

CHAPTER 7

METHOD OF COSTING (II)

Question 1

A Company produces two joint products P and Q in 70 : 30 ratio from basic raw materials in department A. The input output ratio of department A is 100 : 85. Product P can be sold at the split of stage or can be processed further at department B and sold as product AR. The input output ratio is 100 : 90 of department B. The department B is created to process product A only and to make it product AR.

The selling prices per kg. are as under:

Product P Rs. 85

Product Q Rs. 290

Product AR Rs. 115

The production will be taken up in the next month.

Raw materials 8,00,000 Kgs.

Purchase price Rs. 80 per Kg.

	Deptt. A Rs. Lacs	Deptt. B Rs. Lacs
Direct materials	35.00	5.00
Direct labour	30.00	9.00
Variable overheads	45.00	18.00
Fixed overheads	<u>40.00</u>	<u>32.00</u>
Total	<u>150.00</u>	<u>64.00</u>

Selling Expenses:

	Rs. in Lacs
Product P	24.60
Product Q	21.60
Product AR	16.80

Required:

- (i) Prepare a statement showing the apportionment of joint costs.
- (ii) State whether it is advisable to produce product AR or not.

(May 2007, 8 Marks)

Answer

Input in Deptt. 'A' 80,000 kgs.

Yield 85%

Therefore Output = 85% of 8,00,000 = 6,80,000 kgs.

Ratio of output for P and Q = 70 : 30.

Product of P = 70% of 6,80,000 = 4,76,000 kgs.

Product of Q = 30% of 6,80,000 = 2,04,000 kgs.

Statement showing apportionment of joint cost

	P	Q	Total
Product kgs.	4,76,000	2,04,000	
Selling price per kg.	Rs. 85.00	290.00	
	Rs. lakhs	Rs. lakhs	Rs. lakhs
Sales	404.60	591.60	996.20
Less: Selling expenses	<u>24.60</u>	<u>21.60</u>	<u>46.20</u>
Net sales	<u>380</u>	<u>570</u>	<u>950</u>
Ratio	<u>40%</u>	<u>60%</u>	<u>100%</u>

Rs. lakhs

Raw materials (8,00,000 kgs. × Rs. 80)	640
Process cost of department 'A'	<u>150</u>
	<u>790</u>

Apportionment of Joint Cost

(In the ratio of Net Sales i.e. P : Q., 40% : 60%.)

Joint Cost of 'P' = Rs. 316 lakhs

Joint Cost of 'Q' = Rs. 474 lakhs

**Statement showing the profitability of further processing of
product 'P' and converted into product 'AR'**
Product 'AR'

Output = 90% of 4,76,000 kgs. = 4,28,400 kgs.

	<u>Rs. lakhs</u>
Joint costs	316.00
Cost of Department B	64.00
Selling expenses	<u>16.80</u>
	396.80
Sales value (Rs. 115 × 4,28,400)	<u>492.66</u>
Profit (492.66 – 396.80)	<u>95.86</u>

If 'P' is not processed profitability is as under.

	<u>Rs. lakhs</u>
Sales	380.00
Less: Joint expense	<u>316.00</u>
Profit	<u>64.00</u>

Further processing of product 'P' and converting into product 'AR' is beneficial to the company because the profit increases by Rs. 31.86 lakhs (95.86 – 64.00).

Question 2

“Operation costing is defined as refinement of Process costing.” Explain it.

(May 2007, 3 Marks)

Answer

Operation costing is concerned with the determination of the cost of each operation rather than the process:

- ◆ In the industries where process consists of distinct operations, the operation costing method is applied.
- ◆ It offers better control and facilitates the computation of unit operation cost at the end of each operation.

Question 3

ABC Limited manufactures a product 'ZX' by using the process namely RT. For the month of May, 2007, the following datas are available:

	Process RT
Material introduced (units)	16,000
Transfer to next process (units)	14,400
Work in process:	
At the beginning of the month (units)	4,000
(4/5 completed)	
At the end of the month (units)	3,000
(2/3 completed)	
Cost records:	
Work in process at the beginning of the month	
Material	Rs. 30,000
Conversion cost	Rs. 29,200
Cost during the month : materials	Rs. 1,20,000
Conversion cost	Rs. 1,60,800

Normal spoiled units are 10% of goods finished output transferred to next process.

Defects in these units are identified in their finished state. Material for the product is put in the process at the beginning of the cycle of operation, whereas labour and other indirect cost flow evenly over the year. It has no realizable value for spoiled units.

Required:

- (i) Statement of equivalent production (Average cost method);
- (ii) Statement of cost and distribution of cost;
- (iii) Process accounts.

(Nov 2007, 8 Marks)

Answer**Statement of equivalent production of Process RT**

<i>Input units</i>	<i>Details</i>	<i>Output units</i>	<i>Equivalent Production</i>			
			<i>Material % units</i>	<i>%</i>	<i>Conversion cost units</i>	
4,000	Opening WIP					
16,000	Introduced completed and transfer to next	14,400	14,400	100%	14,400	100%
	Normal spoilage	1,440	1,440	100%	1,440	100%
	Abnormal Spoilage	1,160	1,160	100%	1,160	100%
	Closing WIP	<u>3,000</u>	<u>3,000</u>	100%	<u>2,000</u>	66.67%
<u>20,000</u>		<u>20,000</u>	<u>20,000</u>		<u>19,000</u>	

Statement showing cost of each element

	<i>Opening</i>	<i>Cost in Process</i>	<i>Total</i>	<i>Equivalent Units</i>	<i>Cost per units</i>
	<i>(Rs.)</i>	<i>(Rs.)</i>	<i>(Rs.)</i>		
Materials	30,000	1,20,000	1,50,000	20,000	7.50
Conversion cost	29,200	1,60,800	1,90,000	19,000	10.00

Statement of apportionment of cost

Units completed	Material	14,400	7.50	
	Conversion cost	14,400	10.00	2,52,000
	Normal spoilage (10%)			25,200
Closing stock	Material	3,000	7.50	
	Conversion cost	2,000	10.00	42,500
Abnormal stock	Material	1,160	7.50	
	Conversion cost	1,160	10.00	20,300

Process Account

	<i>Rs.</i>		<i>Rs.</i>
To Opening WIP	59,200	By Profit and Loss Account (Abnormal)	20,300

To	Material	1,20,000	By	Transfer to next process	2,77,200
To	Conversion cost	<u>1,60,800</u>	By	Closing WIP	<u>42,500</u>
		<u>3,40,000</u>			<u>3,40,000</u>

Question 4

JK Ltd. produces a product "AZE", which passes through two processes, viz., process I and process II. The output of each process is treated as the raw material of the next process to which it is transferred and output of the second process is transferred to finished stock. The following data related to December, 2007:

	Process I	Process II
25,000 units introduced at a cost of	Rs. 2,00,000	—
Material consumed	Rs. 1,92,000	96,020
Direct labour	Rs. 2,24,000	1,28,000
Manufacturing expenses	Rs. 1,40,000	60,000
Normal wastage of input	10%	10%
Scrap value of normal wastage (per unit)	Rs. 9.90	8.60
Output in Units	22,000	20,000

Required:

- Prepare Process I and Process II account.
- Prepare Abnormal effective/wastage account as the case may be each process.

(May 2008, 8 Marks)

Answer**Process I Account**

Particulars	Units	Amount	Particulars	Units	Amount
		(in Rs.)			(in Rs.)
To Input	25,000	2,00,000	By Normal wastage	2,500	24,750
To Material		1,92,000	By Abnormal wastage	500	16,250
To Direct Labour		2,24,000	By Process II	22,000	7,15,000
To Manufacturing Exp.		<u>1,40,000</u>			
	<u>25,000</u>	<u>7,56,000</u>		<u>25,000</u>	<u>7,56,000</u>

$$\text{Cost per unit} = \frac{7,56,000 - 24,750}{25,000 - 2,500} = \text{Rs. 32.50 per unit}$$

Process II Account

Particulars	Units	Amount	Particulars	Units	Amount
		(in Rs.)			(in Rs.)
To Process I	22,000	7,15,000	By Normal wastage	2,200	18,920
To Material		96,020	By Finished stock	20,000	9,90,000
To Direct Labour		1,28,000			
To Manufacturing Exp.		60,000			
To Abnormal effect	<u>200</u>	<u>9,900</u>			
	<u>22,200</u>	<u>10,08,920</u>		<u>22,200</u>	<u>10,08,920</u>

$$\text{Cost per unit} = \frac{9,99,020 - 18,920}{22,000 - 2,200} = \text{Rs. 49.50 per unit}$$

Abnormal Wastage Account

Particulars	Units	Amount	Particulars	Units	Amount
		(in Rs.)			(in Rs.)
To Process I A/c	500	16,250	By Cash (Sales)	500	4,950
			By Costing Profit and Loss A/c		<u>11,300</u>
	<u>500</u>	<u>16,250</u>		<u>500</u>	<u>16,250</u>

Abnormal Effectives Account

Particulars	Unit	Amount	Particulars	Units	Amount
		(in Rs.)			(in Rs.)
To Normal wastage	200	1,720	By Process II A/c	200	9,900
To Costing Profit and Loss		<u>8,180</u>			
	<u>200</u>	<u>9,900</u>		<u>200</u>	<u>9,900</u>

Question 5

A product passes from Process I and Process II. Materials issued to Process I amounted to Rs. 40,000, Labour Rs. 30,000 and manufacturing overheads were Rs. 27,000. Normal loss was 3% of input as estimated. But 500 more units of output of Process I were lost due to the

carelessness of workers. Only 4,350 units of output were transferred to Process II. There were no opening stocks. Input raw material issued to Process I were 5,000 units. You are required to show Process I account.

(Nov 2008, 3 Marks)

Answer

Process I Account

	Units	Rs.		Units	Rs.
To Material	5,000	40,000	By Normal loss*	150	—
To Labour		30,000	By Abnormal loss**	500	10,000
To Overhead	_____	<u>27,000</u>	By Process II	<u>4,350</u>	<u>87,000</u>
	<u>5,000</u>	<u>97,000</u>		<u>5,000</u>	<u>97,000</u>

* 3% of input = $3\% \times 5,000 = 150$

** $\frac{97,000}{(5,000 - 150)} = \frac{97,000}{4,850} = \text{Rs. 20 per unit.}$

for 500 units, Rs. $500 \times 20 = \text{Rs. 10,000.}$

Question 6

Describe briefly, how joint costs upto the point of separation may be apportioned amongst the joint products under the following methods:

- (i) Average unit cost method
- (ii) Contribution margin method
- (iii) Market value at the point of separation
- (iv) Market value after further processing
- (v) Net realizable value method.

(May 2009, 9 Marks)

Answer

Methods of apportioning joint cost among the joint products:

- (i) **Average Unit Cost Method:** under this method, total process cost (upto the point of separation) is divided by total units of joint products produced. On division average cost per unit of production is obtained. The effect of application of this method is that all joint products will have uniform cost per unit.

- (ii) **Contribution Margin Method:** under this method joint costs are segregated into two parts – variable and fixed. The variable costs are apportioned over the joint products on the basis of units produced (average method) or physical quantities. If the products are further processed, then all variable cost incurred be added to the variable cost determined earlier. Then contribution is calculated by deducting variable cost from their respective sales values. The fixed costs are then apportioned over the joint products on the basis of contribution ratios.
- (iii) **Market Value at the Time of Separation:** This method is used for apportioning joint costs to joint products upto the split off point. It is difficult to apply if the market value of the products at the point of separation are not available. The joint cost may be apportioned in the ratio of sales values of different joint products.
- (iv) **Market Value after further Processing:** Here the basis of apportionment of joint costs is the total sales value of finished products at the further processing. The use of this method is unfair where further processing costs after the point of separation are disproportionate or when all the joint products are not subjected to further processing.
- (v) **Net Realisable Value Method:** Here joint costs is apportioned on the basis of net realisable value of the joint products,

$$\begin{aligned}
 \text{Net Realisable Value} &= \text{Sale value of joint products (at finished stage)} \\
 &\quad (-) \text{ estimated profit margin} \\
 &\quad (-) \text{ selling \& distribution expenses, if any} \\
 &\quad (-) \text{ post split off cost}
 \end{aligned}$$

Question 7

XP Ltd. furnishes you the following information relating to process II.

- (i) Opening work-in-progress – NIL
- (ii) Units introduced 42,000 units @ Rs.12
- (iii) Expenses debited to the process:

	Rs.
Direct material	= 61,530
Labour	= 88,820
Overhead	= 1,76,400

- (iv) Normal loss in the process = 2 % of input.
- (v) Closing work-in-progress – 1200 units

Degree of completion -	Materials	100%
	Labour	50%
	Overhead	40%

(vi) Finished output – 39,500 units

(vii) Degree of completion of abnormal loss:

Material	100%
Labour	80%
Overhead	60%

(viii) Units scrapped as normal loss were sold at Rs.4.50 per unit.

(ix) All the units of abnormal loss were sold at Rs.9 per unit.

Prepare:

(a) Statement of equivalent production:

(b) Statement showing the cost of finished goods, abnormal loss and closing work-in-progress.

(c) Process II account and abnormal loss account.

(November 2009, 8 Marks)

Answer

(a)

Statement of Equivalent Production

Particulars	Output	Material		Labour		Overhead	
		Units	%	Units	%	Units	%
Finished Output	39,500	39,500	100%	39,500	100%	39,500	100%
Normal Loss 2% of 42,000 units	840	-	-	-	-	-	-
Abnormal Loss (42,000 – 39,500 – 840 – 1200)	460	460	100%	368	80%	276	60%
Closing W.I.P.	<u>1,200</u>	<u>1,200</u>	100%	<u>600</u>	50%	<u>480</u>	40%
	42,000	41,160		40,468		40,256	

(b)		Statement of Cost		Rs.
Units Introduced 42,000@12				5,04,000
Add: Material				<u>61,530</u>
				5,65,530
Less: Value of Normal Loss				<u>3,780</u>
				<u>5,61,750</u>
Cost per Unit				
	Material	$\frac{5,61,750}{41,160} =$		Rs.13.648
	Labour	$\frac{88,820}{40,468} =$		Rs.2.195
	Overhead	$\frac{1,76,400}{40,256} =$		<u>Rs.4.382</u>
				<u>20.225</u>
Abnormal Loss:				
	Material	460×13.648		6,278.08
	Labour	368×2.195		807.76
	Overheads	276×4.382		<u>1,209.42</u>
				<u>8,295.26</u>
Closing W.I.P.				
	Material	$1,200 \times 13.648$		16,377.60
	Labour	600×2.195		1,317.00
	Overheads	480×4.382		<u>2,103.36</u>
				<u>19,797.96</u>
Finished Goods				
		$39,500 \times 20.225$		Rs.7,98,887.50

(c)		Process II Account			
Particulars	Units	Amount Rs.	Particulars	Units	Amount Rs.
To Opening WIP	-	Nil	By Normal Loss	840	3,780
“ Input	42,000	5,04,000	“ Abnormal Loss	460	8,295

"	Direct Material	-	61,530	"	Finished Goods	39,500	7,98,877
"	Labour	-	88,820				
"	Overhead	-	<u>1,76,400</u>	"	Closing WIP	<u>1,200</u>	<u>19,798</u>
		<u>42,000</u>	<u>8,30,750</u>			<u>42,000</u>	<u>8,30,750</u>

Abnormal Loss Account

Particulars	Units	Amount Rs.	Particulars	Units	Amount Rs.
To Process II	460	8,295	By Cash	460	4,140
			(Sold@Rs.9)		
			" Costing P & L	-	<u>4,155</u>
	<u>460</u>	<u>8,295</u>		<u>460</u>	<u>8,295</u>