

Total Marks:95

Your overall performance is good. Revise all your previous topics at least once in a week rather allocate a day in a week for revision and evaluating your performance. This will help you memorize topics and bind out shortcomings in your preparation.

SCMPE

Syllabus :-

Q:1

a) Product wise Profitability based on original allocation

Particulars	A	B	C
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Selling Price	620	420	
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Direct Materials			
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- Dyeing - 140 (70:30)	(98)	(42)	
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- Dyeing - 180 (50:50)	(98)	(90)	
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- Dyeing - 140 (70:30)	(98)	(42)	
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Direct Labour			
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- Dyeing - 90 (70:30)	(63)	(27)	
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- Dyeing - 120 (50:50)	(60)	(60)	
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you have good understanding of this question.

General Overheads	€ - 230 (50:50)	(115)	(115)
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Total expense	<u>587</u>	<u>403</u>	
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Total profit	33	17	
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Profitability % :-	5.32	4.05%	
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$(63/620 \times 100)$ $(17/420 \times 100)$

b) Product wise Profitability based on Activity Based costing

Particulars	A	B
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Selling Price	620	420
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Direct Materials (as above)	286	174
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Direct Labour (as above)	186	114
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General Overheads		
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- Treatment cost of Thermal glass	50	36
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- Wastewater treatment cost	62	38
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- cost of planting trees and other cost	25	25
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Total expenses	<u>609</u>	<u>381</u>
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Total profit	11	39
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Profitability %

1.77 %

9.29 %

Working Note

1) Allocation of Overheads to various processes

Particulars

Tanning Dyeing Tanning Total

Treatment of harmful gases

- 80 (40:30:10)

40 30 10 80

Wastewater Treatment

- 100 (9:6:0)

60 40 10 100

100 70 10

2) Allocation of Overheads to products

Particulars

A

B

Treatment of harmful gases

- Tanning - 40 (70:30) 28 12

- Dyeing - 30 (50:50) 15 15

- Working - 10 (70:30) 7 3

Wastewater Treatment

- Tanning - 60 (70:30) 42 18

- Dyeing - 40 (50:50) 20 20

Total of planting trees $(230 - 100 - 80) (50:50)$ 25 25

and other overheads

137 93

c) As per the original method, the general overhead cost was allocated equally among Product A & B, irrespective of the environmental costs that were incurred by the product separately. Due to the same, the profitability ratios of Product A and B were 5.32% and 4.05% respectively.

3 marks

In the second scenario, the general overhead costs are further analysed to determine the environmental costs that are incurred in the same. The environmental costs so identified are then traced to the processes that are involved incurring

From it can be seen that Sourcing process, followed by Dyeing and Finishing generate the maximum overhead cost, followed by Dyeing and then them. These processes were allocated overhead cost which is then allocated to the products on the basis of the ratio that they employ the respective processes. The general overhead cost such as cost of plant/taking leases and other general overheads are allocated equally to both the products. The profit/loss per unit by following this method was 1.72% and 9.29% for Product A and B respectively.

a) Techniques for Identification and Allocation of Environmental costs

i) Input Output Analysis:

This method involves identifying the flow of input with the flow of output. This helps the company in identifying the usage of inputs at each process level and the resultant waste of resources in the respective processes. The company can then modify or replace those processes which generate the maximum waste.

3 marks

ii) Flow chart Accounting:

This technique involves not only the material flows but also the organization structure. It analyses the flow of resources along each step of the production process so as to identify the processes which generate maximum waste so that they can be modified accordingly.

iii) Life cycle costing:

This method considers the costs and revenue of a product over its whole life rather than just an accounting period. The organization can then adopt appropriate steps to reduce the life cycle costs of the product.

iv) Activity Based costing (ABC)

This method allocates the costs based on their respective cost drivers to the appropriate cost centres.

- i) Reasons why environmental costs is becoming important to the organisation:
- Increasing regulations

Regulations are increasing at a rapid pace worldwide, will penalties for non-compliance also increasing accordingly.

- Carbon footprint and goodwill:

3 marks

Carbon footprint means the total greenhouse gas emissions issued directly or indirectly by a person, organization, companies by many way their carbon footprint are trying to show themselves as environment friendly companies

- High environmental costs.

With rapidly increasing environmental costs, there is an increasing pressure on the company to control the same.

(Q:2)

The company has a plan to produce 180,000 units and to adopt the cost plus mark up of 25% approach to determine the selling price. The selling price according do the same would be:

Particulars

8 marks

Variable cost $(180,000 \times 25)$

Total cost

Add: P. Markup @ 25% $(57,600 \times 25\%)$

Revenue

180,000	/	40 p.u.
72,00,000		

13,60,000

45,00,000

175,60,000

144,000

220,000

you have correctly solved this question.

However at selling price of 240 per unit, the company would only be able to sell 150,000 units according to the Marketing Manager. This would result in unsold units of 30,000.

As per the Marketing Manager's, the demand of the product by different selling price are as follows:

Particulars	I	II	III	IV	V	W.L.D.
Annual Demand (A)	174000	162000	150000	138000	125000	180000
Selling price per unit	36	38	40	42	44	32
Revenue	626400	6156000	600000	5796000	5510000	576000
Less Variable cost (25 x A)	4350000	4050000	3750000	3450000	3125000	4140000
Lined cost	1260000	1260000	1260000	1260000	1260000	1260000
Profit	654000	846000	990000	1086000	1115000	369000
Profitability % (on total cost)	11.60%	15.93%	19.76%	23.06%	25.43%	6.67%

As per the above table, the company should produce 125000 and sell the item @ ₹44 for maximum profit.

b) ii Statement showing Total Quality Loss

Particulars

Prevention loss

Supplier Review

125000

5 marks

Appraisal loss

Equipment testing (18 x 1500)

28800

Internal Failure cost

Down time

Deviations (228 x 3200)

228000

2296000

External Failure cost

Customer complaints (35 x 2000)

70000

Warranty Repair (1500 x 2000)

4056000

5779400

iii) Measures to reduce non-conformance w.r.t

a) Total Quality Management :

It aims at improving the quality of products through continuous improvement of internal process and practices. Its objective is to enhance work and increase efficiency without compromising on the quality of the products.

b) Total Productive Maintenance

This aims at reducing the internal failure rate, by keeping all machinery / equipment ready to reduce the risk of breakdown.

c) Statement of Comparison

Particulars

I

II

Units produced

1000

1000

Less: Defective

(40)

Less: Warranty Replacement

-

(991)

Units sold

960

990.09

Sales @ ₹800 per unit

76800

792072

Less: Variable cost of production @ ₹500 per u

5,00,000

5,00,000

Inspection of finished goods

10,000

-

Share part replacement

4000

-

$(1000 \times 4/7 \times 20\%)$

Machine set

4 marks

8000

Profit

254000

284072

Since Option II gives a higher profit, the same should be preferred.

iv) a) Inspection of finished goods

b) Warranty Replacement and Share part replacement.

(Q: 2(d))

avoid unnecessary cutting.

i) Statement of comparison

Particulars

~~Max work produced~~

In House Subcontractor

10,000

(Q: 2(d))

- i) Since an additional 500 units can be finished, the variance in contribution through outsourcing

3 marks

$$(600 - 400) \times 5000$$

$$= ₹ 10,00,000$$

Contribution per unit : Selling Price - Direct Material cost

$$600 - 400$$

$$= 200$$

- ii) Since finishing operation is the bottleneck and not cutting. There is no reason to increase cutting capacity at the moment.

- iii) Since finishing operation is the bottleneck and not cutting. There is no reason to increase cutting capacity at the moment.

(Q: 6(b))

10 marksMaterial usage variance : $SQ \times SP - AQ \times SP$

$$= 24000 \times 5 - 30000 \times 5$$

$$= ₹ 30,000 (A)$$

$$SG : \frac{2,000}{250} = 8000 \times \frac{2000}{250}$$

$$= 24000$$

Labour Efficiency Variance : $SH \times SR - AH \times SR$

$$\begin{aligned} & 20 \times 7 - 22,500 \times 7 = 22,500 \times 7 \\ & + 17,500 \text{ (A)} \end{aligned}$$

Here, $SH = 2500 \times \frac{2000}{2500}$

$$2000 = 20,000$$

you have correctly solved this question.

Variable Overhead Efficiency Variance : $SVOH - AVOH \times SR$

$$SVOH \times SR - AVOH \times SR$$

$$(20,000 \times 3) - (22,500 \times 3)$$

$$= 7500 \text{ (A)}$$

Fixed Overhead Volume Variance : Absorbed FOH - Budgeted FOH

$$= 20,000 \times 3 - 25,000 \times 3$$

$$= 15,000 \text{ (A)}$$

Sales Distribution Volume Variance : $SP \times SR - AQ \times AP$

$$= (25000 \times 60) - (2000 \times 60)$$

$$= 45,000 \text{ (A)} 30,000 \text{ (A)}$$

Reconciliation between Budgeted and Actual Profits

Particulars

Conventional Revenue Method
Method Income Statement Income Statement

Budgeted Profit

150,000 150,000 150,000

Sales Volume Variance

30,000 (A) - 22,500 (A)

Material Usage Variance

30,000 (A) 25,000 (A) 30,000 (A)

Labour Efficiency Variance

17,500 (A)

17,500 (A) 40,000 (A)

Variable Overhead Efficiency Variance

7,500 (A)

7,500 (A) 7,500 (A)

Fixed Overhead Volume Variance

15,000 (A)

- 50,000

Actual Profit

50,000

50,000

(Q:6a)

10 marks

Scenario :-
 ii Computation of ideal price
 Particulars

Deprecy (A)

650000

240000

210000

Production Pkts per day (A)

600000

80000

80000

Selling Price

180

310

260

Variable cost

(108)

(189)

(189)

Contribution

22

121

71

Contribution %

40%

39%

27%

Sales

(₹ in lakhs)

(₹ in lakhs)

(₹ in lakhs)

Sales

1080

248

208

1536

Contribution

432

96.8

56.8

585.60

Overheads

(109)

(151.2)

(151.2)

(950.4)

Depreciation

(246.20)

(230.40)

(151)

Profit

19.20

0.80 X

X

Let selling price for new customers = x

$$\therefore 15\% (1080 + 248 + X \times 0.80) = (1080 + 248 + X \times 0.80) - 950 - 246.20$$

$$\Rightarrow 19.20 - 0.12 X = 22.40 + 0.80 X$$

$$\therefore X = 260$$

Hence the ideal price is ₹260 which is beneficial to the new customers even though it is higher than the price paid by old customers (i.e., ₹250) by ₹10 per unit.

The customer will have to be convinced as per the direction of the CFO

that the life of Line 2 products is higher than Line 1 products by 1.5 times and is also less than sum of existing customers (i.e., ₹310) and 1.5 times of price of Line 1 product (i.e., ₹270 (1.5×180))

ii) At the price of ₹260 while the contribution for Line 2 drops to 34%, the profitability remains at 15%.

This is because the overheads and depreciation increase only marginally due to additional goods sold and the increase in contribution is at ₹36.8 lakhs which is higher than the increase in expenses of ₹22.2 lakhs ($620 + 16.6$).

iii) Due to sale of Line 2 product @ ₹260, there is an increase in fixed overheads by ₹6.20 lakhs and a loss of contribution of ₹4.00 lakhs.

To make for the same, the Sales Head should have a target sales of 15000 kg of Line 1 product. This is arrived at by dividing 10.20 lakhs ($6.20 + 4$) by contribution per unit of Line 1 product which is ₹14.16 (by rounded off to ₹15,000 kgs)

iv) Price at which there is no profit or loss: ~~Current standards~~

~~Average produced~~

$$\frac{189 + 32.75}{80}$$

$$= ₹221.75$$

Scenario 2:

When there is a price increase in raw material by ₹12, no customer will pay more than ₹12 for the product as there is no benefit arising from the same.

Though there is a reduction in contribution %, there is no loss to the company and hence the company should not increase the price of the product.

(Q3)(ii)

a) Victoria success in the customer perspective will result in increased customer satisfaction and resultant revenue growth. This would result in increased revenue in the following ways:

- i) Increase in number of customers while retaining existing customers
- ii) Customer's willingness to pay premium

Since the increase in revenue and profit arises without any requirement of additional capital employed, it results in higher return on capital employed.

b) Ability to meet customer transport needs:

This would be measured by the percentage of packages transported on the basis of customer requests made.

$$\Rightarrow \frac{\text{Total number of packages transported}}{\text{Total number of customer transport requests}} = \frac{548000}{616000} = 89.8\%$$

Ability to deliver packages quickly:

Since each package travels different distances on the basis of the customer destination, it is more preferable to measure the same using the time spent in traversing the required distance.

$$\Rightarrow \frac{\text{Total delivery minutes}}{\text{Total package kilometres}} = \frac{1315200}{6576000} = 2$$

you have good concept clarity of this question.

Ability to deliver packages on-time:

Assuming that each package delivered is to a separate customer or is a separate transaction, the same can be measured by comparing the deliveries made on time and the total number of deliveries.

$$\Rightarrow \frac{\text{Delivery on time}}{\text{Total number of packages transported}} = \frac{548000 - 21926}{548000} = 96\%$$

$$\text{Total number of packages transported.} \quad 548000 \quad = 96\%$$

Ability to deliver packages safely:

By taking the assumption made above, the score is measured by comparing the number of undamaged packages delivered against the total number of the deliveries made.

$$\Rightarrow \text{Delivery of damaged packages} : \frac{548000 - 8220}{548000}$$

Total number of deliveries made

2 98.5%

The problem of using customer complaints to measure whether packages are delivered on time and safely are:

- i) The customers need not always register a complaint when the product is not delivered safely or on time. At times the customer would simply decide to never avail the service of Victoria again rather than filing a complaint. Victoria would rely on tracking the delivery rather than the customer inputs to keep track of the same.
- ii) The customers would also at times misuse his position to by falsely raising complaints in order to receive compensation (award).

- (i) The existing reward management system for the senior management and the one proposed to be implemented by the operational managers are in danger of being exploited to meet personal needs. This is because the management (both senior and operational) which to be personally involved in the bonus target setting process which would result in them setting low, easily achievable targets in order to maximize their personal income. If this would result in the shareholders receiving fair less income as it seen in the objections raised by them to the existing senior management reward system.

The introduction of BSC should assist in the achievement of both the objectives of the senior management and those of shareholders. The operational managers should have their targets set on the basis of

measures mentioned in BSC. The targets of should be set by the higher level of management so that they are understood and based on the customer and product perspectives. The same should be explained to the operational management.

(Q.5)(a)

Working Note

10 marks

Statement of Reconciliation of Operative Income

Particulars

Operating Income in 2016

108,000

Add: Change due to industry market size factor (C.W.R.)

8,400 (P)

Change due to product mix

3,800 (P)

well attempted!!!

Change due to product differentiation

Operating Income in 2017

144,200

Working Note

1) Effect of Industry Market Size Factor

Revenue and loss effect of growth component in 2017

* Increase in sales due to market growth

Total growth in sales

$$= 140,000 \times \frac{12000}{(20,000 - 10,000)} \times 3 = 9,00,000 \times 3 = 27,00,000$$

$$20,000 \times (20,000 - 10,000)$$

$$= 84,000 (P)$$

2) Effect of product differentiation

Revenue and loss effect of Price Recovery component in 2017

+ Growth effect due to product differentiation

$$= 1,64,000 + 140,000 \times \frac{8000}{20,000}$$

$$20,000$$

$$= 220,000 (P)$$

(Q: 4)(c)

10 marksStatement of allocation of IncomeParticulars

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Total</u>
Work Executed (A)	6,00,000	4,00,000	6,00,000	4,00,000	20,00,000
3,00,000	2,00,000	3,00,000	2,00,000	10,00,000	

Data Collection:

Sales [A $\times \frac{60}{100}$] / (A $\times \frac{30}{100}$)	1,80,000	1,20,000	1,80,000	1,20,000	6,00,000
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Variable cost [6,00,000 $\times \frac{2}{3} : 3 : 0.5$] / (6,00,000 $\times \frac{2}{3} : 3 : 0.5$)	60,000	90,000	-	150,000	300,000 (6,00,000 $\times \frac{2}{3} : 3 : 0.5$)
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Contribution (Balance)	1,20,000	30,000	1,80,000	(30,000)	3,00,000
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Research

Sales [A $\times \frac{45}{100}$] / (A $\times \frac{3}{2}$)	270,000	1,80,000	270,000	1,80,000	9,00,000
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Variable cost [6,00,000 $\times \frac{1}{3} : 1 : 4 : 2$] / (6,00,000 $\times \frac{1}{3} : 1 : 4 : 2$)	20,000	20,000	1,00,000	5,00,000 (9,00,000 $\times \frac{1}{3} : 1 : 4 : 2$)
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Contribution (Balance)	270,000	20,000	70,000	80,000	400,000
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Advisory:

Sales (A $\times \frac{50}{200}$)	150,000	1,00,000	150,000	1,00,000	5,00,000
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Variable cost [2,00,000 $\times \frac{3}{1} : 1 : 4 : 2$] / (2,00,000 $\times \frac{3}{1} : 1 : 4 : 2$)	60,000	20,000	80,000	40,000	200,000 (5,00,000 $\times \frac{2}{3} : 1 : 4 : 2$)
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Contribution	90,000	80,000	70,000	60,000	3,00,000
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Total contribution	480,000	90,000	320,000	110,000	900,000
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Contribution %	18%	23%	53%	28%	50%
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Actual sales	3,00,000	200,000	3,00,000	200,000	10,00,000
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Actual contribution	240,000	45,000	160,000	55,000	5,00,000
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Workings

Let Variable cost be 100

Department

Data collection

Research

Advisory

Total

Variable cost Contribution Sales

30

30

60

60/50

80/40

90

20

30

50

100

100

200

Since company is earning contribution of 5,00,000 no additional order needs to be

would do achieve their contribution of ₹ 150,000.

Q: 4) (i)

Feedforward control is a type of control measure that involves the comparison of draft plans with the objectives of the company.

The senior partners of SW & Co have stated that the firm has 2 objectives namely,

i) Pay **4 marks** down taken from a public sector.

ii) Maintain a positive cash reserve of ₹ 200,000 by the end of the year.

Preparation of monthly and budgets and cash statements to help the company keep track of balances to in order to achieve their objectives is an example of this type of ~~work~~ control.

This type of control is called prevention control. It is called so as its objective is prevent defaults in the achievement of objectives by the company before it arises.

well explained!!!

Feedback controls is a type of control measure that compares the actual results with the budget to identify areas of non-achievement of target and ~~for~~ provide ~~cor~~ solutions to achieve the same. This type of control is called corrective control as it waits for the error / default to occur before prescribing measures to resolve the same.

The comparison of actual travelling costs with the budgeted cost is an example of feedback control implemented in SW & Co.

(Q: 4) (a)

4 marks

- i) Haugen working involves small, incremental changes routinely applied and sustained over a long period resulting in significant improvements. It involves a participative approach by involving workers from multiple functions / levels in decision making.

The changes that are suggested in A - Done in order to adopt Haugen working are as follows:

- a) Participation of workers across multiple levels / functions:

Haugen working follows a participative approach by involving workers from multiple functions / levels in decision making. Here the current system in which the finance department alone sets the budgets / standards for the organization needs to change.

- b) Reduction in the periodicity of setting standards / benchmarks.

Since Haugen working involves making small, environmental changes over a long period of time in order to achieve significant improvement, it involves small achievable targets / goals and upon achievement a slightly higher target is set. Here there is a need to shift from the current system of setting standards semi-annually to monthly or even more frequent if required and generating variance reports for the same from monthly to weekly.

- c) Shift from Cost Control System to Cost Reduction System.

- ii) Impact of implementation of the Haugen working approach on the employee management

- a) Improved role of employee:

Since Haugen working involves a participative approach, the employees will be actively involved in the planning and involvement of Haugen working system in the organization rather than being involved in the implementation phase alone like in other systems.

b) Improved organisational culture:

Since the employees actively participate in the planning and implementation phases, there will exist a high sense of belongingness / involvement of the employees to the organization. This creates a better relationship ~~bet~~ between employer and employee and an improved work culture.

Time : 199:52