EXPERT

CA INTERMEDIATE – COST & MANAGEMENT ACCOUNTING

PROCESS COSTING & OPERATION COSTING

CA VINOD REDDY

#VR

PROCESS COSTING AND OPERATION COSTING

I. INTRODUCTION

There are many industries engaged in continuous processing in which the end products are results of number of operations performed in sequence e.g. Paint Works, Chemical Plants, Textile Mills, Paper Mills, Oil Refinery, Dairy, Food Manufacturing, Distillery, etc. Process costing is the type of costing applied in industries where there is continuous or mass production.

Process costing is a method of costing in which the cost of each process is ascertained and the same is absorbed by the output of that process. Process costing refers to costing of one or more process involved while converting raw material into finished output. The aim of process costing is to determine the total cost of each operation and to apply this cost to the product at each stage of process. It will then be possible to ascertain a cost per unit for each operation or process and in total. This method is employed where it is not possible to trace the items of prime cost of a particular order, because its identity is lost in the volume of continuous production. Process costing is suitably employed where goods are made for stock and production is continuous.

II. CHARACTERISTICS

The main characteristics of process costing are :

1. There is a continuous flow of production.
2. The finished output of one process will become the raw material of the subsequent process. After completion of all the processes, it will become the finished product.
3. The products are not distinguishable in process stage.
4. Number of processes may be conveniently divided depending on the process of manufacture. In addition to the raw material, additional material or chemicals may be added in each process.
5. Goods are manufactured in anticipation of demand and kept ready for sale.
6. Process costing assumes a sequential flow of costs from one process to another as units of output pass through a number of specified production processes. That is, the unit leaves the first process and takes their costs with them to the second process, the units leave the second process and take their costs with them to third process and this process continues till the last process, when output is finally completed. Each process performs part of the total operation and transfers its 'finished' output to the next process, in which it is the input / raw material for further processing. The finished product of the last process is transferred to the finished goods inventory. Thus, the cost becomes cumulative as production moves along to the final process determining the total cost.

III. COMPARISON OF JOB COSTING AND PROCESS COSTING

S. No	Job costing	Process costing
1	Production is made by specific orders.	Uniform production in continuous flow.
2	Costs are determined by jobs or batches of products.	Costs are compiled on time basis for each process.
3	The various jobs are separate and independent form each other.	Being manufactured in continuous flow, products lose their individual identity.
4	Job cost is ascertained when job is complete.	Process costs are calculated at the end of cost period.
5	There are usually no inter-job transfers.	In a continuous flow, there is transfer from one process to another process.
6	There may or may not be work-in progress at the end of an accounting period.	Production being continuous, there is some work–in-progress at the beginning as well as at the end of the cost period.
7	The unit cost of a job is calculated by dividing total cost of the job by the units produced in the lot or job.	The unit cost of a processes is computed by dividing the total cost for the period by the total output, is an average cost for the period.
8	Each job being independent, more managerial attention is required for proper control.	Process production is standardised. Control becomes comparatively easier.

IV. ADVANTAGES AND DISADVANTAGES :

ADVANTAGES :-

1. Process costs can be determined periodically even at short intervals. This is not possible in job costing, particularly when jobs run for a longer period.
2. The cost finding method is simple and less expensive than that of job costing.
3. Managerial control is possible by evaluating the performance of each process.
4. Allocation of expenses to process can be easily made and cost becomes accurate.
5. Price quotation may be made without difficulty with the standardisation of process production.

DISADVANTAGES :-

1. Costs obtained at the end of accounting period are only historical and are not of much use for effective control.
2. For the purpose of computing unit cost of continuous process work-in-process is required to be ascertained, which is done mostly on estimated basis. It may involve further inaccuracies.
3. In case of joint or by-products, common costs are pro-rated which are only approximations.
4. Average costs are not always accurate and there is sometimes wide scope for errors.
5. When more than one type of product is manufactured, a division of cost element is necessary and the computation of average cost is more difficult.

V. PROCESS COST DETERMINATION :

1. The production process is divided into suitable process centers.
2. Cost of raw materials and materials added in each process is accumulated at the end of the period and charged to the process.
3. Direct wages and direct expenses relating to each process are also charged at the end of the period.
4. Production overheads are apportioned to each process on suitable basis.
5. Process cost per unit of output is determined as per the following formula –

$$= \frac{\text{Total cost of each process less realisable value of normal scrap}}{\text{Input (Qty) - Normal Loss (Qty)}}$$

6. The per unit rate is applied to good units produced, and abnormal loss / abnormal gain.

VI. TREATMENT OF NORMAL LOSS, ABNORMAL LOSS AND ABNORMAL GAINS :

If the loss, scrap or wastage is inevitable and within limit, it is called normal process loss. Normal loss is inherent in the process and is uncontrollable. It may consists of three varieties -

1. Quantity loss by shrinkage
2. Wastage with no recovery value i.e. gas, dust, smoke etc.
3. Scrap with recoverable value.

Where the loss is caused by unexpected abnormal conditions such as substandard material, bad design, etc. it is called abnormal process loss.

The treatment of normal and abnormal losses differ in process accounts. All normal losses are absorbed over good units and abnormal loss is detected for control purposes and the amount is charged to Costing Profit and Loss Account.

Where the normal loss represented by scrap has some realisable value, the process account is credited with the amount realisable / realised from sale of normal scrap. The amount realisable / realised by sale of abnormal loss represented, by scrap is credited to Abnormal Loss Account and the balance loss is transferred to Costing Profit and Loss Account.

Where, however, the actual loss is less than the normal loss expected there is an abnormal gain. The abnormal gain is valued in the same manner as abnormal loss. The amount of scrap which would otherwise have been realised had there been normal loss and no abnormal gain, debited to the Abnormal Gain Account and the balance is transferred to Costing Profit and Loss Account.

Abnormal Loss = Standard output - Actual output = (Input - Normal Loss) - Actual output

OR

Actual Loss - Normal Loss

Abnormal Gain = Actual output - Standard output

= Actual output - (Input - Normal Loss)

OR

= Normal Loss - Actual Loss

VII. WORK - IN - PROCESS - PROBLEM OF EQUIVALENT PRODUCTION :

In a continuous process invariably there is work in progress at the beginning and/or at the end of the period and the degree of completion of closing work in progress may be quite different from the degree of completion of opening work – in - progress even in respect of different element of costs. The effective production is found out by calculating ' Equivalent Production'.

Equivalent or effective production represents the production in terms of completed units e.g in the Process-I, 2,000 units are introduced in June. At the end of the month, 1600 completed units were produced and 400 units 60 % complete in all respects remained as closing work-in-progress at the end of the month.

Equivalent Production = 1600 completed units + 400 units completed to the extent of 60 % i.e. 240.

Equivalent units = 1840 units.

Work in progress at the end is valued under either of the following methods :

1. **First-In-First-Out Method (FIFO) :** This method is based on the assumption that the material in process moves on a first in first out basis, so that the work on the opening stock is completed first, before the materials put into the process during the current period are taken up.

   Under this method, cost added during the current period is prorated to the production necessary to complete the opening work in progress to complete the units introduced and completed during the period and partially completed units representing as closing work in progress. The costs added in each process during the current period are divided by equivalent production during the period. The objective of this method is to value the inventory at current cost.

2. **Weighted Average Method :** Process costs are also computed on average cost basis. Where degree of completion on opening WIP is not mentioned, average cost method must be employed. The average process cost is obtained by adding the cost of beginning work in progress to the cost put into process during the current period and dividing this process cost by total equivalent units. When average cost method is followed, equivalent completed units are not found for opening work-in- process units. Thus, there is no distinction made between units which are partially completed at the beginning and units which are started and completed during the period.

   Total equivalent units are calculated as

   = Number of units completed + Equivalent production of closing WIP

Degree of completion of opening wip will be ignored when we are solving question by Aug cost method.

During rising prices FIFO method shows a lower cost of units completed and higher inventory value. When the average cost method is used during periods of increasing or decreasing price, costs tends to narrow the extreme prices. The main difference between FIFO method and average cost method, so far as process cost computation is concerned is that under the average cost method, unlike FIFO method, the cost of opening WIP is added to costs put in the process and accordingly the total units of opening WIP (including initial degree of completion) are considered as equivalent production.

VIII. STEPS IN PROCESS COSTING

For each production process, a Production Cost Report is prepared at the end of each accounting period.The objective of preparing the report is to know physical units and equivalent units in process, element wise cost of goods produced and transferred, goods in process (work-in-process), units lost due to abnormal reasons i.e. abnormal loss etc.

To prepare the report, the following steps are generally followed:

Step 1 : Analyse the physical flow of production units.

Step 2 : Calculate equivalent units of each cost elements.

Step 3 : Determine total cost for each cost element.

Step 4 : Compute cost per equivalent unit for each cost element.

Step 5 : Assign total costs to units completed and ending WIP.

IX. INTER- PROCESS PROFITS

The output of one process is sometimes charged to the next process at inflated cost. The transfer is usually effected at the current wholesale price or actual cost inflated at an appropriate percent. The aim of this method is that each process has to stand on its own leg as a profit producer and to compete with the market price. The profit of a transferor process is transferred to Profit and Loss Account. The transferee process therefore do not receive economies effected in prior processes.

Transferee process values the stock at its cost price, which includes unrealised profit of earlier processes. This method therefore complicates the accounts as the stocks on hand at the end of a period will include a portion of unrealised profit. While preparing final accounts, such profits cannot remain in stocks, because a firm cannot make a profit by effecting only inter process transfers. Profit is realised on goods sold. Thus, to arrive at actual profit, it is necessary to provide for unrealised profits on stocks held out of inter process transfers. In order to compute profit element in closing inventories and to obtain the net realised profit for a period, process account may be split into three columns viz. cost, profit and total. From the process account, the unrealised profit on stock held can be obtained by the following formula –

$$= \frac{\textbf{Total Profit}}{\textbf{Total output}} \times \textbf{Closing Stock}$$

Explanation:

- When individual process is treated as profit centre, then each process incharge is given a profit target to be achieved by him.
- In such case, each process will transfer the goods to other process at cost plus profit. It means, process 1 will treat process 2 as it's customer and process 2 will treat process 3 as customer and so on.
- However, if the goods transferred to next process are unsold, then the profit earned by previous process remains unrealised.
- Realised profit can be earned only when we sell the goods to outside customers.
- It means, we need to differentiate between "Realised Profit" and "Unrealised Profit".
- Realised profit can be calculated in the following 2 ways :
  (1) Outside sales – Cost of goods sold OR
  (2) Total profit – Unrealised profit.
- Till the time goods remain in the organisation, the profit is unrealised and when it is sold to an outside customer, the profit is realised.
- Let's assume that cost of manufacture at Process 'A' is ₹ 80 per unit and it transfers the goods to Process 'B' at ₹ 100 per unit.
- Suppose Process 'A' transfers 1,000 units to Process 'B' thereby earning a profit of ₹ 20,000 [1,000 units x ₹ 20].

- However, Process 'B' could sell only 600 units to outside customer and 400 units are lying in stock. Then realised profit is only ₹ 12,000 [600 units x ₹ 20].
- Unrealised profit lying in the stock is ₹ 8,000 [400 units x ₹ 20]. This profit is not recorded in the books of accounts and hence it is removed.
- The process of removal of unrealised profit is known as adjustment of **"Stock Reserve".**
- This is done by passing an entry –

Profit & Loss Account	Dr.	8,000	
To Stock Reserve			8,000

- Profit earned by Process 'A' from Process 'B' was ₹ 20,000 and now after debiting ₹ 8,000 to Profit & Loss Account, the profit left is only ₹ 12,000 i.e. realised profit.
- As per AS-2, we should value the stock at cost and hence the amount of stock reserve shall be deducted from stock, so that it can be correctly valued at cost.
- At Process 'B', there are 400 units lying unsold, whose cost to Process 'B' was ₹ 100 p.u.
- Now, these 400 units will be valued at ₹ 32,000 i.e. [(400 units x 100) – 8,000 stock reserve].
- It can also be calculated as [400 units x ₹ 80 cost p.u.) = ₹ 32,000]. Because cost to the organisation was only ₹ 80 p.u.

X. OPERATION COSTING

When a bigger process is sub-divided in to small parts, then each small part is known as operation. The sub-division is done for better cost control. A manufacturing process may sometimes be sub divided into number of operations. Each operation is considered as a separate cost centre. In such case cost is to be ascertained for each operation which is similar to process costing. The cost of all operation will be the cost of process. Cost control may be exercised effectively in case of operation costing in view of sub division of each process into various operations.

Ascertainment of operation cost becomes difficult owing to losses and rejections occurring at each operations. The cumulative effect of such losses and rejections on the cost of processed material at the last stage is determined by computing for each operation Input-Output Ratio or The Ratio per 100 units of final Output.

MULTIPLE CHOICE QUESTIONS

1. When FIFO method is used in process costing, the cost opening stocks are

(a) Kept separate from the costs of new period
(b) Added to new costs
(c) Subtracted from the new costs
(d) Averaged with other costs to arrive at total costs.

2. When Average method is used in process costing, the cost opening stocks are

(a) Kept separate from the costs of new period
(b) Added to new costs
(c) Subtracted from the new costs
(d) Averaged with other costs to arrive at total costs.

3. Which of the following method is not popular to calculate equivalent production in process costing

(a) FIFO
(b) LIFO
(c) Average
(d) HIFO

4. 10,000 kgs. of raw material is introduced in a process having normal loss as 5% of the input. The actual output of the process was 9,650 kgs. There is

(a) A normal loss of 150 kgs.
(b) An abnormal loss of 150 kgs.
(c) An abnormal gain of 150 kgs.
(d) Normal gain of 500 kgs.

Expected output = (10,000 kgs − 5%) = 9500 kgs
Actual output = 9,650 kgs

5. During rising prices, FIFO method shows _____ inventory value.

(a) Average
(b) High
(c) Low
(d) None of the above

Process and Operation Costing

Introduction :

① Process costing is a method of costing & not technique of costing. There are many industries engaged in continuous processing in which end products are results of multiple processes / operations performed in sequence.
examples : paint works, chemical plants, Textile mills, paper mills, oil refinery, Dairy, Food manufacturing units etc.

② Goods are manufactured in anticipation of demand of not against specific customer order.

③ Raw material loses its identity as it undergoes multiple processes.

④ Aim of process costing is to be determine total cost of each operation & to apply this cost to the product at each stage of process.

Three types of questions in this chapter

① Basic category questions
Adjustments of Normal Loss, Abnormal Loss, Abnormal Gain etc

② questions on Equivalent production
- FIFO Method
- Avg Cost method or weighted avg method

③ Questions on inter - process profits

What are the characteristics of Process Costing?

1. There is a continuous flow of production
2. The finished output of one process will become raw material for subsequent process. After completion of all the processes, it will become Finished product
3. The products are NOT distinguishable at process stage. (Raw material loses its identity as it undergoes multiple processes)
4. Number of processes may be conveniently divided depending upon process of manufacture. Additional raw materials, chemicals, flavouring essence can be added in each process.
5. Goods are manufactured in anticipation of demand & not against specific customer order. (whenever goods are manufactured against specific customer order, method of costing used is Job costing)
6. process costing assumes sequential flow of wst, ∴ cost becomes cumulative.

What are the 4 main steps to solve question on Equivalent Production?

① prepare statement of equivalent production for the given period

particulars	Total units	Equivalent units					
		Material		Labour		OH	
		%	units	%	units	%	units
Ⓐ Input							
Ⓑ output							

② prepare statement of cost for the given period

Particulars	Material (₹)	Labour (₹)	OH (₹)	Total (₹)
ⓐ cost incurred during the period				
ⓑ Less: Realisable value of normal scrap				
ⓒ Net cost incurred				
ⓓ cost per equivalent unit				

whether cost of opening wip should be written here?
- Yes → Avg cost method
- No → FIFO

③ prepare statement showing allocation of cost (credit side of process a/c)

particulars	Amt (₹)	Amt (₹)
ⓐ units completed & transferred to next process		
ⓑ Abnormal Loss / (Gain)		
ⓒ closing wip		

④ prepare respective process A/c

Dr

particulars	Qty	Rate	Amt	particulars	Qty	Rate	Amt

Cr

Questions on Inter-Process Profit

Situation I :

Process- A Account

Particulars	Amount	Particulars	Amount
To cost	500,000	By process B A/c	500,000
Total	5,00,000	Total	500,000

Process- B Account

Particulars	Amount	Particulars	Amount
To process A	500,000	By process C A/c	1300,000
To lost	800,000		
Total	13,00,000	Total	13,00,000

Process- C Account

Particulars	Amount	Particulars	Amount
To process	13,00,000	By sales	35,00,000
To cost To costing P&L A/c	7,00,000		
Total	3500,000	Total	3500,000

Costing P & L Account

Particulars	Amount	Particulars	Amount
To Net profit c/d	1900,000	By process C A/c	1500,000
Total	15,00,000	Total	15,09000

If we treat processes - A, B, C as separate & independent profit centres then their respective managers will have independence in their decision making related to inter process transfer. Mr A will treat Mr B as customer & Mr B will treat Mr A as supplier, Mr C as customer and so on .... This will give rise to inter process profit

Situation II :

Process- A Account

Particulars	Amount	Particulars	Amount
To cost	5,00,000	By process B A/c	1000,000
To costing P&L A/c	500,000		
Total	10,00,000	Total	10,00,000

Process- B Account

Particulars	Amount	Particulars	Amount
To process A	1000,000	By proc-C A/c	2900,000
To cost	8,00,000		
To costing P&L A/c	11,00,000		
Total	2900,000	Total	2900,000

profit will be realised only when goods are sold to outside customer

Process- C Account

Particulars	Amount	Particulars	Amount
To proc-B	29,00,000	By sales	35,00,000
To cost	7,00,000	By costing P&L A/c	1,00,000
Total	36,00,000	Total	36,00,000

Costing P & L Account

Particulars	Amount	Particulars	Amount
To proc-C	1,00,000	By Proc A	5,00,000
To cost	15,00,000	By proc-B	11,00,000
To net profit c/d			
Total	16,00,000	Total	16,00,000

What is difference between Job Costing & Process Costing

Question 1:

Product X is obtained after it passes through three distinct processes. You are required to prepare Process Accounts from the following information -

Particulars	Total ₹	PROCESS I ₹	PROCESS II ₹	PROCESS III ₹
Material	15,084	5,200	3,960	5,924
Direct Wages	18,000	4,000	6,000	8,000
Production Overheads	18,000	4,000	6,000	8,000

1,000 units @ ₹ 6 per unit were introduced in Process-I. Production Overhead to be distributed as 100 % on direct wages.

Particulars	Actual Output (units)	Normal Loss %	Value of Scrap per unit (₹)
Process-I	950	5 %	4
Process-II	840	10 %	8
Process-III	750	15 %	10

Also prepare Abnormal Loss, Gain Account

(1)

Dr Process - I A/c Cr

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To input material	1,000	6.00	6,000	By Normal Loss (sale of scrap) (1000 × 5%)	50	4.00	200
To Materials			5,200	By process-II A/c	950	20.00	19,000
To Direct wages			4,000				
To production overheads (4000 × 100%)			4,000				
Total	1,000		19,200	Total	1,000		19,200

Cost per unit of output of process - I

$$= \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}$$

$$= \left(\frac{₹ 19{,}200 - ₹ 200}{(1000 - 50)\text{ units}}\right) = \frac{₹ 19000}{950 \text{ units}} = ₹ 20 \text{ p.u.}$$

(2)

Dr Process - II A/c Cr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To process - I A/c	950	20.00	19,000	By Normal Loss (sale of scrap)	95	8	760
To Materials			3,960	By process - III A/c (950 × 101)	840	40	33,600
To Direct wages			6,000	By Abnormal Loss (units completed & transferred)	110	40	600
To production overheads (6000 × 100%)			6,000				
Total	950		34,960	Total	950		34,960

Cost per unit of output of process - II

$$= \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input Quantity} - \text{normal loss quantity}}$$

$$= \left[\frac{₹\,34,960 - ₹\,760}{(950 - 95)\text{ units}}\right] = \frac{₹\,34,200}{835\text{ units}} = ₹40 \text{ p.u.}$$

(3)

Dr Process - III A/c Cr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To process - II A/c	840	40	33,600	By Normal Loss (sale of scrap)	126	10	1,260
To Materials			5,924	(840 × 15%)			
To Direct wages			8,000	By Finished goods A/c	750	76	57,000
To production OH (8000 × 100%)			8,000				
To Abnormal Gain A/c	36*	76	2,736				
Total	876		58,260	Total	876		58,260

Cost per unit of output of process - III

$$= \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input Quantity} - \text{Normal loss Quantity}}$$

$$= \left[\frac{₹55,524 - ₹1260}{(1840 - 126)\text{ units}}\right] = \left(\frac{₹54,264}{595}\right) = ₹276 \text{ p.u.}$$

(4)

Abnormal Loss A/c

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To process - II A/c	15	40	600	By Normal Loss (sale of scrap)	15	8	120
				By costing P&L A/c			480 *
Total	15		600	Total	15		600

(5)

Abnormal Gain A/c

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To Normal Loss (sale of scrap)	36	10	360	By process - III A/c	36	76	2,736
To costing P&L A/c			2,376 *				
Total	36		2,736	Total	36		2,736

Question 2:

A product passes through three processes X, Y and Z. The normal wastage of each process is as follows - Process - X 3%; Process - Y 5%; Process - Z 8%.

Wastage of Process -X was sold at ₹ 2.50 per unit, that of Process -Y at ₹ 5 per unit and that of Process -Z at ₹ 8.50 per unit.

10,000 units were issued to Process-X in the beginning at July, 2018 at a cost of ₹ 1.00 per unit. The other expenses were as follows –

Particulars	Process-X ₹	Process-Y ₹	Process-Z ₹
Sundry Materials	10,000	15,000	5,000
Labour	50,000	80,000	65,000
Direct Expenses	10,450	15,895	20,090
Actual output	9,500 units	9,100 units	8,100 units

Prepare Process Accounts assuming that there were no opening or closing stocks. Also give Abnormal Loss and Abnormal Gain Account.

(1)

Dr — Process - X A/c — Cr

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To input materials	10,000	1.00	10,000	By Normal Loss (sale of scrap) (10,000 x 3%)	300	2.50	750
To Sundry Materials			10,000	By Process - Y A/c (units completed & transferred)	9500	8.2165	78,057
To Labour			50,000				
To Direct expenses			10,450				
				By Abnormal Loss A/c	200*	8.2165	1,643
Total	10,000		80,450	Total	10,000		80,450

$$\text{Cost per unit of output of process - X} = \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}$$

$$= \left(\frac{₹80,450 - ₹750}{10,000 - 300 \text{ units}}\right) = ₹\ 8.216949484536$$

(2)

Process - Y A/c

Dr | Cr

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To process-X A/c	9500	8.2165	78,057	By Normal Loss (sale of scrap) (9500 × 5%)	475	5.00	2,375
To Sundry materials			15,000				
To Labour			80,000	By process-Z A/c	9,100	20.67 335	1,88,128
To Direct Expenses			15,895				
To Abnormal Gain A/c	75*	20.67 335	1,551				
Total	9575		1,90,503	Total	9,575		1,90,503

cost per unit of output of process - Y

$$= \left(\frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{normal loss quantity}}\right) = \frac{₹1,88,952 - ₹2,375}{9500 - 475 \text{ units}}$$

$$= \left(\frac{1,86,577}{9025}\right) = 20.6733518005$$

(3)

Process - Z A/c

Dr | Cr

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To process-Y A/c	9,100	20.67 335	1,88,128	By Normal Loss (sale of scrap) (9100 × 8%)	728	8.50	6,188
To Sundry materials			5,000				
To Labour			65,000	By Finished goods A/c	8100	32.49 28	2,63,192
To Direct expenses			20,090				
				By Abnormal Loss A/c	272*	32.49 28	8,838
Total	9,100		2,78,218	Total	9,100		2,78,218

cost per unit of output of process - Z

$$= \left(\frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}\right) = \frac{2,78,218 - 6188}{9100 - 728}$$

$$= \left(\frac{2,72,030}{8372}\right) = 32.4928332537$$

④ Abnormal Loss A/c

Dr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To process - X A/c	200	8.215	1,643	By Sale of scrap	200	2.50	500
To process - Z A/c	272	32.41	8,838	By Sale of scrap	272	8.50	2,312
				By costing P&L A/c			7,669 *
Total	472		10,481	Total	472		10,481

Cr

⑤ Abnormal Grain A/c

Dr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To Normal Loss (Sale of scrap)	75	5	375	By process - Y A/c	75	20.67	1,551
To costing P&L A/c			1,176 *				
Total	75		1,551	Total	75		1,551

Cr

Question 3:

Model Ltd., processes a patent material used in buildings. The material is produced in three consecutive grades - Soft, Medium and Hard.

Process	I	II	III
Raw Materials used	1,000 tons		
Cost per ton	₹ 200		
Manufacturing wages & expenses (₹)	87,500	39,500	10,710
Weight Lost (% of input of the process)	5 %	10 %	20 %
Scrap (sales price ₹ 50 per ton)	50 tons	30 tons	51 tons
Sale price per ton (₹)	350	500	800

Management expenses were ₹ 17,500 and selling expenses were ₹ 10,000. Two third of the output of Process-I and One-half of the output of Process-II are passed on to the next process and the balances are sold. The entire output of Process-III is sold. Prepare the three Process Accounts and a Statement of Profit. Make suitable assumptions.

(1)

Dr — Process - I A/c — Cr

Particulars	Qty (tons)	Rate (₹)	Amt (₹)	Particulars	Qty (tons)	Rate (₹)	Amt (₹)
To Raw material used	1,000	200	200,000	By weight Lost (Normal Loss) (1000 × 5%)	50	—	—
To manufacturing wages & expenses			87,500	By sale of scrap	50	50	2,500
To costing P & L A/c			10,000	By process - II A/c (1000 - 50 - 50) × 2/3	600	316.66	190,000
				By sales (1000 - 50 - 50) × 1/3	300	350	1,05,000
Total	1,000		2,97,500	Total	1,000		2,97,500

Cost p.u. (ton) of output of process - I

$$= \left(\frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{normal loss quantity}}\right)$$

$$= \left[\frac{₹2,87,500 - 0 - ₹2500}{(1000 - 50 - 50)\ \text{tons}}\right] = \frac{₹2,85,000}{900\ \text{tons}}$$

$$= ₹316.6666666$$

(2)

Dr — Process – II A/c — Cr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To Process – I A/c	600	316.66	190,000	By Weight Loss (Normal Loss) (600 × 10%)	60	—	—
To Manufacturing Wages & Expenses			39,500	By Sale of Scrap	30	50	1,500
To Costing P & L A/c			13,500 *	By Process – III A/c (600 – 60 – 30) × 1/2	255	447.0588	114,000
				By Sales (600 – 60 – 30) × 1	255	500	1,27,500
Total	600		243,000	Total	600		243,000

Cost p.u. (ton) of output of Process – II

$$= \left(\frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}\right) = \frac{₹229500 - 0 - 1500}{(600 - 60 - 30)\text{ tons}}$$

$$= \frac{₹228000}{2289000} = 447.0588$$

(3)

Dr — Process – III A/c — Cr

Particulars	Qty (Units)	Rate (₹)	Amt (₹)	Particulars	Qty (Units)	Rate (₹)	Amt (₹)
To Process – II A/c	255	447.0588	114,000	By Weight Loss (Normal Loss) (255 × 20%)	51	—	—
To Manufacturing Wages & Expenses			10,710	By Sale of Scrap	51	50	2,550
To Costing P & L A/c			290 *	By Sales (255 – 51 – 51)	153	800	1,22,400
Total	255		124,950	Total	255		1,29,950

④ Costing P & L A/c

Dr Cr

Particulars	Amt (₹)	Particulars	Amt (₹)
To Management expenses	17,500	By process - I A/c	10,000
To selling expenses	10,000	By process - II A/c	13,500
		By process - III A/c	240
		By Net Loss c/d	3,760 *
Total	27,500	Total	27,500

Notes & assumptions :

① It is assumed that weight lost is a Normal loss having no realisable value.

② Scrap given in the question is also assumed to be a Normal Loss.

③ It is assumed that management expenses & selling expenses are not allocable to processes, hence debited to costing P & L A/c

④ Goods transferred from process - I to process - II & process - II to process - III are shown at cost price & not at selling price.

∴ There is no question of inter - process profit.

Question 4:

A product passes through three processes - A, B and C. The details of expenses incurred on the three processes during the year 2019 were as under :-

Process	A	B	C
Units issued / introduced (cost per unit ₹100)	10,000		
	₹	₹	₹
Sundry Materials	10,000	15,000	5,000
Labour	30,000	80,000	65,000
Direct Expenses	6,000	18,150	27,200
Selling price /unit of output	120	165	250

Management expenses during the year were ₹ 18,000 and selling expenses were ₹ 15,000. These are not allocable to the processes.

Actual output of the three processes was : A - 9,300 units, B - 5,400 units and C - 2,100 units. Two-thirds of the output of Process A and one-half of the output of Process B was passed on to the next process and the balance was sold. The entire output of Process C was sold.

The normal loss of the three processes, calculated on the input of every process was : Process A - 5% ; B - 15% and C - 20%. The scrap of Process A was sold at ₹ 2 per unit, that of B at ₹ 5 per unit and of Process C at ₹ 10 per unit. Prepare the Process Accounts and the Profit and Loss Account.

(1) Process - A A/c
(For the year 2019)

Dr

Particulars	units	Rate (₹)	Amount (₹)	Particulars	units	Rate (₹)	Amount (₹)
To input material	10,000	100	10,00,000	By Normal Loss (sale of scrap) (10,000 × 5%)	500	2	1,000
To sundry materials			10,000				
To Labour			30,000	By process B A/c (units completed & transferred) (9300 units × 2/3)	6,200	110	6,82,000
To Direct expenses			6,000				
To costing P & L A/c			31,000 *	By sales (9300 × 1/3)	3,100	120	3,72,000
				By Abnormal Loss A/c	200 *	110	22,000
Total	10,000		10,77,000	Total	10,000		10,77,000

Cr

cost p.u. of output of process - A
= (Total cost − Real. value of normal scrap) / (Total input quantity − Normal Loss quantity)
= (₹ 10,46,000 − ₹ 1,000) / (10,000 units − 500 units) = ₹ 110 p.u.

(2) Process - B A/c
(For the Year 2019)

Dr

Particulars	units	Rate (₹)	Amount (₹)
To process - A A/c	6,200	110	6,82,000
To sundry materials			15,000
To Labour			80,000
To Direct Expenses			18,150
To Abnormal Gain A/c	130*	150	19,500
To costing P & L A/c			40,500*
Total	6,330		8,55,150

Cr

Particulars	units	Rate (₹)	Amount (₹)
By Normal Loss	930	5	4,650
By (sale of scrap) (6200 × 15%)			
By process - C A/c	2700	150	4,05000
By processing (5400 × 42)			
By sales (5400 × 165)	2700	165	4,45500
Total	6,330		8,55,150

Cost p.u. of output of process - B

$$= \left(\frac{\text{Total cost} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}\right) = \left(\frac{₹7,95,150 - ₹4,650}{6200 - 930 \text{ units}}\right) = \frac{₹7,90,500}{5270 \text{ units}}$$

= ₹150 p.u.

(3) Process - C A/c
(For the year 2019)

Dr

Particulars	units	Rate (₹)	Amount (₹)
To process - B A/c	2700	150	4,05000
To sundry materials			5,000
To Labour			65,000
To Direct expenses			27,200
To costing P & L A/c			42,000*
Total	2700		5,44,200

Cr

Particulars	units	Rate (₹)	Amount (₹)
By Normal Loss	540	10	5,400
By (sale of scrap) (2700 × 20%)			
By sales	2100	250	5,25000
By Abnormal Loss A/c	60*	230	13,800
Total	2700		5,44,200

cost p.u. of output of process-C

$$= \left(\frac{\text{Total cost} - \text{Realisable value of normal loss}}{\text{Total input} - \text{Normal loss quantity}}\right) = \frac{₹5,02,200 - ₹5,400}{2700 - 540 \text{ units}} = \frac{₹4,96,800}{2160 \text{ units}} = ₹230 \text{ p.u.}$$

④ Abnormal Loss A/c (For the year 2019)

Dr Particulars	Units	Rate (₹)	Amount (₹)	Cr Particulars	Units	Rate (₹)	Amount (₹)
To process-A A/c	200	110	22,000	By Normal Loss (sale of scrap)	200	2	400
To process-C A/c	60	230	13,800	By Normal Loss (sale of scrap)	60	10	600
				By costing P&L A/c			39,800 *
Total	260		35,800	Total	260		35,800

⑤ Abnormal Gain A/c (For the year 2019)

Dr Particulars	Units	Rate (₹)	Amount (₹)	Cr Particulars	Units	Rate (₹)	Amount (₹)
To Normal Loss (sale of scrap)	130	5	650	By process-B A/c	130	150	19,500
To costing P&L A/c			18,850 *				
Total	130		19,500	Total	130		19,500

⑥ Costing P&L A/c

Dr Cr

Particulars	Amt (₹)	Particulars	Amt (₹)
To Abnormal Loss A/c	34,800	By process-A A/c	31,000
To Management expenses	18,000	By process-B A/c	40,500
To selling expenses	15,000	By process-C A/c	42,000
To net profit c/d	64,550 *	By Abnormal Gain A/c	18,850
Total	1,32,350	Total	1,32,350

Note : units transferred from process A to process B & From process B to process C are shown at cost price. ∴ There is no question of inter process profit.

Question 5:

The following details are extracted from the costing records of an oil refinery for the week ended September 30th, 2018.

Particulars	Crushing Plant ₹	Refining Plant ₹	Finishing Plant ₹
Cost of labour	2,500	1,000	1,500
Electric Power	600	360	240
Sundry Materials	100	2,000	—
Repairs to Mach. & Plant	280	330	140
Steam	600	450	450
Factory Exps.	1,320	660	220
Cost of Sacks	—	—	750

500 tons of copra was introduced in Crushing Process at a cost of ₹ 200,000 and 300 tons of crude oil was produced. 250 tons of oil was produced by Refining Process and 248 tons of refined oil was finished for delivery. Copra sacks were sold for ₹ 400 175 tons of copra residue sold for ₹11,000. Loss in weight in crushing process is 25 tons. 45 tons by-product was obtained from Refining Process valued at ₹6,750.

You are required to show the accounts in respect of each of the following stages of manufacture :

a. Copra Crushing Process
b. Refining Process
c. Finishing Process

(1)

Crushing process A/c
For the week ended 30th sept 2018

Particulars	Qty (tons)	Amt (₹)	Particulars	Quantity (tons)	Amt (₹)
To input material (copra)	500	2,00,000	By sale of sacks	—	400
To cost of labour		2,500	By Refining process A/c	300	1,94,000
To Electric power		600	By copra residue sold	175	11,000
To sundry materials		100	By Loss in weight	25	—
To Repairs to machinery & plant		280			
To steam		600			
To Factory expenses		1,320			
Total	500	2,05,400	Total	500	2,05,900

(2)

Refining process A/c
For the week ended 30th sept 2018

Particulars	Qty (tons)	Amt (₹)	Particulars	Quantity (tons)	Amt (₹)
To crushing process A/c	300	194,000	By Finishing process A/c	250	192,050
To cost of labour		1,000	By sale of By products	45	6,750
To Electric power		360	By Loss in weight	5	—
To sundry materials		2,000			
To Repairs to machinery & plant		330			
To steam		450			
To Factory expenses		660			
Total	300	198,800	Total	300	198,800

(3) Finishing process A/c

(For the week ended 30th sept 2018)

Particulars	Qty (Units)	Amt (Rs)	Particulars	Quantity (Units)	Amt (Rs)
To Refining process A/c	250	1,92,050	By Finished goods A/c	248	1,95,350
To cost of labour		1,500			
To Electric power		290	By Loss in weight	2*	—
To Repairs to machinery & plant		140			
To steam		450			
To Factory expenses		220			
To cost of sacks		750			
Total	250	1,95,350	Total	250	

crushing : 500 = 300 + 175 + 25

Refining : 300 = 250 + 45 + 5

Finishing : 250 = 248 + 2

Question 6:

During January, 1,000 units costing ₹ 6,000 were introduced in Process-I. There was no work-in-process at the beginning. At the end of January, 600 units were transferred to Process-II, 250 units were uncompleted and 150 units had been scrapped. The normal process loss was 10% of input. It was estimated that the uncompleted units had reached the following stages –

Material	80 %
Labour	60 %
Overhead	60 %
Direct materials	₹ 2,700
Direct Wages	₹ 3,200
Production Overhead	₹ 1,600

Degree of completion of closing wip

Value of scrap is ₹ 2 each. The units scrapped had passed through the process and is 100% complete as regards Materials, Labour and Overhead.

You are required to –

a. Prepare a statement of equivalent production.

b. Evaluate the cost of abnormal loss, finished goods and closing stock.

c. Complete Process - I Account.

(i) Statement of equivalent production for January

Particulars	Total units	Equivalent units			
		Material		Labour & OH	
		%	units	%	units
(A) INPUT					
units introduced in January	1,000				
(B) OUTPUT					
(a) units completed & transferred to process-II	600	100%	600	100%	600
(b) Normal Loss (1000 × 10%)	100	—	—	—	—
(c) Abnormal Loss (150 - 100)	50	100%	50	100%	50
(d) closing WIP	250	80%	200	60%	150
sub-total (B)	1,000		850		800

② Statement of cost for January

Particulars	Materials	Labour	OH	Total
ⓐ Cost incurred in January (₹)	8,700 (6,000+2,700)	3,200	1,600	13,500
ⓑ Less: Realisable value of normal scrap (100 units × ₹2) (₹)	(200)	–	–	(200)
ⓒ Net cost incurred in January (₹)	8,500	3,200	1,600	13,300
ⓓ Equivalent production of January	850 units	800 units	800 units	
ⓔ Cost per equivalent unit (c/d) (₹)	10.00	4.00	2.00	16.00

③ Statement showing allocation of cost for January

Particulars		Amt (₹)	Amt (₹)
ⓐ Units completed & transferred to process II			9,600
Material	: 600 units × ₹10	6,000	
Labour	: 600 units × ₹4	2,400	
Overheads	: 600 units × ₹2	1,200	
ⓑ Abnormal Loss			800
Material	: 50 units × ₹10	500	
Labour	: 50 units × ₹4	200	
Overheads	: 50 units × ₹2	100	
ⓒ Closing WIP			2,900
Material	: 200 units × ₹10	2,000	
Labour	: 150 units × ₹4	600	
Overheads	: 150 units × ₹2	300	
ⓓ Total cost (a+b+c)			13,300

(4)

Process - I A/c
(For January)

Dr | Cr

Particulars	Units	Rate (₹)	Amount (₹)	Particulars	Units	Rate (₹)	Amount (₹)
To Materials (input)	1,000	6	6,000	By Normal Loss (sale of scrap)	100	2	200
To Direct materials			2,700	By process - II A/c	600	W.N. ③	9,600
To Labour			3,200	By Abnormal Loss A/c	50	W.N. ③	800
To overheads			1,600	By closing WIP	250	W.N. ③	2,900
Total	1,000		13,500	Total	1,000		13,500

(5)

Abnormal Loss A/c
(For January)

Dr | Cr

Particulars	Units	Rate (₹)	Amount (₹)	Particulars	Units	Rate (₹)	Amount (₹)
To process - I A/c	50	W.N. ③	800	By sale of scrap	50	2	100
				By costing P&L A/c			700*
Total	50		800	Total	50		800

Question 7: (very important)

The following data are available in respect of Process I for June, 2020.

Opening work-in-progress Degree of completion	900 units at ₹ 4,500 Material - 100% Labour - 60% Overhead - 60%
Input of Materials	9,100 units at ₹ 27,300
Direct Wages	₹ 8,200
Production Overhead	₹ 16,400
Units Scrapped Degree of completion	1,200 units Material - 100% Labour - 70% Overhead - 70%
Closing work-in-progress Degree of completion	1,000 units Material - 100% Labour - 80% Overhead - 80%
Units transferred to next process	7,800 units

Normal process loss is 10% of total input (opening stock plus units put in). Scrap value is ₹ 3 per unit.

You are required to -

a. Compute equivalent production.

b. Cost per equivalent unit for each element and cost of abnormal loss, closing work-in-progress and units transferred to next process.

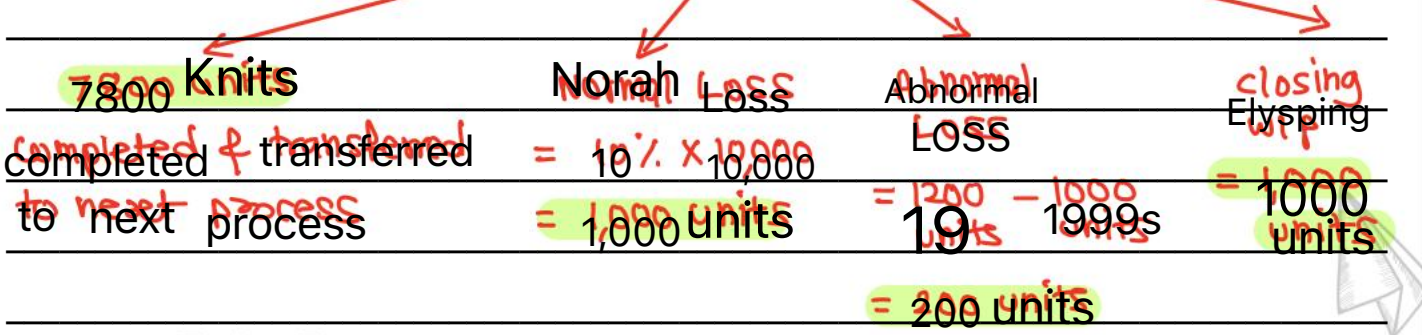
c. Prepare Process Accounts on FIFO basis & Abnormal loss A/c.

① Basic data for June, 2020

opening wip = 900 units

(+) units introduced in June 2020 = 9100 units

Total input = 10,000 units



② Statement of equivalent production for June 2020 by FIFO method

particulars	Total units	Equivalent units					
		Material		Labour		OH	
		%	units	%	units	%	units
(A) INPUT							
Opening wip	900						
units introduced in June	9,100						
sub-total (A)	10,000						
(B) OUTPUT							
① units completed & transfd to next process out of: i) opening wip	900	0	0	40%	360	40%	360
ii) introduced in June	6,900	100%	6,900	100%	6,900	100%	6,900
② Normal Loss	1,000	—	—	—	—	—	—
③ Abnormal Loss	200	100%	200	70%	140	70%	140
④ closing wip	1,000	100%	1,000	80%	800	80%	800
sub-total (B)	10,000		8,100		8,200		8,200

③ Statement of cost for June 2020

particulars	Materials	Labour	OH	Total
(a) cost incurred in June 2020 (₹)	27,300	8,200	16,400	51,900
(b) Less: Realisable value of normal scrap (1000 units × 3) (₹)	(3,000)	—	—	(3,000)
(c) Net cost incurred in June 2020 (₹)	24,300	8,200	16,400	48,900
(d) Equivalent production of June 2020	8,100 units	8,200 units	8,200 units	
(e) cost per equivalent unit (c/d) (₹)	3.00	1.00	2.00	6.00

④ Statement showing allocation of cost for June - 2020

Particulars	Amt (₹)	Amt (₹)
(A) units completed & transferred to next process out of		46,980
(a) opening wip		
i) cost incurred before June 2020	4,500	
ii) cost incurred in June - 2020		
material : 0	0	
Labour : ₹1 × 360	360	
OH : ₹2 × 360	720	
(b) Introduced		
i) material : ₹3 × 6900	20,700	
ii) Labour : ₹1 × 6900	6,900	
iii) OH : ₹2 × 6900	13,800	
(B) Abnormal Loss :		1,020
Material : 200 units × ₹3	600	
Labour : 140 units × ₹1	140	
OH : 140 units × ₹2	280	
(C) closing WIP :		5,400
Material : 1000 units × ₹3	3,000	
Labour : 800 units × ₹1	800	
OH : 800 units × ₹2	1,600	
(D) Total (A+B+C)		53,400

(5)

Process - I A/c
(For June - 2020)

Dr

Particulars	units	Rate (₹)	Amount (₹)	Particulars	units	Rate (₹)	Amount (₹)
To opening wip	900		4,500	By Normal Loss (10,000 × 10%)	1000	3	3,000
To material	9,100	3.00	27,300	By process - II A/c (units compl & transferred)	7800	W.N. (4)	46,980
To Labour			8,200	By Abnormal Loss	200	W.N. (6)	1,020
To OH			16,400	By closing wip	1,000	W.N. (7)	5,400
Total	10,000		56,400	Total	10,000		56,400

Cr

(6)

Abnormal Loss A/c
(For June - 2020)

Dr

Particulars	units	Rate (₹)	Amount (₹)	Particulars	units	Rate (₹)	Amount (₹)
To process - I A/c	200	W.N. (4)	1,020	By Normal Loss (sale of scrap)	200	3	600
				By costing P&L A/c			420 *
Total	200		1,020	Total	200		1,020

Cr

Question 8:

A company within the food industry mixes powdered ingredients in two different processes to produce one product. The output of Process-1 becomes the input of Process-2 and the output of Process-2 is transferred to the packing department.

From the information given below, you are required to open account for Process-1, Process-2, and Abnormal Loss to record the transactions for the week ended 14th June, 2018.

Input :	**Process-1**
Material A	6,000 Kilograms at 50 paise per kg.
Material B	4,000 Kilograms at ₹1 per Kg.
Mixing Labour	430 hours at ₹2 per hour
Normal Loss	5 % of weight input, disposed off at 16 paise per Kg.
Output	9,200 Kgs.

Input :	**Process-2**
Material C	6,600 Kilograms at ₹ 1.25 per kg.
Material D	4,200 Kilograms at ₹ 0.75 per Kg.
Flavouring Essence	₹ 300
Mixing Labour	370 hours at ₹ 2 per hour
Normal Loss	5 % of weight input, with no disposal value
Output	18,000 Kgs.

No work-in-progress at the beginning of the week but 1,000 Kilograms in Process- 2 at the end of the week and estimated to be only 50% complete so far as labour and overhead were concerned. Overhead of ₹ 3,200 incurred by the two process to be absorbed on the basis of mixing labour hours.

① Process - I A/c (For the week ended 14th June 2018)

Particulars	Kgs	Rate (₹)	Amt (₹)	Particulars	Kgs	Rate (₹)	Amt (₹)
To Material A	6000	0.50	3,000	By Normal Loss (sale of scrap) (6000+4000)×5%	500	0.16	80
To Material B	4000	1.00	4,000				
To Mixing Labour (430 hrs × ₹2)			860				
To overhead cost (3200 × 430/430+370)			1,720	By process - II (units completed & transferred)	9200	1.00	9,200
				By Abnormal Loss	300*	1.00	300
Total	10,000		9,580		10,000		9,580

*510

Cost p.u. of output of process - I

$$= \frac{\text{Total cost incurred} - \text{Realisable value of normal scrap}}{\text{Total input quantity} - \text{Normal loss quantity}}$$

$$= \frac{₹9,580 - ₹80}{10,000 \text{ kgs} - 500 \text{ kgs}} = \frac{₹9500}{9500 \text{ kgs}} = ₹1.00 \text{ per kg}$$

② Process - II A/c (For the week ended 14th)

Particulars	Kgs	Rate (₹)	Amt (₹)	Particulars	Kgs	Rate (₹)	Amt (₹)
To Process - I A/c	9200	1.00	9,200	By Normal Loss (sale of scrap)	1000	—	—
To Material C	6600	1.25	8,250	(9200+6600+4200) × 5%			
To Material D	4200	0.75	3,150	By packing Dept (units completed & transferred)	18000	W.N. ⑧	21,960
To flavouring essence			300				
To Mixing Labour (370 hrs × ₹2)			740	By closing WIP	1,000	W.N. ⑥	1,160
To overheads (₹3200 × 37%)			1,480				
Total	20,000		23,120	Total	20,000		23,120

③ Abnormal Loss A/c (For the week ended 14th)

Particulars	Kgs	Rate (₹)	Amt (₹)	Particulars	Kgs	Rate (₹)	Amt (₹)
To Process - I A/c	300	1.00	300	By Normal Loss (sale of scrap)	300	0.16	48
				By costing P&L A/c			252*
Total	300		300	Total	300		300

supporting working notes for process - II A/c

④ Statement of Equivalent production for the week ended 14th June 2018

Particulars	Total units (Kgs)	Equivalent units			
		Materials		Labour & OH	
	Kgs	%	units	%	units
(A) INPUT					
i) Transferred from process-I	9,200				
ii) Material-C	6,800				
iii) Material-D	4,200				
sub-total (A)	20,000				
(B) OUTPUT					
i) units completed & transferred to next process	18,000	100%	18,000	100%	18,000
ii) Normal Loss (20,000 × 5%)	1,000	—	—	—	—
iii) closing WIP	1,000	100%	1,000	50%	500
sub-total (B)	20,000		19,000		18,500

⑤ Statement of cost for the week ended 14th June 2018

Particulars	Material	Labour	OH	Total
(a) cost incurred during the period (₹) (9200+8250+3150+300)	① 20,900	740	1,980	23,120
(b) Less: Reali value of normal scrap (₹)	(0)	—	—	(0)
(c) Net cost incurred during the period (₹)	20,900	740	1,480	23,120
(d) Equivalent production for the period	19,000	18,500	18,500	
(e) cost per equivalent unit (c/d) (₹)	1.10	0.04	0.08	1.22

(c) Statement showing allocation of wst for the week ended 14th June 2018

Particulars	Amt (₹)	Amt (₹)
(a) units completed & transferred to packing dept		21,960
Material: 18,000kgs × ₹1.10	19,800	
Labour: 18,000kgs × 20.04	720	
OH: 18,000kgs × ₹0.08	1,440	
(b) closing wip		1,160
Material: 1000kgs × ₹1.10	1,100	
Labour: 500 kgs × ₹0.04	20	
OH: 500 Kgs × ₹0.08	40	
(c) Total (a+b)		23,120

Question 7:

The following data pertains to Process-I for March 2019 of Beta Limited –

Opening Work-in-progress	1,500 units at Rs.15,000
Degree of completion -	Material - 100 % Labour and Overhead 33 1/3%
Input of Materials	18,500 units at ₹ 52,000
Direct Labour	₹ 14,000
Overheads	₹ 28,000
Closing Work-in-progress	5,000 units
Degree of completion	Material - 90 % Labour and Overhead 30 %
Normal Process Loss	10 % of total Input (opening work in progress + units put in)
Scrap value	₹ 2 per unit
Units transferred to next process	15,000 units

You are required to -

(a) Compute equivalent units of production.

(b) Compute cost per equivalent unit for each cost element i.e. materials, labour and overhead

(c) Compute the cost of finished output and closing work-in-progress.

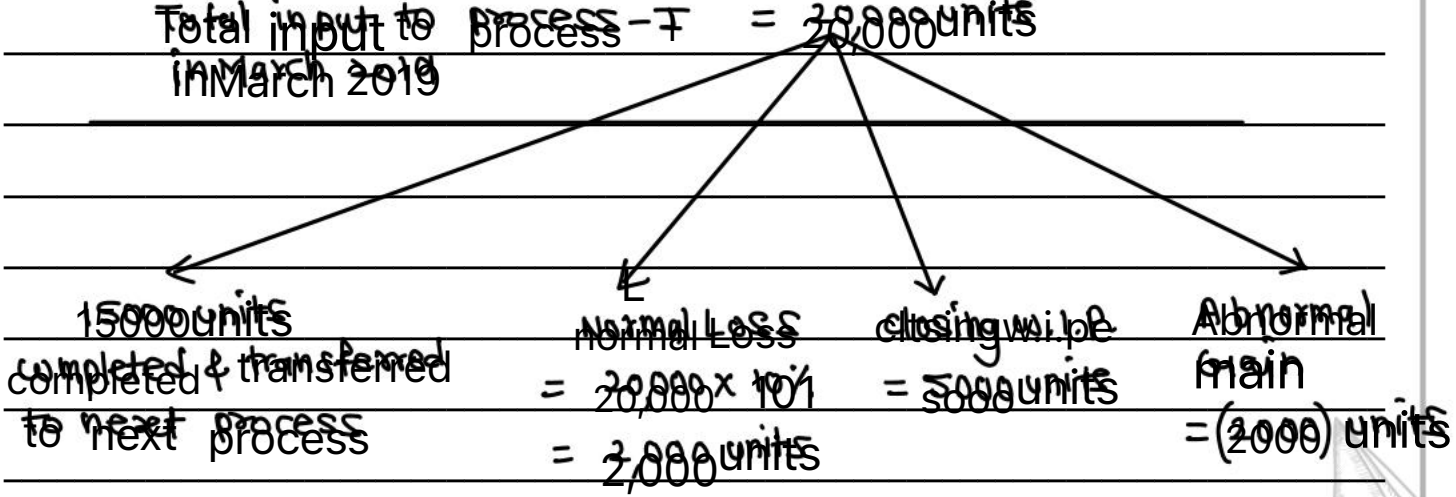
(d) Prepare the Process and other Accounts using FIFO method.

① Basic data

opening wip = 1,500 units

units introduced in March 2019 = 18,500 units

Total input to process-I in March 2019 = 20,000 units



② Statement of Equivalent production for march 2019 by FIFO method

particulars	Total Units	Equivalent units			
		Material		Labour & OH	
		%	units	%	units
(A) INPUT					
(a) opening WIP	1,500				
(b) units introduced in march 19	18,500				
sub-total (A)	20,000				
(B) OUTPUT					
(a) units completed & transferred to next process out of					
i) opening WIP	1,500	0%	0	66⅔%	1,000
ii) introduced in march 19	13,500	100%	13,500	100%	13,500
(b) Normal Loss (20,000 × 10%)	2,000	—	—	—	—
(c) Abnormal Gain	(2,000)	100%	(2,000)	100%	(2,000)
(d) closing WIP	5,000	90%	4,500	30%	1,500
sub-total (B)	20,000		16,000		14,000

③ Statement of cost for March-2019

particulars	Material	Labour	OH	Total
(a) cost incurred in march 2019 (₹)	52,000	14,000	28,000	94,000
(b) Less: Realisable value of normal scrap	(4,000)	—	—	(4,000)
	2000 × ₹2			
(c) Net cost incurred during the period	48,000	14,000	28,000	90,000
(d) Equivalent production for the period (units)	16,000	14,000	14,000	
(e) cost per equivalent unit (₹/u)	3.00	1.00	2.00	6.00

④ Statement showing allocation of cost for March 2019

Particulars	Amt (₹)	Amt (₹)
(A) units completed & transferred to next process out of :		99,000
(a) opening W.I.P.		
i) cost incurred before march 2019	15,000	
ii) cost incurred in march		
Material : 0	0	
Labour : 1000 units × ₹1	1,000	
OH : 1000 units × ₹2	2,000	
(b) Introduced in march 2019		
Material : 13,500 units × ₹3	40,500	
Labour : 13,500 units × ₹1	13,500	
OH : 13,500 units × ₹2	27,000	
(B) Abnormal Gain		(12,000)
Material : 2000 units × ₹3	(6,000)	
Labour : 2000 units × ₹1	(2,000)	
OH : 2000 units × ₹2	(4,000)	
(C) closing WIP		18,000
Material : 4500 units × ₹3	13,500	
Labour : 1500 units × ₹1	1,500	
OH : 1500 units × ₹2	3,000	
(D) Total (A+B+C)		1,05,000

⑤ Process - I A/c for march 2019

Particulars	units	Rate (₹)	Amt (₹)	Particulars	units	Rate (₹)	Amt (₹)
To opening wip	1,500	—	15,000	By Normal Loss (sale of scrap)	2000	2.00	4,000
To Input material	18,500	2.8108	52,000	By Process - II A/c (units completed & translated)	15,000	W.N. ③	99,000
To Direct Labour			14,000				
To overheads			28,000				
To Abnormal Gain A/c	2000	W.N. ④	12,000	By closing wip	5,000	W.N. ⑥	18,000
Total	22,000		1,21,000	Total	22,000		1,21,000

⑥ Abnormal Gain A/c for march 2019

Particulars	units	Rate (₹)	Amt (₹)	Particulars	units	Rate (₹)	Amt (₹)
To Normal Loss (sale of scrap)	2000	2	4,000	By process - I A/c	2000	W.N. ⑥	12,000
To costing P&L A/c			8,000 *				
Total	2,000		12,000	Total	2,000		12,000

Question 10:

A company manufactures a product which involves two consecutive process viz. Pressing and Polishing.

For the month of September, 2018 the following information is available.

Particulars	Pressing	Polishing
Opening Stock	—	—
Input of units in process	1,200	1,000
Units completed	1,000	500
Units under process	200	500
Material costs (₹)	96,000	8,000
Conversion costs (₹)	3,36,000	54,000

Degree of completion of closing WIP

	pressing	polishing
mate	100%	100%
conv.	60%	50%

For incomplete units in process, charge material cost at 100%, Conversion cost at 60% in Pressing process and 50% in Polishing process. Prepare a statement of cost and calculate the selling price per unit which results in 25% profit on cost price. Also prepare pressing, polishing process Accounts.

(I) pressing process

(1) Statement of Equivalent production for the month of sept 2018

Particulars	Total units	Equivalent units: material %	material units	conversion %	conversion units
(A) INPUT – input of units in sept 2018	1,200				
(B) OUTPUT					
(a) units completed & transferred to Polishing process	1,000	100%	1,000	100%	1,000
(b) closing w.i.p.	200	100%	200	60%	120
sub-total (B)	1,200		1,200		1,120

(2) statement of cost for sept – 2018

Particulars	material	conversion	Total
(a) Net cost incurred during the period of sept – 2018 (₹)	96,000	3,36,000	4,32,000
(b) Equivalent production of sept 2018	1200 units	1,120 units	
(c) cost per equivalent unit (a/b)	80.00	300.00	380.00

③ Statement showing allocation of wst

particulars	Amt (₹)	Amt (₹)
(a) units completed & transferred to polishing process		380,000
Material : 1000 units × ₹80	80,000	
Conversion : 1000 units × ₹300	300,000	
(b) closing wip		52,000
Material : 200 units × ₹80	16,000	
Conversion : 120 units × ₹300	36,000	
(c) Total (a+b)		432,000

④

pressing process A/c
(For the month of sept-2018)

	Quantity	Rate (₹)	Amt (₹)		Quantity	Rate (₹)	Amt (₹)
To input material	1200	80	96,000	By polishing process A/c (units completed & transferred)	1,000	W.N. II (3)	380,000
To conversion cost			336,000				
				By closing wip	200	W.N. I (3)	52,000
Total	1,200		432,000	Total	1,200		432,000

(II) polishing process

① Statement of Equivalent production for the month of sept 2018

particulars	Total units	Equivalent units material %	Equivalent units material units	Equivalent units conversion %	Equivalent units conversion units
(A) INPUT - units transferred from pressing process	1,000				
(B) OUTPUT					
(a) units completed & transferred to Finished goods dept	500	100%	500	100%	500
(b) closing w.i.p	500	100%	500	50%	250
sub-total (B)	1,000		1,000		750

② Statement of cost for sept - 2018

particulars	material	conversion	Total
(a) Net cost incurred during the period of sept - 2018 (₹)	388,000	54,000	4,42000
(b) Equivalent production of sept 2018	1000	750	
(c) cost per equivalent unit (a/b)	388.00	72.00	460.00

③ Statement showing allocation of cost

particulars	Amt (₹)	Amt (₹)
(a) units completed & transferred to Finished Goods Dept		230,000
Material : 500 units x ₹ 388	194,000	
Conversion : 500 units x ₹ 72	36,000	
(b) closing wip		313000
Material : 500 units x ₹ 388	194,000	
Conversion : 250 units x ₹ 72	18,000	
(c) Total (a+b)		4,42000

(4) Polishing process A/c

(For the month of sept-2018)

	Quantity	Rate (₹)	Amt (₹)		Quantity	Rate (₹)	Amt (₹)
To pressing process A/c	1,000		380,000	By Finished Goods A/c (units completed & transferred)	500	W.N. II ③	230,000
To materials			8,000				
To conversion cost			54,000	By closing wip	500	W.N. II ③	312,000
Total	1,000		4,42,000	Total	1,000		4,42,000

III selling price p.u. of output of polishing process

= cost p.u. + profit p.u.

= ₹460 + 25% (₹460)

= ₹460 + ₹115 = ₹575 p.u.

Question 11: (very important) (Question on inter-process profit)

A certain product passes through three processes before it is transferred to finished stock. The following information is obtained for the month of August 2019 -

Items	Process I (₹)	Process II (₹)	Process III (₹)	Finished Stock(₹)
Opening Stock	10,000	12,000	8,000	30,000
Direct Material	20,000	21,000	30,000	—
Direct Wages	15,000	15,000	16,000	—
Production Overhead	14,000	6,000	40,000	—
Closing Stock	5,000	6,000	4,000	15,000
Profit % on transfer price	25%	20%	20%	—
Inter-process profit on opening stock	—	2,000	2,000	11,000
Selling Overheads	---	---	----	3,500

Stock in process are valued at prime cost and finished stock has been valued at the price at which it was received from Process-III. Sales during the period were ₹3,50,000.

Prepare and compute -

a. Process Cost Accounts showing profit element at each stage;

b. Actual realised profit ; and

c. Stock valuation for Balance Sheet purposes.

(1)

Process – I A/c (For the month of August 2019)

particulars	cost (₹)	profit (₹)	Total (₹)	particulars	cost (₹)	profit (₹)	Total (₹)
To opening stock	10,000	–	10,000	By process-II A/c	54000 *	18000 *	72,000
To Direct materials	20,000	–	20,000		59,00	18,000	
To Direct wages	15,000	–	15,000				
prime cost	45,000	–	45,000				
Less: closing stock	(5,000)	–	(5,000)				
prime cost of goods transferred to P-II	40,000	–	40,000				
To production OH	14,000	–	14,000				
To costing P/L A/c (54000 × 33⅓%)	–	18,000	18,000				
Total	54,000	18,000	72,000	Total	54,000	18,000	72,000

(2)

Process – II A/c (For the month of August 2019)

particulars	cost (₹)	profit (₹)	Total (₹)	particulars	cost (₹)	profit (₹)	Total (₹)
To opening stock	10,000	2,000	12,000	By process-III A/c	1,01,000 *	49,000 *	150,000
To process-I	59000	18,000	72,000		1,01,000	49,000	
To Direct material	21,000	–	21,000				
To Direct wages	15,000	–	15,000				
prime cost	100,000	20,000	120,000				
Less: closing stock	(5,000)	(1,000)	(6,000)				
prime cost of goods transferred to P-III	95,000	19,000	114,000				
To prod overheads	6,000	–	6,000				
To costing P/L A/c (1,20,000 × 25%)	–	30,000	30,000				
	1,01,000	49,000	1,50,000	Total	1,01,000	49,000	150,000

6,000

③ Process – III A/c (For the month of August 2019)

particulars	cost (₹)	profit (₹)	Total (₹)	particulars	cost (₹)	profit (₹)	Total (₹)
To opening stock	6,000	2,000	8,000	By Finished stock A/c	190,000	110,000	300,000
To process – II A/c	101,000	49,000	150,000				
To Direct materials	30,000	–	30,000				
To Direct wages	16,000	–	16,000				
prime cost	1,53000	51,000	204,000				
Less: closing stock	3,000	1,000	4,000				
prime cost of goods trans. to Finished stock	150,000	50,000	200,000				
To production OH	40,000	–	40,000				
To costing P/L A/c (240,000 × 25%)	–	60,000	60,000				
240,000							
Total	190,000	110,000	300,000	Total	190000	110,000	3,00000

51,000 – 204,000
? – 4,000

④ Finished stock A/c (For the month of August 2019)

particulars	cost (₹)	profit (₹)	Total (₹)	particulars	cost (₹)	profit (₹)	Total (₹)
To opening stock	19,000	11,000	30,000	By sales	2,3 01,47,000	5,0	3,5 00
To process – III A/c	190,000	110,000	300,000				
prime cost	2,09000	121,000	330,000				
Less: closing stock	9,500	5,500	15,000				
prime cost of goods sold	199,500	115,500	3,15000				
To selling OH	3,500	–	3,500				
To costing P/L A/c	–	31,500	31,500				
Total	203,000	1,47000	3,50,000	Total	203,000	1,43000	350,000

3 ? - 15,000

(5) costing P & L A/c for the month of August 2019

particulars	Amount (₹)	particulars	Amount (₹)
		By process - I A/c	18,000
		By process - II A/c	30,000
		By process - III A/c	60,000
		By Finished stock A/c	31,500
To stock reserve (closing stock)		By stock Reserve b/d (opening stock)	
process - I	0	process - I	0
process - II	1,000	process - II	2,000
process - III	1,000	process - III	2,000
Finished stock	5,500	Finished stock	11,000
To net profit c/d	1,47,000		
Total	1,54,500	Total	1,54,500

(6) stock valuation for Balance - sheet purpose

particulars	Amt (₹)	Amt (₹)
(a) process - I	5,000	
Less: stock Reserve	(0)	5,000
(b) process - II	6,000	
Less: stock Reserve	(1,000)	5,000
(c) process - III	4,000	
Less: stock Reserve	(1,000)	3,000
(d) Finished stock	15,000	
Less: stock Reserve	(5,500)	9,500
(e) Total (a+b+c+d)		22,500

Question 12:

In a manufacturing unit, raw material passes through four processes I, II, III, and IV and the output of each process is the input of the subsequent process. The loss in the four processes I, II, III and IV are respectively, 25% , 20% , 20% and 16 2/3% of the input. If the end product at the end of Process-IV is 40,000 kg. what is the quantity of raw material to be fed at the beginning of Process-I and the cost of the same at ₹5 per kg. ?

Find out also the effect of increase or decrease in the material cost on the end product for variation of every rupee in the cost of raw material.

① Statement showing Quantity of raw material to be fed at the beginning of process-I

process	output (kgs) (a)	Loss as a % of input	output as a % of input (y)	input = x/y (kgs)
IV	40,000	16.6666666 %	83.333333 %	48,000
III	48,000	20 %	80 %	60,000
II	60,000	20 %	80 %	75,000
I	75,000	25 %	75 %	1,00,000

cost of raw material to be fed at the beginning of process-I = 100,000 kgs x ₹5 per kg = ₹ 5,00,000 / 500,000 is per kg

② Increase / (Decrease) in raw material cost p.u. of output on variation of every rupee in cost of raw material

$$= \frac{100{,}000 \text{ kgs} \times ₹1 \text{ Per kg}}{40{,}000 \text{ kgs}} = ₹2.50 \text{ per kg.}$$

Question 13:

An article passes through three successive operations from the raw material to the finished product stage. The following data are available from the production records of a particular month –

Operation	No. of Pieces Input	No. of Pieces Rejected	No. of Pieces Output
1	60,000	20,000	40,000
2	40,000	4,000	36,000
3	36,000	6,000	30,000

Determine the input required to be introduced in the first operation in number of pieces in order to obtain finished output of 100 pieces after the last operation.

Calculate the cost of raw material required to produce one piece of finished product, if the weight of finished piece is 0.10 kg. and the price of raw material is ₹ 20 per kg.

① calculation of input required to first operation in order to obtain finished output of 100 pieces after last operation

(input to operation 1 : output from operation – 3) = 60,000 : 30,000 = 2 : 1

input to operation 1	output from operation – 3
2	1
?	100 pieces

∴ input required to first operation = $\left(\frac{100 \text{ pieces} \times 2}{1}\right)$ ---- By cross Multiplication

= 200 pieces

② Raw material required to produce one piece of finished product of 0.10 Kgs

= 0.10 kgs × 2 = 0.20 kgs

0.1071 Rgs

& cost of raw material = 0.20 kgs × ₹ 20 per kg

= ₹ 4.00

Question 14: (super - important) (For revision)

From the following details, prepare statement of equivalent production, statement of cost and prepare process account. Solve by using FIFO and Average Cost Method.

Opening work-in-progress	2000 units
Materials (100 % complete)	₹ 7500
Labour (60 % complete)	₹ 3000
Overhead (60 % complete)	₹ 1500
Units introduced into this process	8,000 units

There are 2,000 units in process and the stage of completion is estimated to be-

Material	100 %
Labour	50 %
Overhead	50 %

8,000 units are transferred to next process. The cost incurred is –

Material	₹1,00,000
Labour	₹78,000
Overhead	₹39,000

(I) First in First out (FIFO Method)

(1) Statement of Equivalent production for the period

Particulars	Total units 11	Equivalent units			
		Material		Labour & OH	
		%	units	%	units
(A) INPUT					
(a) opening w.i.p	2,000				
(b) units introduced during the period	8,000				
sub-total (A)	10,000				
(B) OUTPUT					
(a) units completed & transferred out of:					
i) opening wip	2,000	0 %	0	40 %	800
ii) introduced in this period	8,888	100 %	6,000	100 %	6,000
(b) closing w.i.p	2,000	100 %	2,000	50 %	1,000
Total	10,000		8,000		7,800

② Statement of cost for the period

particulars	Material	Labour	OH	Total
(a) Net cost incurred during the period (₹)	100,000	78,000	39,000	2,17000
(b) Equivalent production for the period (units)	8,000	7,800	7,800	
(c) cost per equivalent unit (a/b) (₹)	12.50	10.00	5.00	27.50

③ Statement showing allocation of cost for the period

particulars	Amt (₹)	Amt (₹)
(a) Units completed & transferred to next process out of :		189,000
① opening wip		
(a) cost incurred before this period (7500 + 3000 + 1500)	12,000	
(b) cost incurred in this period		
Material : 0	0	
Labour : 800 units x ₹ 10	800	
Ebour : 800 units x ₹ s	4,000	
② Introduced in this period	165.000	
6000 units x (₹12.50 + lots)	165.000	
(b) closing w.i.p.		40,000
Material : 2000 units x 12.50	25,000	
Labour : 1000 units x 10	10,000	
OH : 1000 units x 5	5,000	
(c) Total (a+b)		2,29000

④

process - I A/c for the period

particulars	Quantity	Rate (₹)	Amt (₹)	particulars	Quantity	Rate (₹)	Amt (₹)
To opening wip (7500 + 3000 + 1500)	2,000		12,000	By process - II A/c (units completed & transferred)	8,000	W.N. II ③	189,000
To material introduced	8,000		100,000	By closing w.i.p	2,000	W.N. II ③	40,000
To Labour			78,000				
To overheads			39,000				
Total	10,000		2,29000	Total	10,000		2,29000

II Average cost method (i.e. Weighted avg method)

Statement of Equivalent production for the period

particulars	Total units	Equivalent units: Material %	Material units	Labour & OH %	Labour & OH units
(A) INPUT					
(a) opening w.i.p.	2,000				
(b) units introduced during the period	8,000				
sub-total (A)	10,000				
(B) OUTPUT					
(a) units completed & transferred	8,000	100%	8,000	100%	8,000
(b) closing w.i.p	2,000	100%	2,000	50%	1,000
Total	10,000		10,000		9,000

② statement of cost for the period

particulars	Material	Labour	OH	Total
a cost of opening w.i.p (E)	7,500	3,000	1,500	12,000
b cost incurred during this period (E)	100,000	78,000	39,000	217,000
c Total cost incurred (a+b)	1,07,500	81,000	40,500	2,29,000
d Equivalent production units	10,000	9,000	9,000	
e cost per equivalent unit (E) (c/d)	10.75	9.00	4.50	24.25

③ Statement showing allocation of cost for the period

particulars	Amt (E)	Amt (E)
a Units completed & transferred to next process		1,94,000
Material : 8000 units × 210.75	86,000	
Labour : 8000 units × 29.00	72,000	
OH : 8000 Units × 24.50	36,000	
b closing w.i.p		35,000
Material : 2,000 Units × 210.75	21,500	
Labour : 1,000 units × ₹9.00	9,000	
OH : 1000 units × ₹4.50	4,500	
c Total (a+b)		2,29,000

④

process - I A/c for the period

particulars	Quantity	Rate (₹)	Amt (₹)	particulars	Quantity	Rate (₹)	Amt (₹)
To opening wip (7500 + 3000 + 1500)	2,000		12,000	By process - II A/c (units completed & transferred)	8,000	W.N. II ③	194,000
To material introduced	8,000		100,000	By closing wip	2,000	W.N. II ③	35,000
To Labour			78,000				
To overheads			39,000				
Total	10,000		2,29000	Total	10,000		2,29000

If Degree of completion of opening wip is given in the question then also

↓

It is of no use if we are solving question by Aug cost method

If degree of completion of opening wip is not given the question then

Question must be solved by Avg cost method. (It can not be solved by FIFO method)

by August

Question 15:

From the following data, prepare Process-I Account on Average Cost basis. or weighted avg method

i. Opening W.I.P - 10,000 units, 50% complete with regard to labour and overhead -

Material	₹3,000
Labour	₹4,000
Overhead	₹4,000

ii. Units brought into process - 20,000 units. Cost incurred is during the period of June 2020

Material	₹15,000
Labour	₹26,250
Overhead	₹35,000

iii. Transferred to next process - 15,000 completed units

iv. Closing WIP - 15,000 units, 50% complete as to labour and overhead.

① Statement of equivalent production for June 2020 by Aug cost method

Particulars	Total Units	Equivalent units			
	Etfs	Material		Labour & overheads	
(A) INPUT					
(a) opening wip	10,000				
(b) units introduced in the period June 2020	20,000				
sub-total (A)	30,000				
(B) OUTPUT					
(a) units completed & transferred to next process	15,000	100%	15,000	100%	15,000
(b) closing w.i.p.	15,000	100%	15,000	50%	7,500
Sub-Total (B)	30,000		30,000		22,500

(2) Statement of cost for June - 2020

Particulars	Material	Labour	Overheads	Total
(a) cost of opening w.i.p.	3,000	9,000	9,000	11,000
(b) cost incurred during the period June - 2020 (₹)	15,000	26,250	35,000	76,250
(c) Total cost incurred (₹) (a+b)	18,000	30,250	39,000	87,250
(d) Equivalent production for June - 2020	30,000 units	22,500 units	22,500 units	
(e) cost per equivalent unit (₹) (c/d)	0.60	1.344444	1.733333	3.677777

(3) Statement showing allocation of cost for June 2020

Particulars	Amt (₹)	Amt (₹)
(a) units completed & transferred		55,166.6666
Material : 15,000 units × ₹ 0.60	9,000	
Labour : 15,000 units × ₹ 1.344444	20,166.666	
overheads : 15,000 units × ₹ 1.733333	26,000	
(b) closing w.i.p.		
Material : 15,000 units × ₹ 0.60	9,000	33083.3333
Labour : 7,500 units × ₹ 1.344444	10,083.3333	
overheads : 7,500 units × ₹ 1.733333	13,000	
(c) Total (a+b)		87,250

(4)

Process - I A/c
(For June - 2020)

Dr

Particulars	Qty	Rate (₹)	Amt (₹)	Particulars	Qty	Rate (₹)	Amt (₹)
To opening wip (3000 + 4000 + 4000)	10,000		11,000	By process - II A/c (units completed & transferred to next process)	15,000	W.N. (3) WgN	55,167
To Materials	20,000	0.75	15,000				
To Labour			26,250				
To overheads			35,000	By closing wip	15,000	W.N. (2) KEN	32,083
Total	30,000		87,250	Total	30,000		87,250

Question 16:

The following are the details in respect of Process-X and Process-Y of the processing factory.

	Process-X ₹	Process-Y ₹
Material	10,000	—
Labour	10,000	14,000
Overhead	4,000	10,000

The output of Process-X is transferred to Process-Y at a price calculated to give a profit of 20% on the transfer price and the output of Process-Y is charged to Finished Stock at a profit of 25% on the transfer price. The Finished Goods Department realised ₹1,00,000 for the finished goods received from the process Y. You are asked to show Process Accounts and total profit, assuming no WIP.

① Process - X A/c

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To Materials	10,000	—	10,000	By process - Y A/c	24,000	6,000	30,000
To Labour	10,000	—	10,000				
To overheads	4,000	—	4,000				
To costing P/L A/c (24,000 × 25%)	—	6,000	6,000				
Total	24,000	6,000	30,000	Total	24,000	6,000	30,000

(20% on transfer price means 25% on cost)

② Process - Y A/c

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To process - X A/c	29,000	6,000	30,000	By Finished stock A/c	48,000	24,000	72,000
To Labour	14,000	—	14,000				
To overheads	10,000	—	10,000				
To costing P/L A/c (54000 × 33 1/3%)	—	18,000	18,000				
Total	48,000	24,000	72,000	Total	48,000	24,000	72,000

(25% on Transfer price is 33.333333% on cost)

③ Finished stock A/c

particulars	cost (₹)	profit (₹)	Total (₹)	particulars	cost (₹)	profit (₹)	Total (₹)
To process - Y A/c	48,000	24,000	72000	By sales	48,000	52,000	100,000
To costing P&L A/c	–	28,000	28,000				
Total	48,000	52,000	100,000	Total	48,000	52,000	100,000

④ costing P&L A/c

particulars	Amt (₹)	particulars	Amt (₹)
		By process - X A/c	6,000
		By process - Y A/c	18,000
		By Finished stock A/c	28,000
To net profit c/d	52,000		
Total	52,000	Total	52,000

Question 17:

A certain product passes through three processes before it is completed. The output of each process is charged to the next process at a price calculated to give a profit of 20% on transfer price (i.e. 25% on cost price). The output of Process-III is charged to Finished Stock Account on a similar basis. There was no work-in-progress at the beginning of the year and overheads have been ignored. Stocks in each process have been valued at prime cost of the process. The following data is obtained for the year ended on 30th June, 2018 –

Items	Process I ₹	Process II ₹	Process III ₹	Finished Stock ₹
D. Material	30,000	20,000	40,000	—
D. Wages	20,000	30,000	10,000	—
Stock on 30th June	10,000	20,000	30,000	30,000
Sales during the year	—	—	—	1,70,000

From the above information prepare -

a. Process Cost Accounts showing the profit element at each stage

b. Actual realised profit ; and

c. Stock valuation as would appear in the Balance Sheet.

① Process – I A/c for the year ended 30th June 2018

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To Direct materials	30,000	–	30,000	By process – II A/c	40,000 *	10,000 *	50,000 *
To Direct wages	20,000	–	20,000				
Prime cost	50,000	–	50,000				
Less: closing stock	(10,000)	–	(10,000)				
Cost of goods transferred to process – II	40,000	–	40,000				
To costing P/L A/c (40,000 x 25%)	–	10,000	10,000				
Total			50,000	Total	40,000	10,000	50,000

② Process – II A/c for the year ended 30th June 2018

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To process – I A/c	40,000	10,000	50,000	By process – III A/c	72,000 *	28,000 *	100,000
To Direct material	20,000	–	20,000				
To Direct wages	30,000	–	30,000				
Prime cost	90,000	10,000	100,000				
Less: closing stock	18,000	2,000	20,000				
Cost of goods trans. to process – III	72,000	8,000	80,000				
To costing P/L A/c (80,000 x 25%)	–	20,000	20,000				
Total	72,000	28,000	100,000	Total	72,000	28,000	1,09000

Cost	Profit	Price
122,000	28,000	150,000
?	?	30,000

10,000 – 100,000
? – 20,000

③ Process – III A/c for the year ended 30th June 2018

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To Process – II A/c	72,000	28,000	100,000	By Finished stock A/c	97,600	52,400	150,000
To Direct materials	40,000	–	40,000				
To Direct wages	10,000	–	10,000				
Prime cost	1,22,000	28,000	1,50,000				
Less: closing stock	24,400	5,600	30,000				
Cost of goods trans. to Finis. stock	97,600	22,400	120,000				
To costing P & L A/c (1,20,000 × 25%)	–	30,000	30,000				
Total	97,000	52,400	150,000	Total	97,000	52,400	150,000

④ Finished stock A/c for the year ended 30th June 2018

Particulars	Cost (₹)	Profit (₹)	Total (₹)	Particulars	Cost (₹)	Profit (₹)	Total (₹)
To Process – III	97,600	52,400	150,000	By sales	78,080	91,920	170,000
Less: closing stock	19,520	10,480	30,000				
Cost of goods sold	78,080	41,920	120,000				
To costing P & L A/c	–	50,000	50,000				
Total			170,000	Total	78,080	91,920	170,000

⑤ Costing P & L A/c For the Year ended 30th June 2018

Particulars	Amt (₹)	Particulars	Amt (₹)
To stock Reserve		By process – I A/c	10,000
Process – I	0	By process – II A/c	20,000
Process – II	2,800	By process – III A/c	30,000
Process – III	5,600	by process	
Finished stock	10,480	By Finished stock A/c	50,000
To net profit c/d	91,920		
Total	110,000	Total	110,000

(6) stock valuation for Balance sheet purpose

particulars	Amt (Given) (₹)	Less: stock reserve Estrue	Amt (₹)
Process - I	10,000	-	10,000
process - II	20,000	(2,000)	18,000
process - III	30,000	(5,600)	24,400
Finished stock	30,000	(10,480)	19,520
		Total	71,920

Question 18:

Following information is available regarding Process-I for the month of February, 2019 :

Production Record:

Units in process as on 1.2.2019	4,000 units
(All materials used, 25% complete for labour and overhead)	
New units introduced	16,000
Units completed	14,000
Units in process as on 28.2.2019	6,000
(All materials used, 33-1/3% complete for labour and overhead)	

Cost Records: cost of opening w.i.p.

Work-in-process as on 1.2.2019	(₹)
Materials	6,000
Labour	1,000
Overhead	1,000
	8,000

Cost during the month — cost incurred during the month

Material	25,600
Labour	15,000
Overhead	15,000
	55,600

Presuming that average method of inventory is used, prepare:

(i) Statement of equivalent production.

(ii) Statement showing cost for each element.

(iii) Statement of apportionment of cost.

(iv) Process cost account for Process-I.

① Statement of Equivalent production for the month of Feb 2019

particulars	Total units	Equivalent units					
		Material		Labour		OH	
		%	units	%	units	%	units
(A) INPUT							
(a) opening wip	4,000						
(b) units introd.	16,000						
sub-total (A)	20,000						
(B) OUTPUT							
(a) units compl & transferred to process-2	14,000	100%	14,000	100%	14,000	100%	14,000
(b) closing wip	6,000	100%	6,000	33⅓%	2,000	33⅓%	2,000
sub-total (B)	20,000		20,000				16,000

② Statement of cost for the month of Feb-2019

particulars	Material (₹)	Labour (₹)	OH (₹)	Total (₹)
	E	E	E	E
(a) cost of opening wip	6,000	1,000	1,000	8,000
(b) cost incurred during Feb 2019	25,600	15,000	15,000	55,600
(c) Total cost (a+b)	31,600	16,000	16,000	63,600
(d) Equivalent prodn (units)	20,000	16,000	16,000	
(e) cost per equivalent unit (Ye)	1.58	1.00	1.00	3.58

③ Statement showing allocation of wst (For Feb 2019)

particulars	Amt (₹)	Amt (₹)
ⓐ units completed & transferred to next process (14,000 × 3.58)		50,120
ⓑ closing wip		13,480
Material : 6,000 units × 1.58	9,480	
Labour : 2,000 units × 1.00	2,000	
OH : 2,000 units × 1.00	2,000	
ⓒ Total (a+b)		63,600

④ process - I A/c (For Feb 2019)

Dr Cr

particulars	Qty (units)	Rate (₹)	Amt (₹)	particulars	Qty (units)	Rate (₹)	Amt (₹)
To opening wip	4,000		8,000	By process-II A/c (units compl. & transferred to next process)	19,000	W.N. ②	50,120
To materials	16,000	1.60	25,600				
To Labour			15,000				
To overheads			15,000				
				By closing wip	6000	W.N. ③	13,480
Total	20,000		63,600	Total	20,000		63,600

Question 19:

Following details are related to the work done in Process-Iby XYZ Company during the month of March, 2018:

	(₹)
Opening work-in process (2,000 units)	
Materials	80,000
Labour	15,000
Overheads	45,000
Materials introduced in Process-I (38,000 units)	14,80,000
Direct Labour	3,59,000
Overheads	10,77,000

cost of openingwip

cost incurre in march 18

Units scrapped : 3,000 units

Degree of completion :	
Materials	100%
Labour and overheads	80%

Degree of completion of units scrapped

This Question can not be solved by FIFO method as degree of completion of openning pains

Closing work-in process : 2,000 units

Degree of completion :	
Materials	100%
Labour and overheads	80%

Degree of completion of closing wip

Units finished and transferred to Process-II: 35,000 units Normal Loss : 5% of total input including opening work-in-process.

Scrapped units fetch ₹ 20 per piece. → Realisable value of scrap

You are required to prepare (Avg Cost method) :

1. Statement of equivalent production
2. Statement of cost
3. Statement of distribution cost, and
4. Process-I Account, Normal Loss Account and Abnormal Loss Account

① Statement of Equivalent production for March 2018

Particulars	Total units	Equivalent units: Material %	Material units	Labour & OH %	Labour & OH units
(A) INPUT					
(a) opening w.i.p	2,000				
(b) units introduced in march 2018	38,000				
sub total (A)	40,000				
(B) OUTPUT					
(a) units completed & transferred to next process	35,000	100 %	35,000	100 %	35,000
(b) Normal Loss (40,000 × 5%)	2,000	—	—	—	—
(c) Abnormal Loss (Abnorem) (3,000 − 2,000)	1,000	100 %	1,000	80 %	800
(d) closing w.i.p	2,000	100 %	2,000	80 %	1,600
sub total (B)	40,000		38,000		37,400

② statement of cost for March 2018

particulars	Material	Labour	OH	Total
a cost of opening w.i.p (E)	80,000	15,000	45,000	190,000
b cost incurred during the period of March 2018 (E)	14,800,000	3,59000	10,77000	2916,000
c Total cost incurred (E) (a+b)	1560,000	374,000	11,22000	30,56000
d Less: Realisable value of Normal scrap 2000 units x ₹20	49000	—	—	40,000
e Net cost incurred (E)	1520,000	3,74000	11,22000	30 6,000
f Equivalent production units	38,000	37,400	37,400	
g cost per equivalent unit (E) (c/f)	40.00	10.00	30.00	80.00

③ statement showing allocation of cost for March 2018

particulars	Amt (E)	Amt (E)
a units completed & transferred to next process		28,09000
material : 35,000 units x ₹40	14,00000	
labour : 35,000 units x ₹10	3,50000	
OH : 35,000 units ₹30	10150,000	
b Abnormal Loss		72,000
Material : 1,000 units x ₹40	40,000	
Labour : 800 units x ₹10	8,000	
OH : 800 units ₹30	24,000	
c closing w.i.p		1,44000
Material : 2,000 units x ₹40	80,000	
Labour : 1600 units x ₹10	16,000	
OH : 1,600 units ₹30	48,000	
d Total (a+b+c)		30 16,000

(4) Process - I A/c
(For March 2018)

Dr Cr

Particulars	Qty	Rate (₹)	Amt (₹)	Particulars	Qty	Rate (₹)	Amt (₹)
To opening wip	2,000		140,000	By Normal Loss (sale of scrap)	2,000	20	40,000
To Materials	38,000		1480,000	By process - II A/c (units completed & transferred to next process)	35,000	W.N. (1)	28,00,000
To Labour			359,000				
To overheads			10,77,000				
				By Abnormal Loss A/c	1,000	W.N. (3)	72,000
				By closing wip	2,000	W.N. (3)	144,000
Total	40,000		30,56,000	Total	40,000		30156,000

(5) Abnormal Loss A/c

Dr Cr

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To process - I A/c	1,000	W.N. (3)	72,000	By sale of scrap	1,000	20	20,000
				By costing P & L A/c			52,000 *
Total	1,000		72,000	Total	1,000		72,000

(6)

Normal Loss A/c

Dr Cr

particulars	Qty (units)	Rate (₹)	Amt (₹)	particulars	Qty (units)	Rate (₹)	Amt (₹)
To process - I A/c	2000	20	40,000	By wst - Ledger Adjustment A/c	2,000		40,000
Total	2,000		40,000	Total	2,000		40,000

Question 20: (Important)

A company produces a component, which passes through two processes. During the month of April, 20X5, materials for 40,000 components were put into Process I of which 30,000 were completed and transferred to Process II. Those not transferred to Process II were 100% complete as to materials cost and 50% complete as to labour and overheads cost. The Process I costs incurred were as follows :

Direct material	₹15,000
Direct wages	₹18,000
Factory overheads	₹12,000

Of those transferred to Process II, 28,000 units were completed and transferred to finished goods stores. There was a normal loss with no salvage value of 200 units in Process II. There were 1,800 units, remained unfinished in the process with 100% complete as to materials and 25% complete as regard to wages and overheads.

No further process material costs occur after introduction at the first process until the end of the second process, when protective packing is applied to the completed components. The process and packing costs incurred at the end of the Process II were:

Packing materials	₹4,000
Direct wages	₹3,500
Factory overheads	₹4,500

Required :

1. Prepare Statement of Equivalent Production, Cost per unit and Process I A/c.
2. Prepare Statement of Equivalent Production, Cost per unit and Process II A/c.

(I) process - I

(1) Statement of equivalent production for April 20X5

particulars	Total Units	Equivalent units: Material %	Material units	Labour & OH %	Labour & OH units
(A) INPUT					
units introduced in April 20X5	40,000				
(B) OUTPUT					
(a) units completed & tran to process-II	30,000	100%	30,000	100%	30,000
(b) closing wip	10,000	100%	10,000	50%	5,000
sub-total (B)	40,000		40,000		35,000

② statement of cost for April 20×5

Particulars	Material	Labour	OH	Total
ⓐ cost incurred during the period (E)	15,000	18,000	12,000	45,000
ⓑ Equivalent production for the period (units)	40,000	35,000	35,000	
ⓒ cost per equivalent unit (E) (a/b)	0.375	0.5142857	0.3428571	1.2321428

③ Statement showing allocation of cost for April 20×5

particulars	Amt (E)	Amt (E)
ⓐ units completed & transferred to process-II		36,965
Material : 30,000 units × ₹ 0.375	11,250	
Labour : 30,000 units × ₹ 0.5142857	15,429	
OH : 30,000 units × ₹ 0.3428571	10,286	
ⓑ closing w.i.p.		8,035
Material : 10,000 units × ₹ 0.375	3,750	
Labour : 5,000 units × ₹ 0.5142857	2,571	
OH : 5,000 units × ₹ 0.3428571	1,714	
ⓒ Total (a+b)		45,000

④ process-I A/c for April 20×5

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To units introduced	40,000	0.375	15,000	By process-II A/c (units completed & transferred)	30,000	W.N. I③	36,965
To Direct Wages			18,000				
To Factory overheads			12,000	By closing w.i.p	10,000	W.N. I③	8,035
Total	40,000		45,000	Total	40,000		45,000

II Process - II

(1) Statement of equivalent production for April 20X5

Particulars	Total Units	Equivalent units: Material %	Material units	Labour & OH %	Labour & OH units
(A) INPUT					
units transferred from process - I	30,000				
(B) OUTPUT					
(a) Units completed & transferred to F.G. stores	28,000	100%	28,000	100%	28,000
(b) Normal Loss	200	—	—	—	—
(c) closing W.I.P.	1,800	100%	1,800	25%	450
sub-total (B)	30,000		29,800		28,450

(2) statement of cost for April 20X5

Particulars	Material	Labour	OH	Total
(a) cost incurred during the period (E)	36,965	3,500	4,500	44,965
(b) Less: realisable value of Normal Loss (200 units × ₹0)	(0)	—	—	(0)
(c) Net cost incurred during the period (E)	36,965	3,500	4,500	44,965
(d) Equivalent production for the period (units)	29,800	28,450	28,450	
(e) cost per equivalent unit (E) (c/d)	1.240436	0.123028	0.158172	1.521632

③ Statement showing allocation of cost for April 20×5

Particulars	Amt (₹)	Amt (₹)
(a) Units completed & transferred to		46,606
Material : 28000 units × ₹ 1.240436	34,732	
Labour : 28000 units × ₹ 0.123022	3,445	
OH : 28000 units × ₹ 0.158472	4,429	
(+) packing materials	4,000	
(b) closing w.i.p.		2,359
Material : 1800 units × ₹ 1.240436	2,233	
Labour : 450 units × ₹ 0.123022	55	
OH : 450 units × ₹ 0.158472	71	
(c) Total (a+b)		48,965

④ process - II A/c for April 20×5

Particulars	Qty (units)	Rate (₹)	Amt (₹)	Particulars	Qty (units)	Rate (₹)	Amt (₹)
To process I A/c	30,000	W.N. I③	36,965	By Normal Loss (sale of scrap)	200	—	—
To Direct Duties			3,500	By Finished Goods stock A/c (units completed & transferred)	28,000	W.N. II③	46,606
To Factory overheads			4,500	By closing w.i.p.	1,800	W.N. II③	2,359
To packing mate.			4,000				
Total	30,000		48,965	Total	30,000		48,965