit}} = 1,28,000 \text{ units}$$

Hence, the profit which is presently obtained by selling 1,00,000 units will be obtained in the future by selling 1,28,000 units. In other words, the sales quantity is to be increased by 28% to off-set the increase of ₹ 7 per unit in variable cost.

Answer to Question no.3:

We are given that raw material quantity cannot exceed 10,400 kgs. Hence, the profitability decision is based upon the calculation of contribution per kg. of raw material which is ascertained below:-

	Product X	Product Y	Product Z
Selling Price p.u.	₹ 30	₹ 40	₹ 50
<u>Variable Cost p.u.</u>			
Material @ ₹ 8/kg.	₹ 5.60 (0.7 kg.)	₹ 3.20 (0.4 kg.)	₹ 12 (1.5 kg)
Labour Cost @ ₹ 8/hr.	₹ 8 (1 hour)	₹ 16 (2 hrs.)	₹ 12 1.5 hrs)
Variable Overheads @ ₹ 5.60/hr.	₹ 5.60	₹ 11.20	₹ 8.40
Selling Overheads (10% of selling price)	₹ 3	₹ 4	₹ 5
	₹ 22.2	₹ 34.40	₹ 37.40
Contribution p.u.	₹ 7.80	₹ 5.60	₹ 12.60
Quantity used per unit	0.7 kg.	0.4 kg.	1.5 kgs.
Contribution per kg.	7.80/0.7 = ₹ 11.14	5.60/0.4 = ₹ 14	12.60/1.5 = ₹ 8.40
Ranking	II	I	III

a) Determination of most-profitable product-mix:-

Product	Quantity	Material used per unit	Total Material Used
X	8,000 Units (Max.)	0.7 kg.	5,600 kgs.
Y	6,000 Units (Max.)	0.4 kg.	2,400 kgs.
Z	1,600 Units (2,400/1.5)	1.5 kgs.	2,400 kgs. (Bal.)
			10,400 kgs.

Determination of profit as per above recommendation:-

Product	Quantity	Contribution p.u.	Total Contribution
X	8,000 Units	₹ 7.80	₹ 62,400
Y	6,000 Units	₹ 5.60	₹ 33,600
Z	1,600 Units	₹ 12.60	₹ 20,160
			₹ 1,16,160
		(-) Fixed Cost	(50,000)
		Profit	₹ 66,160

b) If additional 4,500 kgs. of raw material is made available, it can be used for further production of 3,000 units of product Z (This is so because each unit of Z would require 1.5 kg. of raw material)

This will lead to following amount of additional profit:-

Increase in sales (3,000 units of Z)	(₹ 50 p.u.)	₹ 1,50,000
(-) Increase in Fixed Cost		(20,000)
(-) Increase in Variable Cost		
Material (3,000 units of Z)	(₹ 12 p.u.)	(36,000)
Labour (3,000 units of Z)	(₹ 12 p.u. Plus 25%)	(45,000)
Variable overheads (3,000 units of Z)	(₹ 8.40 p.u. + 25%)	(31,500)
Selling commission (3,000 units of Z)	(₹ 5 p.u.)	(15,000)
Net increase in profit		₹ 2,500

Hence, it is advised to produce extra 3,000 units of Product Z as it will produce additional Profit of ₹ 2,500.