

# CHAPTER 2

Process

Costing – 2

# *INTER-PROCESS PROFIT*

- While transferring the output of one process to the next process, any one of the following methods is followed viz. (1) at cost or (2) at cost plus an agreed percentage of profit. If output of one process is transferred to another process at cost, the question of any profit in stock does not arise. If however, the output of one process is taken to another process at a price higher than cost, then the question of computing profit element in the value of closing stock arises.
- The closing stock of processes to which goods have been transferred at a profit will contain an element of profit charged by the transferring process. This will be considered as unrealized profit, because the goods have not so far been sold to outsiders and the profit has not been actually realized by the firm. In order to find out the true profit of the firm, such unrealized profit has to be computed and a reserve is created for unrealized profit.



# INTER-PROCESS PROFIT (CONT.)

- The following arguments are put forward in favour of transferring output of one process to another by adding profit.
  - It is possible to get an idea of the price which would be paid if the materials were purchased from the open market. This enables us to make comparison of the value of output of a particular process with the similar goods available in the market. If it suggests that our cost is high, we can think about the ways of reducing the cost.
  - Sometimes a percentage of profit is added while transferring goods from one process to another to cover the handling charges.
  - This method clearly brings out the economies effected or deficiencies of each process. Each process is made to stand by itself. If such profit were not added at the time of transfer, then the profit or loss made by the transferring process is not revealed in the Process account, and is known only in the final process account. This is particularly important in cases where there is a possibility that a process is performed more cheaply by outside firm. In that case, it is advantageous for the firm to get it done by the outside firm.

# INTER-PROCESS PROFIT (CONT.)

- However, the following are certain arguments advanced against such practice of charging profit.
  - Charging profit to another process means trading with oneself. If it is possible to do so, there is no need to market the goods. It is not necessary to charge profit on the output in order to know the efficiency. Even without this practice, it is possible to ascertain the efficiency of various processes.
  - This makes the accounting complicated because the closing stock of the process to which goods have been transferred at a price in excess of cost, will contain an element of unrealized profit. Similarly, the closing stocks of all subsequent processes and that of finished goods will also contain unrealized profit. Hence in order to find out the true profit of the whole business, an adjustment will be made and reserve for unrealized profit must be created, because the closing has to be shown at cost or market price whichever is less.



# IMPORTANT POINTS

- In those industries where production can be distinctly divided into various stages of production, the method of closing employed to ascertain cost of production for each stage of production is known as Process Costing.
- In order to ascertain cost per unit of each process, separate Process Account is prepared in respect of each process. Each Process Account is debited with the expenses incurred for that process e.g., material, labour, other direct expenses, proportionate overhead charges, etc.
- If normal wastage or loss is given, then each process account is credited with realizable value. If there is closing stock in the process, it will be written on credit side. Finally, the balance of the process account will be transferred to next process.
- At the end of the year for calculation of true profit, unrealized profit should be calculated and should be deducted from the total profit. For this purpose 'Reserve for Unrealized Profit' must be credited.

# THREE COLUMNAR METHOD

- The unrealized profit in stock can be easily computed by the three columnar method as follows:
  - Three columns are kept on each side of Process Accounts and Finished Stock Account. The total amount is shown in the first column, cost is shown in the second column and the third column shows the amount of profit included in total.
  - The closing stock is shown on the debit side as a deduction from total cost, instead of showing it on the credit side.
  - The cost is shown by the following formula.

$$\text{Closing stock} \times \frac{\text{Cost}}{\text{Total}}$$

The difference between the total amount and the cost is the unrealized profit.



19

A certain product of Ratan Limited passes through two processes before it is transferred to finished stock. When the output of first process 'I' is transferred to second process 'II' when a profit of 25% on transfer price is added and when the output of second process II is transferred to finished stock account a profit of 25% on cost price is added. The following information is obtained for the month of March:

Particulars	Process I Rs.	Process II Rs.	Finished Stock Rs.
Opening stock	5,000	8,000	10,000
Direct materials	30,000	6,000	—
Direct wages	25,000	15,000	—
Factory overheads	7,000	5,500	—
Closing stock	10,000	10,500	13,500

Inter process

Profit for opening stock	—	2,000	4,000
Sales of finished goods	—	—	1,10,000

Prepare :

- (1) Process accounts showing profit at each stage.
- (2) Finished Stock Account.
- (3) Statement showing actual realised profit.





## Process II A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	8,000	6,000	2,000				
To Process I A/c	76,000	57,000	19,000				
To Direct Material	6,000	6,000	--				
To Direct Wages	15,000	15,000	--				
	1,05,000	84,000	21,000				
Less: Clg. Stock	(10,500)	(8,400)	(2,100)				
Prime Cost	94,500	75,600	18,900				
To Factory O/h	5,500	5,500	--				
Total Cost	1,00,000	81,100	18,900				
Add: Profit (25% on C.P)	25,000	--	25,000				
	1,25,000	81,100	43,900	By Finished Stock A/c	1,25,000	81,100	43,900
	1,25,000	81,100	43,900		1,25,000	81,100	43,900
To Stock b/d	10,500	8,400	2,100				

## Finished Stock A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	10,000	6,000	4,000				
To Process II A/c	1,25,000	81,100	43,900				
	1,35,000	87,100	47,900				
Less: Closing Stock	(13,500)	(8,710)	(4,790)				
Total Cost	1,21,500	78,390	43,110				
	1,21,500	78,390	43,110	By Gross Loss	11,500	--	11,500
				By Sales A/c	1,10,000	78,390	31,610
	1,21,500	78,390	43,110		1,21,500	78,390	43,110
To Stock b/d	13,500	8,710	4,790				



## Calculation of Actual Profit

Particulars	Apparent Profit ₹	Profit in Opg. Stock ₹	Profit in Clg. Stock ₹	Difference ₹	Actual Profit ₹
(1)	(2)	(3)	(4)	(5 = 3 - 4)	(6 = 2 + 5)
Process I	19,000	--	--	--	19,000
Process II	25,000	2,000	2,100	(100)	24,900
Finished Stock	(11,500)	4,000	4,790	(790)	(12,290)
Total	32,500	6,000	6,890	(890)	31,610

20

A Ltd. produces product X which passes through two processes before it is completed and transferred to finished stock. The following data relate to April, 2013 :

Particulars	Process-1 Rs.	Process-2 Rs.	Finished Stock Rs.
Opening stock	7,500	9,000	22,500
Direct materials	15,000	15,750	
Direct wages	11,200	11,250	
Factory overheads	10,500	4,500	
Closing stock	3,700	4,500	11,250
Inter process profit included in opening stock	—	1,500	8,250

Output of process 1 is transferred to process 2 at 25% profit on the transfer price. Output of process 2 is transferred to finished stock at 20% profit on the transfer price. Stocks in process are valued at prime cost. Finished stock is valued at the price at which it is received from process 2. Sales during the period is Rs. 1,40,000.

Prepare :

(1) Process Accounts (2) Finished Stock Account (3) Statement showing total profit and unrealised profit.



• **Solution:**

Process I A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	7,500	7,500	--	By Process II A/c	54,000	40,500	13,500
To Direct Material	15,000	15,000	--				
To Direct Wages	11,200	11,200	--				
	33,700	33,700	--				
Less: Clg. Stock	(3,700)	(3,700)	--				
Prime Cost	30,000	30,000	--				
To Factory O/h	10,500	10,500	--				
Total Cost	40,500	40,500	--				
Add: Profit (33.33% on C.P.)	13,500	--	13,500				
	54,000	40,500	13,500				
To Stock b/d	3,700	3,700	--				

## Process II A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	9,000	7,500	1,500				
To Process I A/c	54,000	40,500	13,500				
To Direct Material	15,750	15,750	--				
To Direct Wages	11,250	11,250	--				
	90,000	75,000	15,000				
Less: Clg. Stock	(4,500)	(3,750)	(750)				
Prime Cost	85,500	71,250	14,250				
To Factory O/h	4,500	4,500	--				
Total Cost	90,000	75,750	14,250				
Add: Profit (25% on C.P.)	22,500	--	22,500				
	1,12,500	75,750	36,750	By Finished Stock A/c	1,12,500	75,750	36,750
	1,12,500	75,750	36,750		1,12,500	75,750	36,750
To Stock b/d	4,500	3,750	750				





## Calculation of Actual Profit

Particulars	Apparent Profit ₹	Profit in Opg. Stock ₹	Profit in Clg. Stock ₹	Difference ₹	Actual Profit ₹
(1)	(2)	(3)	(4)	(5 = 3 - 4)	(6 = 2 + 5)
Process I	13,500	--	--	--	13,500
Process II	22,500	1,500	750	750	23,250
Finished Stock	16,250	8,250	3,750	4,500	20,750
<b>Total</b>	<b>52,250</b>	<b>9,750</b>	<b>4,500</b>	<b>5,250</b>	<b>57,500</b>



17 Product 'A' passes through three processes before it is transferred to finished stock:

Particulars	Process-1 Rs.	Process-2 Rs.	Process-3 Rs.	Stock Rs.
Opening stock	5,000	8,000	10,000	20,000
Direct materials	40,000	12,000	15,000	—
Direct wages	35,000	40,000	35,000	—
Overheads	20,000	24,000	20,000	—
Closing stock	10,000	4,000	15,000	30,000
Profit % on transfer price to next process	25%	20%	10%	—
Inter process profit for opening stock	—	1,395	2,690	6,534

Stocks in process are valued at prime cost and finished goods have been valued at a price at which it is received from Process-3. Sales Rs. 4,00,000.

Prepare : (1) Process Cost Accounts.

(2) Actual realised profit.

(3) Stock valuation for Balance Sheet purpose.

• **Solution:**

Process 1 A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	5,000	5,000	--	By Process II A/c	1,20,000	90,000	30,000
To Direct Material	40,000	40,000	--				
To Direct Wages	35,000	35,000	--				
	80,000	80,000	--				
Less: Clg. Stock	(10,000)	(10,000)	--				
Prime Cost	70,000	70,000	--				
To Factory O/h	20,000	20,000	--				
Total Cost	90,000	90,000	--				
Add: Profit (33.33% on C.P.)	30,000	--	30,000				
	1,20,000	90,000	30,000				
To Stock b/d	10,000	10,000	--				



## Process 2 A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	8,000	6,605	1,395				
To Process 1 A/c	1,20,000	90,000	30,000				
To Direct Material	12,000	12,000	--				
To Direct Wages	40,000	40,000	--				
	1,80,000	1,48,605	31,395				
Less: Clg. Stock	(4,000)	(3,302)	(698)				
Prime Cost	1,76,000	1,45,303	30,697				
To Factory O/h	24,000	24,000	--				
Total Cost	2,00,000	1,69,303	30,697				
Add: Profit (25% on C.P)	50,000	--	50,000				
	2,50,000	1,69,303	80,697	By Process 3 A/c	2,50,000	1,69,303	80,697
	2,50,000	1,69,303	80,697		2,50,000	1,69,303	80,697
To Stock b/d	4,000	3,302	698				

## Process 3 A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	10,000	7,310	2,690				
To Process 2 A/c	2,50,000	1,69,303	80,697				
To Direct Material	15,000	15,000	--				
To Direct Wages	35,000	35,000	--				
	3,10,000	2,26,613	83,387				
Less: Clg. Stock	(15,000)	(10,965)	(4,035)				
Prime Cost	2,95,000	2,15,648	79,352				
To Factory O/h	20,000	20,000	--				
Total Cost	3,15,000	2,35,648	79,352				
Add: Profit (11.11% on C.P)	35,000	--	35,000				
	3,50,000	2,35,648	1,14,352	By Finished Stock A/c	3,50,000	2,35,648	1,14,352
	3,50,000	2,35,648	1,14,352		3,50,000	2,35,648	1,14,352
To Stock b/d	15,000	10,965	4,035				



## Finished Stock A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	20,000	13,466	6,534				
To Process 3 A/c	3,50,000	2,35,648	1,14,352				
	3,70,000	2,49,114	1,20,886				
Less: Closing Stock	(30,000)	(20,198)	(9,802)				
Total Cost	3,40,000	2,28,916	1,11,084				
To Gross Profit	60,000	--	60,000				
	4,00,000	2,28,916	1,71,084	By Sales A/c	4,00,000	2,28,916	1,71,084
	4,00,000	2,28,916	1,71,084		4,00,000	2,28,916	1,71,084
To Stock b/d	30,000	20,198	9,802				

(2)

## Calculation of Actual Profit

Particulars	Apparent Profit ₹	Profit in Opg. Stock ₹	Profit in Clg. Stock ₹	Difference ₹	Actual Profit ₹
(1)	(2)	(3)	(4)	(5 = 3 - 4)	(6 = 2 + 5)
Process 1	30,000	--	--	--	30,000
Process 2	50,000	1,395	698	697	50,697
Process 3	35,000	2,690	4,035	(1,345)	33,655
Finished Stock	60,000	6,534	9,802	(3,268)	56,732
Total	1,75,000	10,619	14,535	(3,916)	1,71,084



### (3) Stock Valuation for Balance Sheet Purpose:

#### Cost of Closing Stock

Particulars	₹
Process 1	10,000
Process 2	3,302
Process 3	10,965
Finished Stock	20,198

A certain product passes through three processes before it is transferred to finished stock. The output of process A is transferred to process B at a price calculated to give a profit of 25% on the transfer price and output of process B and process C transferred to stock at profit of 20% on the transfer price.

The following information is available on 31st March, 2012.

Particulars	Process-A	Process-B	Process-C	Finished Stock
	Rs.	Rs.	Rs.	Rs.
Opening Stock	25,000	30,000	20,000	75,000
Direct Materials	50,000	52,500	75,000	—
Direct Wages	37,500	37,500	40,000	—
Factory Expenses	35,000	15,000	1,00,000	—
Closing Stock	12,500	15,000	10,000	37,500
Inter Profit for Opening Stock	—	5,000	5,000	27,500

Stock in process are valued at prime cost from which it is received from Process C during the year. Sales were Rs. 10,00,000.

Prepare :

- (1) Every Process and Finished Stock A/c.
- (2) Statement of Actual realised Profit.





## Process B A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	30,000	25,000	5,000				
To Process A A/c	1,80,000	1,35,000	45,000				
To Direct Material	52,500	52,500	--				
To Direct Wages	37,500	37,500	--				
	3,00,000	2,50,000	50,000				
Less: Clg. Stock	(15,000)	(12,500)	(2,500)				
Prime Cost	2,85,000	2,37,500	47,500				
To Factory O/h	15,000	15,000	--				
Total Cost	3,00,000	2,52,500	47,500				
Add: Profit (25% on C.P)	75,000	--	75,000				
	3,75,000	2,52,500	1,22,500	By Process C A/c	3,75,000	2,52,500	1,22,500
	3,75,000	2,52,500	1,22,500		3,75,000	2,52,500	1,22,500
To Stock b/d	15,000	12,500	2,500				



## Process C A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
To Opening Stock	20,000	15,000	5,000				
To Process B A/c	3,75,000	2,52,500	1,22,500				
To Direct Material	75,000	75,000	--				
To Direct Wages	40,000	40,000	--				
	5,10,000	3,82,500	1,27,500				
Less: Clg. Stock	(10,000)	(7,500)	(2,500)				
Prime Cost	5,00,000	3,75,000	1,25,000				
To Factory O/h	1,00,000	1,00,000	--				
Total Cost	6,00,000	4,75,000	1,25,000				
Add: Profit (25% on C.P)	1,50,000	--	1,50,000				
	7,50,000	4,75,000	2,75,000	By Finished Stock A/c	7,50,000	4,75,000	2,75,000
	7,50,000	4,75,000	2,75,000		7,50,000	4,75,000	2,75,000
To Stock b/d	10,000	7,500	2,500				





(2)

## Calculation of Actual Profit

Particulars	Apparent Profit ₹	Profit in Opg. Stock ₹	Profit in Clg. Stock ₹	Difference ₹	Actual Profit ₹
(1)	(2)	(3)	(4)	(5 = 3 - 4)	(6 = 2 + 5)
Process A	45,000	--	--	--	45,000
Process B	75,000	5,000	2,500	2,500	77,500
Process C	1,50,000	5,000	2,500	2,500	1,52,500
Finished Stock	2,12,500	27,500	13,750	13,750	2,26,250
Total	4,82,500	37,500	18,750	18,750	5,01,250