Advanced Costing and Auditing

Dr. Nishikant Jha
Nirav Goda

Advanced Costing
and
Auditing

(As per the Revised Syllabus of Mumbai University for S.Y. BMS, Semester IV, 2015-16)

Winner of "Best Commerce Author – 2013-14" by Maharashtra Commerce Association

Lion Dr. Nishikant Jha

ICWA, PGDM (MBA), M.Com., Ph.D., D.Litt. [USA],
CIMA Advocate [CIMA U.K.], BEC [Cambridge University],
International Executive MBA [UBI Brussels, Belgium, Europe],
Recognised UG & PG Professor by University of Mumbai.
Recognised M.Phil. & Ph.D. Guide by University of Mumbai.
Assistant Professor in Accounts and HOD, BAF, Thakur College of Science & Commerce.
Visiting Faculty in K.P.B. Hinduja College for M.Phil. & M.Com., University of Mumbai.
CFA & CPF (USA), CIMA (UK), Indian & International MBA, CA & CS Professional Course.

Nirav Goda

M.Com., NCFM, DFM (1st Ranker),
Coordinator of BBI,
Assistant Professor in Accounts,
Thakur College of Science and Commerce, Mumbai.

First Edition : 2016

Preface

It is a matter of great pleasure to present this new edition of the book on **Advanced Costing and Auditing** to the students and teachers of BMS Semester IV started by University of Mumbai. This book is written on lines of syllabus instituted by the university. The book presents the subject matter in a simple and convincing language.

In keeping with the aims of the book, we have attempted to present the text in a lucid and simple style; the treatment is comprehensive and by and large non-mathematical. Another notable feature of this volume is that the discussions of the concepts and theories are invariably followed by exhaustive illustrative problems. To test the understanding of the readers as also to enable them to have sufficient practice, a large number of exercises have also been given at the end of the chapters.

The syllabus contains a list of the topics covered in each chapter which will avoid the controversies regarding the exact scope of the syllabus. The text follows the term wise, chapter-topic pattern as prescribed in the syllabus. I have preferred to give the text of the section and rules as it is and thereafter added the comments with the intention of explaining the subject to the students in a simplified language. While making an attempt to explain in a simplified language, any mistake of interpretation might have crept in.

This book is a unique presentation of subject matter in an orderly manner. This is a student-friendly book and tutor at home. I hope the teaching faculty and the student community will find this book of great use.

I am extremely grateful to Mr. Pandey of Himalaya Publishing House Pvt. Ltd. for their devoted and untiring personal attention accorded by them to this publication.

I owe a great many thanks to a great many people who helped and supported me during the writing of this book which includes Principal, Co-coordinator, and Students of BAF Section.

We gratefully acknowledge and express my sincere thanks to the following people without whose inspiration, support, constructive suggestions of this book would not have been possible.

- Mr. Jitendra Singh Thakur *(Trustee, Thakur College)*
- Dr. Chaitaly Chakraborty *(Principal, Thakur College)*
- Mrs. Janki Nishikhant Jha

I welcome suggestions from students and teachers for further improvement of quality of book.

— Authors

Syllabus

Learning Objectives:

1. The objective of this subject is to familiarize students with the various concepts and elements of cost.
2. The course allows intends to develop auditing skills among learners.

Units	Name of the Topic	No. of Lectures
Unit-1	**Process Costing and Contract Costing** Process Costing: Objectives, Process Cost Accounting Procedure, Basic Steps for Solution of Problems in Process Costing, Normal Loss, Abnormal Loss, Abnormal Gain. Typical Examples. Contract Costing: Learning Objectives, Features, Sub-contracting, Cost Plus Contract, Profit on Incomplete Contract, Work Certified and Work Uncertified, Typical Examples.	15
Unit-2	**Standard Costing** Standard Cost, Standard Costing, Variance Analysis Material, Labour Variances. Material Variance: Material Cost Variance, Material Price Variance, Material Usage Variance, Material Mix Variance, Material Yield Variance. Labour Variance: Direct Wages Variance, Direct Rate Variance, Direct Efficiency Variance, Direct Time Variance, Direct Yield Variance.	15
Unit-3	**Audit Concepts** Basic, Financial System, Users of Financial Information, Definition of Auditing, Objectives of Auditing-Primary and Secondary, Expression of Opinion, Detection of Frauds and Errors. Errors and Frauds, Definition, Reasons and Circumstances, Types of Errors – Commission, Omission, Principle and Compensating, Types of Frauds, Risk of Frauds and Error in Audit. Internet Limitations of Audit, Auditor Duties and Responsibilities in Respect to Fraud. Principle of Audit: Documentation, Planning, Audit Evidence, Accounting System and Internal Control, Audit Conclusion and Reporting. Audit Concept: Materiality, Going Concern, True and Fair Independence.	17
Unit-4	**Vouching and Verification** Vouching: Audit of Income and Audit of Expenditure Verification: Audit of Asset and Audit of Liabilities.	13

Paper Pattern

Q.1.	Unit 1 (Any 2 out of 3)	(15 Marks)
	(a)	(7.5 Marks)
	(b)	(7.5 Marks)
	(c)	(7.5 Marks)
Q.2.	Unit 2 (Any 2 out of 3)	(15 Marks)
	(a)	(7.5 Marks)
	(b)	(7.5 Marks)
	(c)	(7.5 Marks)
Q.3.	Unit 3 (Any 2 out of 3)	(15 Marks)
	(a)	(7.5 Marks)
	(b)	(7.5 Marks)
	(c)	(7.5 Marks)
Q.4.	Unit 4 (Any 2 out of 3)	(15 Marks)
	(a)	(7.5 Marks)
	(b)	(7.5 Marks)
	(c)	(7.5 Marks)
Q.5.	Practical Question/Case Study	(15 Marks)

Contents

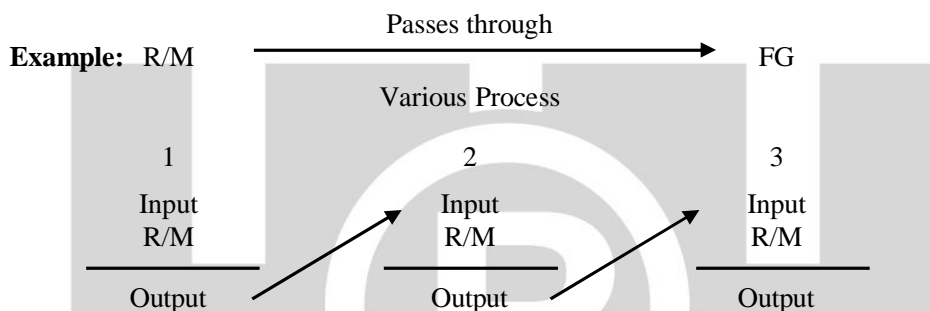| Chapter	# Process Costing
1	

Meaning

It is a method of costing adopted to find out the cost of those goods which are manufactured in stages. Each stage is called a process. The output of each process becomes the input for the next process and so on. The product becomes a finished product only after it passes through all the process.

Passes through

Example: R/M ————————————————→ FG

Various Process

1	2	3
Input R/M	Input R/M	Input R/M
Output	Output	Output

The raw material introduced in the first process loses its identity and the output is transferred to the next process.

Example: Process costing is applicable to product like sugar industry, oil industry, paper industry. etc. On account of processing, certain losses occur at each process. There are two types of losses in process costing.

Example:

Input	20 Kgs
(–) Output	18 Kgs
= Loss 2 Kgs	

Abnormal loss   Normal loss
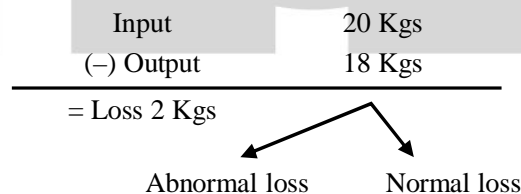
A. Normal Loss

1. It is a loss due to internal factors like heating, boiling, evaporation, etc.
2. It is an expected loss.
3. It is a predetermined % on the input quantity.
4. It is unavoidable and therefore it is uncontrollable loss.
5. It is normally of two types: (a) Scrap: It has realisable value. (b) Weight loss: It has no realisable value because it is an invisible process.
6. It is credited to Process A/c and calculated as a % on the input quantity.

B. Abnormal Loss

1 It is loss due to external factors like natural calamity, loss by fire or theft, strikes, breakdown of machine, etc.
2 It is unexpected loss.
3 It is avoidable to some extent and therefore controllable.
4 It is credited to Process A/c as balancing figure in the quantity column.
5 The amount column is calculated by using the formula:

$$\text{Abnormal Loss (Amt.)} = \frac{\text{Dr} - \text{Cr (Amt Col.)}}{\text{Dr} - \text{Cr (Qty to \%)}} \times \text{Abnormal Loss (Qty)}$$

C. Abnormal Gain/Profit

1. When actual loss is less than the expected loss, it is called an abnormal gain.
2. It is due to superior quantity of R/M, efficient labour, advanced technology, etc.
3. Recorded on debit side of Process A/c as a balance figure in the quantity column.
4. The amount column in calculated by using the formula:

$$\text{Abnormal Gains (Amt.)} = \frac{\text{Dr} - \text{Cr (Amt column)}}{\text{Dr} - \text{Cr (Qty column)}} \times \text{Abnormal Gain (Qty)}$$

[PRO FORMA]

Dr.   **Process 1 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty.	Amt.
To R/M Introduced	X X	X X	By Normal Loss A/c		
To DM		X X	(1) Scrap	X X	X X
To DL		X X	(2) Weight loss	X X	Nil
To DE		X X			
To Factory Exp.		X X			
To Manufacture Exp.		X X	By Abnormal loss	X X	(Formula)
To Abnormal Gain	X X	X X		(Balancing)	
	(Balancing)	(Formula)			
			By Output c/d or transferred to Process 2 A/c (C.P.U.)	X X	X X X (Balancing)
	X X	X X		X X	X X

Notes: • R/M is introduced in the first process.
   • The output of first process becomes input raw material for the next process and so on.
   • The output of last process is finally transferred to FINISHED GOODS STOCK ACCOUNT.
   • Cost per Unit, i.e., (C.P.U.) must be calculated for each Process A/c.

Dr.   **Process 2 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 1 A/c	X X	X X	By Normal Loss	X X	X X
To DM		X X	By Abnormal Loss	X X	(Formula)
To DL		X X		(Balancing)	

To DE		X X	By Output transferred to Finished Stock A/c (C.P.U.)	X X	X X X
To Factory Exp		X X			
To Manufacturing Exp		X X			
To Abnormal Gain	X X	(Formula)			
	X X	X X	X X	X X	X X

Features of Process Costing

In the case of process costing, production follows a series of sequential processes. Since the product manufactured passes through various processes, production is a continuous activity. Units produced are uniform and, therefore, product differentiation is not possible. Following are the main features of process costing:

1. Process costing is used by the industries where the goods are produced through the sequence of several processes. Process costing is suitable for industries like paint, oil refining, rubber, chemicals, sugar, paper, soap-making, textiles, etc. This method is also employed where it is not possible to ascertain the prime cost of specific order.

2. Units of production are uniform and homogeneous. As a result, unit cost of each process is obtained by averaging the total cost of each process.

3. Costs are ascertained for each process at the end of the cost period.

4. Costs follow the production process, i.e., costs incurred in one process are transferred to the next process along with the output.

5. The entire production activity is characterised by a number of stages of production, i.e., processes. Each process includes a number of operations. The boundaries of the process are determined by similarity of work performed, supervision and physical location of men and machines in the plant.

6. The products and processes are standardised.

7. Production is in continuous flow and the output of Process I becomes the input of Process II and so on until the finished product is obtained.

8. Total cost of the process is adjusted with normal losses, abnormal losses, abnormal gains and scrap of the process.

Advantages of Process Costing

Following are the advantages of process costing:

1. Due to the simplicity of cost records, process costing involves less efforts and expenses on accounting.

2. Production activity in process costing is standardised. Hence, managerial control and supervision becomes easier.

3. It is convenient and easy to compute the cost of different processes as well as finished product at short intervals, say, daily, weekly or monthly.

4. In case of process costing, it is possible to allocate expenses to different processes on rational basis. This results into more accurate costing.

5. In process costing, products and processes are standardised. Hence, it is easy to apply standard costing.

6. In process costing, the products are homogeneous. As a result, cost per unit can be easily computed by averaging the total cost and price quotations become easier.

Limitations of Process Costing

Following are the limitations of process costing:

1. Value of work-in-progress is computed on the basis of estimates which results in further inaccuracies.
2. Once an error is committed in one process, it is carried over to the subsequent processes.
3. Since process cost is the average cost, it may not be accurate for analysis, evaluation and control of the performance of various departments.
4. The cost obtained at the end of the accounting period is historical in nature and is of little use for effective managerial control.
5. Process costing does not evaluate the efficiency of individual workers or supervisors.

Distinction between Job Costing and Process Costing

Process costing and job costing are two principal methods of cost accounting. The main points of distinction between job costing and process costing may be listed as under:

Points of Distinction	Job Costing	Process costing
1. Time period	Costs are complied after the completion of the job. Job cost is a terminal cost.	Costs are complied at the end of the each process. Process cost is a period cost.
2. Accumulation	Since each job is separate and independent of others, costs are determined for each job.	Since products are manufactured in a continuos flow and lose their individual entity, costs are accumulated for each process.
3. Applicability	It is applicable to goods manufactured to consumer's specifications.	It is applicable to production for mass consumption through the sequence of several processes.
4. Nature	Cost incurred on jobs need to be identified separately for each job. It is very expensive and requires lot of clerical work.	Cost incurred on units need not be identified separately. It is very simple and less expensive.
5. Unit cost	Total cost of a job is divided by the number of units produced in the job to ascertain unit cost of a job. Cost of a job cannot be ascertained by averaging.	Unit cost is ascertained by dividing total cost of each process by production of each process. Cost of an unit is computed by averaging the total cost.
6. Work-in-progress	There may or may not be work-in-progress at the beginning or at the end of the accounting period.	There is always work-in-progress at the beginning or end of the accounting period since units of production remain in continuous flow.
7. Transfer of cost	There are usually no transfers of cost from one job to another job.	Costs of one process is transferred to subsequent process.
8. Managerial control	Since production is not in continuous flow, job costing requires close supervision and managerial control.	Since production is standardised and continuous, managerial control is easier.

Costing Procedure under Process Costing

For the purpose of costing, the factory is divided into various departments, each department representing a particular process. A supervisor is appointed for each department to supervise the functioning of his department. Each process is a cost centre and, thus, costs are accumulated for each process. A separate account is maintained for each process to which costs of material, labour, direct expenses and overheads are recorded. Following are the main elements of cost in process costing:

1. Materials: Materials required for each process are drawn from the stores by way of material requisitions. No distinction is made between direct and indirect materials. The value of materials issued is debited to the process account. When the output of first process becomes the raw material of the next process, the account of the receiving process is debited with the cost of transfer in addition to the cost of additional materials, if any, added to that process.

2. Labour: Wages of workers engaged wholly in a particular process are debited to that process. If the workers are engaged in a number of processes, the wages are apportioned to different processes on the basis of time spent. Generally, the direct labour cost is a very small part of the cost of production in case of process costing.

3. Direct Expenses: Direct expenses are the expenses which can be easily identified with the process. Depreciation, insurance, electricity, repairs and maintenance etc. are some of the examples of direct expenses which may be directly attributed to a process and, thus, are debited to the process concerned.

4. Production Overhead: Production overhead is the major constituent of the cost of production in case of process costing. Production overheads are the expenses which are common to more than one process, i.e., which cannot be directly allocated to any process. Production overheads include rent. telephone, lighting, gas, water charges etc. Generally, production overheads are recovered at pre-determined rates based on direct wages or prime cost. Thus, process cost does not include office and administrative overheads and selling and distribution overheads.

Preparation of Process Cost Accounts

For each process, a separate process account is maintained. The following situations might arise while preparing process accounts:

  (i) Process costing with no process loss and no stock,
 (ii) Process costing having process losses,
(iii) Process costing having abnormal gain,
 (iv) Process costing having stocks.

Process Costing Having No Process Losses and No Stock

All costs of material, labour, direct expenses and production overheads relating to the process are debited to the process account. Since no process losses are given, the output of a process is equal to the units introduced in the process. The total cost of the process is transferred to the next process. The finished product of one process becomes the raw material of the next process.

Illustration 1

A product passes through 3 process A, B and C.

Sr. No.	Particulars	A	B	C
1	% loss	2 %	5%	10%
2	Sale price per 100 units	` 5	` 5	` 20

3	Actual output in units	19,500	18,800	2,000
4	Material consumed	` 6,000	` 4,000	` 2,000
5	Direct labour	` 8,000	` 6,000	` 3,000
6	Manufacturing expenses	` 1,000	` 1,000	` 1,500

During the month, 20,000 units were introduced to Process A at a cost of ` 10,000. Prepare respective Process A/cs and also calculate cost/unit for each process.

Solution:

Dr.   **Process A A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Raw Materials Introduced	20,000	10,000	By Normal loss $\begin{bmatrix} 20,000 \times 2\% \\ 400 \times \text{`} 0.05 \end{bmatrix}$	400	20
To DM	—	6,000			
To DL	—	8,000			
To Manufacturing expenses	—	1,000	By Abnormal loss (C.P.U. = ` 1.27)	100	127 (Formula)
			By Output transferred to Process B A/c (C.P.U. = ` 1.27)	19,500	24,853
	20,000	**25,000**		**20,000**	**25,000**

Working Note for Process A A/c

$$\text{Abnormal loss (Amt.)} = \frac{\text{Dr} - \text{Cr (Amt column)}}{\text{Dr} - \text{Cr (Qty column)}} \times \text{Abnormal Loss (Qty)}$$

$$= \frac{25,000 - 20}{20,000 - 400} \times 100 = \frac{24,980}{19,600} \times 100 = 127.45 = \text{`} 127$$

Dr.   **Process B A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process A A/c	19,500	24,853	By Normal loss (19,500 × 5%) (975 × ` 0.05)	975	49
To DM		4,000	By Output transferred to Process C A/c (C.P.U. = ` 1.93)	18,800	36,336
To DL		6,000			
To Manufacturing Expenses		1,000			
To Abnormal Gain (C.P.U. = ` 1.93)	275	532 (Formula)			
	19,775	**36,385**		**19,775**	**36,385**

Dr.   **Process C A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process B A/c	18,800	36,336	By Normal loss (18,800 × 10%) (1,880 × ` 0.2)	1,880	376
To DM		2,000			
To DL		3,000	By Abnormal loss	14,920	37,441 (Formula)
To Manufacturing Expenses		1,500	By Finished Goods Stock A/c		
				2,000	5,019
	18,800	42,836		18,800	42,836

Working Note for Process B A/c

$$\text{Abnormal Gain (Amt)} = \frac{\text{Dr} - \text{Cr (Amt column)}}{\text{Dr} - \text{Cr (Qty column) (Qty)}} \times \text{Abnormal Gain (Qty)}$$

$$= \frac{35,853 - 49}{19,500 - 975} \times 275 = ` 531.5$$

$$= \frac{35,804}{18,525} \times 275 = ` 531.5 = ` 532$$

Working Note for Process C A/c

$$\text{Abnormal Loss (Amt)} = \frac{\text{Dr} - \text{Cr (Amt Col)}}{\text{Dr} - \text{Cr (Qty Col)}} \times \text{Abnormal Loss (Qty)}$$

$$= \frac{42,836 - 376}{18,800 - 1,880} \times 14,920$$

$$= \frac{42,460}{16,920} \times 14,920 = ` 37,441$$

Note: C.P.U. should be calculated up to 3 decimal and round off to the 2nd decimal. In this question, output for each process is given. Therefore, Abnormal loss/Abnormal profit can be calculated as a balancing figure.

Illustration 2

A product passes through 3 process. The following cost is given below:

Particulars	Total `	1 `	2 `	3 `
Direct Material	8,482	2,000	3,020	3,462
Direct Labour	12,000	3,000	4,000	5,000
Expenses (direct)	726	500	226	—
Production Overhead	6,000	?	?	?
Output		920 units	870 units	800 units
Normal loss		10%	5%	10%
Sale price of scrap p.u.		3	` 5	` 6

(1,000 unit at the Rate ` 5 were introduced in Process 1.)

Production overheads is allocated to each process on the basis of 50% cost of Direct Labour. Prepare necessary Process A/c. Also calculate cost p.u. for each process.

Solution:

Dr.			Process 1 A/c		Cr.
Particulars	**Qty**	**Amt**	**Particulars**	**Qty**	**Amt**
To R.M. Introduced (1000 × ` 5)	1,000	5,000	By Normal loss $\begin{bmatrix}1,000 \times \\ 100 \times \text{ ` } 3 \text{ p.u.}\end{bmatrix}$10%	100	300
To DM	–	2,000			
To DL	–	3,000			
To Direct Expenses	–	500			
To Production Overheads	-	1,500			
To Abnormal Gain (C.P.U. = ` 13)	20	260 (Formula)	By Output transferred to Process 2 A/c (C.P.U. = ` 13)	920	11,960
	1,020	**12,260**		**1,020**	**12,260**

Working Note 1:

$$\text{Abnormal Gain (Amt)} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal Gain (Qty)}$$

$$= \frac{12,000 - 300}{1,000 - 100} \times 20$$

$$= \frac{11,700}{900} \times 20 = \text{ ` } 260$$

Dr.			Process 2 A/c		Cr.
Particulars	**Qty**	**Amt**	**Particulars**	**Qty**	**Amt**
To Input from Process A A/c	920	11,960 17,960	By Normal loss (5% × 920)	46	
To DM	–	3,020	(46 × ` 5)		230
To DL	–	4,000	By Abnormal loss (C.P.U. = ` 24)	04	96 (Formula)
To Direct Expenses	–	226			
To Production Overheads		2,000	By Output transferred to Process 3 A/c (C.P.U. = ` 24)	870	20,880
	920	**21,206**		**920**	**21,206**

Dr.			Process 3 A/c		Cr.
Particulars	**Qty**	**Amt**	**Particulars**	**Qty**	**Amt**
To Input from Process B A/c	870	20,880	By Normal loss (870 × 10%)	87	
To DM		3,462	(87 × ` 6)		522
To DL		5,000	By Output transferred to F.G. Stock A/c	800	32,000
To Direct Expenses		–			

To Production Overheads		2,500	(C.P.U. = ` 40)		
To Abnormal Gain (C.P.U. = ` 40)	17	680 (Formula)			
	887	**32,522**		**887**	**32,522**

Working Note 2: Abnormal Loss (Amt) $= \dfrac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Amt Column)}} \times$ Abnormal Loss (Qty)

$$= \frac{21,206 - 230}{920 - 46} \times 04 \quad = \frac{20,976}{874} \times 4 \quad = \text{` } 96$$

Working Note 3: Abnormal Gain $= \dfrac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times$ Abnormal Gain (Qty)

$$= \frac{31,842 - 522}{870 - 87} \times 04 \quad = \text{` } 680$$

Illustration 3

A product passes through 3 process in each process. 2% of the gross weight is lost and 10% is scrap which in case of A and B realised @ ` 100 per quintal and in case of Process C @ ` 200 per quintal.

Particulars	A	B	C
Material	8,000 quintal @ ` 500/quintal	1,000 quintal @ ` 200/quintal	900 quintal @ ` 650/quintal
Labour	` 50,000	25,000	20,000
Direct expenses	20,500	10,800	17,200
General expenses related to material	7,000	1,500	4,300
Cost of tins	—	10,750	—
Packing of tins	—	—	4,500

Indirect expenses are ` 5,000 which are to be apportioned to all the three process in the ratio of combined cost of material and wages. Calculate the C.P.U. of each process.

Solution:

* Calculation of Indirect Expenses

	DM	DL	(DM + DL) Combined Cost	Indirect Expenses
A	40,00,000	50,000	40,50,000	4,150
B	2,00,000	25,000	2,25,000	230
C	5,85,000	20,000	6,05,000	620
Total			**48,80,000**	**5,000**

Note: To calculate the Indirect Expenses for process A, B, C, cross multiply the total of combined cost with Indirect expenses:

In this question, output is not given for process A, B, and C. Therefore, output is calculated as a balancing figure for each Process A/c.

Dr.   **Process A A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To RM introduced (8,000 × 500)	8,000	40,00,000	By Normal loss (Scrap 10% × 8,000) (800 × 100)	800	80,000
To DL		50,000	Weight loss	160	NIL
To DE		20,500	(2% × 8,000)		
To GE		7,000	By Output transferred	7,040	40,01,650
To Indirect expenses		4,150	to Process B A/c (C.P.U. = ` 568.42)		
	8,000	**40,81,650**		**8,000**	**40,81,650**

Dr.   **Process B A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process A A/c	7,040	40,01,650	By Normal loss (Scrap 10% of 8040) (804 × 100)	804	80,400
To DM (1,000 × 200)	1,000	2,00,000			
To DL		25,000			
To DE			Weight loss	161	Nil
To GE		1,080	(2% of 8040)		
To Indirect expenses		230	By Output transferred	7,075	41,69,530
To Cost of tin		10,750	to Process C A/c (C.P.U. = ` 589.33)		
	8,040	**42,49,930**		**8,040**	**42,49,930**

Dr.   **Process C A/c**   **Cr**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process B A/c	7,075	41,69,530	By Net loss (Scrap 10% of 7,975) (798 × 200)	798	1,59,600
To DM (900 × 650)	900	5,85,000			
To DL		20,000			
To DE		17,200	Weight loss	160	Nil
To GE		4,300	(2% of 7,975)		
To Indirect expenses		620			
To Packing		4,500	By Output transferred	7,017	46,41,550
			to F.G. A/c (C.P.U. = ` 661.47)		
	7,975	**48,01,150**		**7,975**	**48,01,150**

Distinction between Normal Loss and Abnormal Loss

Points of Distinction	Normal Loss	Abnormal Loss
1. Nature	It is of recurring nature.	It is of accidental nature.
2. Source	It arises due to internal factors, i.e., nature of product.	It arises due to external factors, i.e., carelessness, accidents etc.
3. Insurance	It is non-insurable loss.	It is an insurable loss.
4. Estimation	It can be estimated in advance from the past experience.	It cannot be estimated in advance.
5. Effect	It is a part of process cost.	It is not a part of process cost. It

	Normal loss is borne by good units. As a result, cost per unit of output goes up.	is not borne by good units. It is transferred to Costing Profit and Loss A/c
6. Avoidance	It is unavoidable.	It is avoidable.

Following Journal entries are passed to record abnormal gain:

(i)   Process A/c   Dr.
        To Abnormal Gain A/c

(ii) Abnormal Gain A/c   Dr.
        To Normal Loss A/c

(iii) Abnormal Gain A/c   Dr.
        To Costing Profit and Loss A/c

Illustration 4

A chemical company produces a product with 2% of weight loss in each process and 10% of scrap loss in each process for which ` 100 p.u. for process 1 and 2 is realised and ` 20 p.u. for process 3 is realised.

The input quantity for each process is 1,000 units, 140 units and 1,348 units respectively.

Particulars	Process 1	Process 2	Process 3
Direct material	1,20,000	28,000	1,07,840
Manufacturing wages	20,500	18,520	15,000
General expenses	10,300	7,240	3,100
Stock kept for sale	25%	50%	100%
Passed to next process	75%	50%	Nil

Solution:

Dr.   **Process 1 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To DM (RM Introduced)	1,000	1,20,000	By Normal loss		
To Manufacturing wages		20,500	(a) Weight loss	20	Nil
To General Expenses		10,300	(2% of 1000)		
			(b) Scrap		
			(10% of 1000	100	
			100 × ` 100)		10,000
			By Output c/d	880	1,40,800
			(C.P.U. = 160)		
	1,000	**1,50,800**		**1,000**	**1,50,800**
To Output b/d	880	1,40,800	By Sales (220 × ` 160)	220	35,200
			By Output transferred to P-2 A/c (C.P.U. = ` 160)	660	1,05,600
	880	**1,40,800**		**880**	**1,40,800**

Note: When the question is silent, the goods sold will be recorded at cost price. Alternatively, it is recorded at COST + PROFIT = SALES.

- Cost Price means cost per unit of respective Process A/c.
- In this question for process 2 and 3, scrap and weight loss is calculated on total input raw material quantity.

Dr.   **Process 2 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 1 A/c	660	1,05,600	By Normal loss:		
To DM	140	28,000	(a) Weight loss	16	Nil
To Manufacture wages		18,520	(2% of 800)		
To General expenses		7,240	(b) Scrap (10% × 800 80 × 100)	80	800
			By Output c/d (C.P.U. = 215)	704	1,51,360
	800	**1,59,360**		**800**	**1,59,360**
To Output b/d	704	1,51,360	By Sales (352 × 215)	352	75,680
			By Output transferred to P-3 A/c (C.P.U. = 215)	352	75,680
	704	**1,51,360**		**704**	**1,51,360**

Dr.   **Process 3 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 2 A/c	352	75,680	By Normal loss:		
To DM	1,348	1,07,840	(a) Weight loss	34	Nil
To Manufacture wages		15,000	(12% of 1,700)		
To General expenses		3,100	(b) Scrap (10% × 800 80 × 100)	170	3,400
			By Output c/d (C.P.U. = 132.5)	1,700	2,01,620
	1,700	**2,01,620**		**1,700**	**2,01,620**
To Output b/d	1,496	1,98,220	By Sales A/c (100 Sold) (1,496 × ` 132.5)	1,496	1,98,220
	1,496	**1,98,220**		**1,496**	**1,98,220**

Working Note 1:

(P-1)   output 880   (P-2)   output 704   (P-3) output 1496

25%   75%   50%   50%   100% Sold

sold   process 2   352   352   (at cost price)

220   660   (Sold Process 3

(at cost price)   at cost price)

Illustration 5

Engineers Ltd. manufactures a product for a month.

Particulars	A-1	A-2	A-3
RM in tonnes	200	71	264
Cost per tonnes	` 100	` 300	` 250
Direct wages	` 8,000	` 3,490	` 2,850
Direct expenses	` 2,520	` 2,400	` 3,820
Finished product sold	25%	50%	100%
Finished product transferred to next process	75%	50%	Nil
Sales of scrap per tonne	` 80	` 100	` 120
Weight loss	6%	6%	6%
Scrap loss	8%	8%	8%

All the sales are made at 20% profit on process cost. Prepare necessary ledger account.

Solution:

Dr.   **Process A-1 A/c**   Cr.

Particulars	Qty	Amt	Particulars	Qty	Amt
To RM introduced	200	20,000	By Normal loss:		
To DM		8,000	(a) Weight loss (6% of 200)	12	Nil
To DE		2,520	(b) Scrap (8% of 200) (16 × 80)	16	1,280
			By Output c/d (C.P.U. = 170)	172	29,240
	200	**30,520**		**200**	**30,520**
To Output b/d	172	29,240	By Sales (43 × 204)	43	8,773
To Costing P & L A/c (43 × 34)		1,462	By Output transferred to A-2 A/c (C.P.U. = 170)	129	21,930
	172	**30,702**		**172**	**30,702**

Dr.   **Process A-2 A/c**   Cr.

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from A-1 A/c	129	21,930	By Normal loss:		
To RM	71	21,300	(a) Weight loss 6% of 200)	12	Nil
To DW		3,490	(b) Scrap (8% of 200 16 × 100)	16	1,600
To DE		2,400	By Output c/d (C.P.U. = 276.28)	172	47,520
	200	**49,120**		**200**	**49,120**
To Output b/d	172	47,520	By Sales (86 × 331.54)	86	28,512
To Costing P & L A/c (86 × 55.54)		4,752	By Output transferred	86	23,760

			to A-3 A/c (C.P.U. = 276.28)		
	172	**52,272**		**172**	**52,272**

Dr.   **Process A-3 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from A-2 A/c	86	23,760	By Normal loss:		
To RM (264 × 250)	264	66,000	(a) Weight loss	21	Nil
To DW		2,850	(6% of 350)		
To DE		3,820	(b) Scrap loss		
			(8% of 350	28	
			28 × 120)		3,360
			By Output c/d	301	93,070
			(C.P.U. = 309-20)		
	350	**96,430**		**350**	**96,430**
To Output c/d	301	93,070	By Sales (307 × 371.04)	301	1,11,684
To Costing P & L A/c		18,614			
(301 × 61.84)					
	301	**1,11,684**		**301**	**1,11,684**

A-1		**A-2**		**A-3**
output = 172		output = 172		output = 301
				(100% Sold)
25% 75%		50% 50%		C 309.20
Sold P-2		86 86		
43 129				
C	170	C	276.28	
+ P (20%)	34	(+) P (20%)	55.26	+ P 61.84
Sales	204	Sales	331.26	S 371.04

Note: In this question, weight loss and scrap will be calculated on the total input raw material quality for Process A-2 and A-3.

Illustration 6

A manufacturing company passes a product in three ways and it is also sold directly by transferred to the warehouse. The information is for the month of August 2013.

Particulars	Process 1	Process 2	Process 3
RM used (tonnes)	1,400	160	1,260
Rate per tonne (`)	1,000	1,600	7,100
Wages (`)	4,00,000	2,00,000	2,00,000
Other expenses (`)	1,14,200	1,14,000	44,800
Transferred to next process	66 2/3%	60%	-
Sales	33 1/3%	40%	100%
Loss in weight	4%	4%	4%

	6%	6%	6%
Scrap			
Scrap value per tonne (`)	300	500	600
Opening stock (`)	25,000	33,000	37,000
Closing stock (tonnes) (Valued at cost)	10	15	20

Total sales = 1,42,000

Administration expenses = 3,00,000 and Selling expenses = 3,50,000

Calculate cost per tonne for process 1, 2, 3 and also find net profit.

Dr.   **Process I A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To RM introduced (1,400 × 1,000)	1,400	14,00,000	By Normal loss:		
			(a) Weight loss (4% of 1,400)	56	Nil
To Wages		4,00,000			
To Other expenses		1,14,200	(b) Scrap (6% of 1,400) (84 × 300)	84	25,200
			By Output c/d (C.P.U. = 1,499.21)	1,260	18,89,000
	1,400	**19,14,200**		**1,400**	**19,14,200**
To Output b/d	1,260	18,89,000	By WH (420 × 1,499.21)	420	6,29,668
			By Output transferred to Process 2 (C.P.U. = 1,499.20)	840	12,59,332
	1,260	**18,89,000**		**1,260**	**18,89,000**

Dr.   **Process 2 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from A	840	12,59,332	By Normal loss:		
To DM (160 × 1600)	160	2,56,000	(a) Weight loss (4% × 1,000)	40	Nil
To Wages		2,00,000	(b) Scrap		
To Other expenses		1,14,000	(6% × 1,000) (60 × 500)	60	30,000
			By Output c/d (C.P.U. = 1,999.26)	900	17,99,332
	1,000	**18,29,332**		**1,000**	**18,29,332**
To Output b/d	900	17,99,332	By WH (360 × 1999.26)	360	7,19,734
			By Output transferred to Process 3 (C.U.P. = ` 1,999.26)	540	10,79,598
	900	**17,99,332**		**900**	**17,99,332**

Dr. **Cr.**
<div align="center">Process 3 A/c</div>

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 2 A/c	540	10,79,598	(a) By Normal loss:		
To Raw Material introduced	1,260	89,46,000	Weight loss	72	Nil
			(4% × 80)		
To Wages		2,00,000	(b) Scrap		
To Other expenses		44,800	(6% × 1,800)	108	
			(108 × 600)		64,800
			By Output c/d	1,620	1,02,05,598
			(C.P.U. = 6,299.75)		
	1,800	**1,02,70,398**		**1,800**	**1,02,70,398**
To Output b/d	1,620	1,02,05,598	By WH	1,620	1,02,05,598
			(1,620 × 6,299.75)		
	1,620	**1,02,05,598**		**1,620**	**1,02,05,598**

Working Notes:

A	B	C
Output = 1260	Output = 900	Output = 1620
33^{1/3} 66^{2/3}	40% 60%	100%
420 840	Sold to WH Next process	Sold transferred
(at C.P.), i.e.,	360 540	to loss at C.P.U.
(C.P.U.)	(C.P.U)	

Dr. **Cr.**
<div align="center">Costing, Trading and P & L A/c</div>
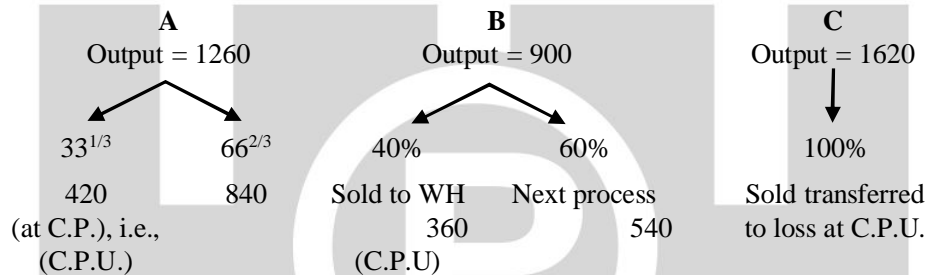
Particulars		`	Particulars		`
To Opening Stock:			By Sales		1,42,00,000
A	25,000		By Closing stock (at cost)		
B	33,000		A (10 × 1,499.21)	14,992	
C	37,000	95,000	B (15 × 1,999.26)	2,99,899	
To Transfer from WH:			C (20 × 6,299.75)	1,25,995	1,70,976
A	6,29,668				
B	7,19,734				
C	1,02,05,598	1,15,55,000			
To Gross Profit c/d		27,20,976			
		1,43,70,976			**1,43,70,976**
To Administration expenses		3,00,000	By Gross Profit b/d		27,20,976
To Selling expenses		3,50,000			
To Net Profit c/d		20,70,976			
		27,20,976			**27,20,976**

Illustration 7

Particulars	A	B	C
RM used (in tonnes)	250	152	145
Cost per tonnes in `	600	400	250
DW	4,29,000	1,01,250	52,800
DE	69,000	69,850	11,250
Loss on tonnage due to processing	4%	5%	2.5%
Transfer to next process	20%	50%	–
Transfer to wholesale warehouse	80%	50%	100%
Wholesale warehouse:			
Stock tonnes (01.01.13)	5	6	20
At cost	12,500	10,800	22,000
Stock (31.12.13) tonnes (valued at cost)	10	20	24

Total sales ` 20,00,000, Salary ` 2,00,000, Administration expenses ` 1,00,000. Prepare respective process accounts and also calculate net profit.

Solution:

Dr. **Process A A/c** **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To RM introduced (250 × 600)	250	1,50,000	By Normal loss: Weight loss (4% of 250)	10	NIL
To DW		4,29,000			
To DE		69,000	By Output c/d (C.P.U. = 2,700)	240	6,48,000
	250	**6,48,000**		**250**	**6,48,000**
To Output b/d	240	6,48,000	By WH (192 × 2,700)	192	5,18,400
			By Output transferred to Process B A/c (C.P.U.= ` 2,700)		
	240	**6,48,000**		**240**	**6,48,000**

Dr. **Process A Stock A/c** **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Opening stock	5	12,500	By Costing P & L A/c	187	5,03,900
To Process A A/c	192	5,18,400	By Closing stock (10 × 2,700)	10	27,000
	197	**5,30,900**		**197**	**5,30,900**

Dr. **Process B A/c** **Cr.**

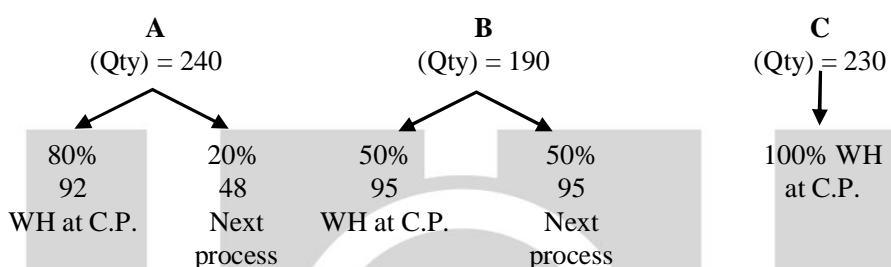| Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from A	48	1,29,600	By Normal loss:		
To DM (152 × 400)	152	60,800	Weight loss (5% of 200)	10	NIL
To DW		1,01,250	By Output c/d	190	3,61,500
To DE		69,850	(C.P.U. = 1,902.63)		
	200	**3,61,500**		**200**	**3,61,500**
To Output b/d	190	3,61,500	By WH (95 × 1902.63)	95	1,80,750
			By Output transferred		

			to Process C A/c (C.P.U. = 1902.63)	95	1,80,750
	190	**3,61,500**		**190**	**3,61,500**

Dr.   **Process B Stock A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Opening stock	06	10,800	By Costing P & L A/c	81	1,53,497
To Process B A/c	95	1,80,750			
			By Closing Stock (20 × 1902.63)	20	38,053
	101	**1,91,550**		**101**	**1,91,550**

Working Note:

A (Qty) = 240	B (Qty) = 190	C (Qty) = 230
80% / 92 / WH at C.P. 20% / 48 / Next process	50% / 95 / WH at C.P. 50% / 95 / Next process	100% WH at C.P.

Dr.   **Process C A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from B	95	1,80,750	By Normal loss:		
To DM (145 × 250)	145	36,250	Weight loss (2.5% of 240)	06	Nil
To DW		52,800			
To DE		11,250	By Output c/d (C.P.U. = ` 1201.07)	234	2,81,050
	240	**2,81,050**		**240**	**2,81,050**
To Output b/d	234	2,81,050	By WH (234 × 1,201.07)	234	2,81,050
	234	**2,81,050**		**234**	**2,81,050**

Dr.   **Process C Stock A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Opening stock	20	22,000	By Costing P & L A/c	230	2,74,224
To Process B A/c	234	2,81,050	By Closing stock (24 × 1,201.07)	24	28,826
	254	**3,03,050**		**254**	**3,03,050**

Dr.   **Costing, Trading and P & L A/c**   **Cr.**

Particulars		Amt	Particulars		Amt
To Opening Stock:			By Sales		20,00,000
A	12,500		By Closing stock		
B	10,800		A	27,000	
C	22,000	45,300	B	38,053	
To Process Stock A/c:			C	28,826	93,879
A	5,03,900				

B	1,53,497				
C	2,74,224	9,31,621			
To Gross Profit c/d		11,16,958			
		20,93,879			**20,93,879**
To Administration Expenses		1,00,000	By Gross Profit b/d		11,16,958
To Salary		2,00,000			
To Net Profit c/d		8,16,958			
		11,16,958			**11,16,958**

Note: In this question, opening stock and closing stock is given. Therefore, a separate Process Stock A/c will be prepared for respective process accounts. The Balancing figure of Process Stock A/c will be taken to "Costing Profit & Loss A/c".

Illustration 8

A product passes through 3 process before being finally transferred to Finished Stock A/c 10,000 units @ ` 5 was introduced in Process 1 A/c.

No.	Particulars	1	2	3
1	Sundry Material (`)	5,000	8,000	6,000
2	Direct Labour (`)	10,000	12,000	15,000
3	Direct Expenses (`)	4,000	5,000	7,000
4	Actual output (unit)	9,000	8,550	8,210
5	Normal wastage	10%	5%	4%
6	Value of scrap per unit	5	6	5

Production Overheads are charged at 60% of the DL for each process. Semi-finished product of each process being saleable 1/3 of the output of process 1 and 2/3 of the output of process 2 was sold in the market at the profit of 20% and 25% on cost respectively. Remaining output was transferred to the next process. Output of last process was sold at ` 30 per unit. Calculate cost per unit for each process.

Solution:

Dr.   **Process 1 A/c**   Cr.

| Particulars	Qty	Amt	Particulars	Qty	Amt
To R/M introduced (10,000 × 5)	10,000	50,000	By Normal loss:		
To DM		5,000	Scrap	1,000	5,000
To DL		10,000	(10% of 10,000)		
To DE		4,000	(1,000 × 5)		
To Production Overheads		6,000	By Output c/d	9,000	70,000
(60 % of DL)			(C.P.U. = 7.78)		
	10,000	**75,000**		**10,000**	**75,000**
To Output b/d	9,000	70,000	By Sales (3,000 × 9.34)	3,000	28,020
To Costing P & L A/c		4,680	By Output transferred to	6,000	46,660
(3,000 × 1.56)			Process 2 A/c		
			(C.P.U. = 7.78)		
	9,000	**74,680**		**9,000**	**74,680**

Dr.   **Process 2 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 1 A/c	6,000	46,660	By Normal loss:		
To DM		8,000	Scrap (5% of 6,000)	300	1,800
			(300 × 68)		
To DL		12,000			
To DE		5,000	By Output c/d	8,550	1,15,590
			(C.P.U. = 13.52)		
To Production Overheads		7,200			
(60% of DL)					
To Abnormal Gain	2,850	38,530			
		(Formula)			
	8,850	**1,17,390**		**8,850**	**1,17,390**
To Output b/d	8,850	1,15,590	By Sales (5,700 × 16.90)	5,700	96,330
To Costing P & L A/c		19,266	By Output transferred		
(5700 × 3.38)			to Process 3 A/c	2,850	38,526
			(C.P.U. = 13.52)		
	8,850	**1,34,856**		**8,550**	**1,34,856**

Dr.   **Process 3 A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process 2 A/c	2,850	38,526	By Normal loss:		
			Scrap	114	570
To DM		6,000	(4% × 2,850)		
To DL		15,000	(114 × ` 5)		
To DL		7,000			
To Production Overheads		9,000	By Output c/d	8,210	2,24,923
(60% of DL)		(Formula)	(C.P.U. = ` 27.40)		
To Abnormal Gain	5,474	1,49,967			
	8,324	**2,25,493**		**8,324**	**2,25,493**
To Output b/d	8,210	2,24,932	By Sales A/c	8,210	2,46,300
To Costing P & L A/c		21,377			
(Balancing figure)					
	8,210	**2,46,300**		**8,210**	**2,46,300**

Note: In this question, first time closing the Quality column of Process 1 A/c, the quantity column tallies. Therefore, there is no balancing figure in Qty column. Hence, no abnormal loss or abnormal gain.

Working Note 1: Process 1

Output = 9000
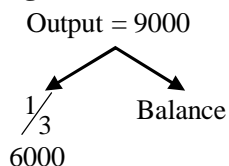
$\frac{1}{3}$ Balance

6000

Sold   Process 2

3000 (at S.P.)

C	7.78
+ P	1.56 (20%)
= Sales	9.34

Working Note 2: Process 2 A/c

$$\text{Abnormal Gain (Amt)} = \frac{\text{Dr} - \text{Cr (Amt column)}}{\text{Dr} - \text{Cr (Qty column)}} \times \text{Abnormal Gain (Qty)}$$

$$= \frac{78,860 - 1,800}{6,000 - 300} \times 2,850$$

$$= \frac{77,060}{5,700} \times 2,850 = ` 38,530$$

Output = 8550

2/3   Balance

Sold   2850

5700   Process   3

(at S.P.)

C	13.52
+ P	3.38 (25%)
S	16.90

Working Note 3: Process 3 A/c

$$\text{Abnormal Gain (Amt)} = \frac{\text{Dr} - \text{Cr (Amt. Column)} \times \text{Ab. Gain (Qty)}}{\text{Dr} - \text{Cr (Qty Column)}}$$

$$= \frac{75,526 - 570}{2,850 - 114} \times 5,474 = ` 1,49,967$$

Process 3

Output = 8210

Assume 100% sold

= 8210 (at S.P.)

C	27.40
+ P	2.60
S	30.00 (Given)

Illustration 9

Particulars	A	B	C
Sundry material (in `)	1,000	1,500	1,480
Direct wages	5,000	8,000	6,500

Direct expenses	1,050	1,188	1,605
Normal wastage	5%	4%	5%
Selling price of normal wastage per unit	` 0.25	` 0.50	` 1

10,000 units @ ` 1 per unit was introduced in Product A.

Factory overheads are 168% of direct wages. The final product was sold at ` 10 per unit fetching a profit of 20% on sales. Find the percentage of normal loss for Process C.

Solution:

Dr.   **Process A A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Raw materials	10,000	10,000	By Normal loss:		
To Sundry material		1,000	Scrap		
To Direct wages		5,000	(5% of 10,000)	500	
To Direct expenses		1,050	(500 × 0.25)		125
To Factory Overheads		8,400	By Output transferred to Process B A/c	9,500	25,325
	10,000	**25,450**		**10,000**	**25,450**

Dr.   **Process B A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process A A/c	9,500	25,325	By Normal loss:		
To Direct materials		1,500	Scrap		
To Direct wages		8,000	(4% of 9,500)	380	
To Direct expenses		1,188	(380 × 0.50)		190
To Factory Overheads (168% of DW)		13,440	By Output transferred to Process C	9,120	49,263
	9,500	**49,453**		**9,500**	**49,453**

Dr.   **Process C A/c**   **Cr.**

Particulars	Qty	Amt	Particulars	Qty	Amt
To Input from Process B	9,120	49,263	By Normal loss		
To Direct materials		1,480	(5% of 9,120)	456	
To Direct wages		6,500	(456 × ` 1)		456
To Direct expenses		1,605	By Output transferred	8,664	69,312
To Factory Overheads (16 8% of DW)		10,920	to Finished Stock A/c		
	9,120	**69,768**		**9,120**	**69,768**

Working Notes:

C	8	80
+ P	2	20
S	10	100

We know, C.P.U. $= \dfrac{\text{Amt}}{\text{Qty}} = \dfrac{\text{(Dr – Cr) Amt}}{\text{(Dr – Cr) Qty}}$ $8 = \left[\dfrac{69,768 - `x}{9,120 - x}\right]$

Assumed Normal lost Qty × unit

Amt = x units × 1.00 = ` x

C.P.U. $= \dfrac{\text{Amt}}{\text{Qty}} \dfrac{\text{(Dr – Cr)}}{\text{(Dr – Cr)}}$

$8 = \left[\dfrac{69,768 - `x}{9,120 - x}\right]$

= 72960 – 8x = 69768 – x

= 72960 – 69768 = -x + 8x

= 3192 = 7x

$x = \dfrac{3,192}{7}$ $\qquad \therefore x = 456$

Illustration 10

A Ltd. manufactures a chemical product which passes through three processes. The cost records show the following particulars for the year ended 30th June, 2013.

Input to process 20,000 units @ ` 28 per unit.

Particulars	Process X (`)	Process Y (`)	Process Z (`)
Materials	48,620	1,08,259	1,03,345
Labour	32,865	84,553	77,180
Expenses	2,515	10,588	16,275
Normal Loss	20%	15%	10%
Scrap value per unit	1	2	3
Actual Output (Units)	18,000	16,000	15,000

Prepare Process Accounts, Abnormal Gain/Loss Account. Also show process cost per unit for each process.

Solution:

Dr. **Process X Account** **Cr.**

Particulars	Unit	`	Particulars	Unit	`
To Input	20,000	5,60,000	By Normal Loss @ 20%	4,000	4,000
To Material		48,620	By Output to Process Y per unit @ ` 40	18,000	7,20,000
To Labour		32,865			
To Expenses		2,515			
To Sub Total	20,000	6,44,000			
To Abnormal Gain @ ` 40	2,000	80,000 (Formula)			
	22,000	**7,24,000**		**22,000**	**7,24,000**

Dr.   **Process Y Account**   **Cr.**

Particulars	Unit	`	Particulars	Unit	`
To Output from Process X	18,000	7,20,000	By Normal Loss @ 15%	2,700	5,400
To Material		1,08,259	By Output to Process Z per unit @ ` 60	16,000	9,60,000
To Labour		84,553			
To Expenses		10,588			
To Sub Total	18,000	9,23,400			
To Abnormal Gain @ ` 60	700	42,000 (Formula)			
	18,700	**9,65,400**		**18,700**	**9,65,400**

Dr.   **Process Z Account**   **Cr.**

Particulars	Unit	`	Particulars	Unit	`
To Output from Y A/c	16,000	9,60,000	By Normal Loss @ 10%	1600	4,800
To Material		1,03,345	By Output per unit @ ` 80	15,000	12,00,000
To Labour		77,180			
To Expenses		16,275			
To Sub Total	16,000	11,56,800			
To Abnormal Gain @ ` 80	600	48,000 (Formula)			
	16,600	**12,04,800**		**16,600**	**12,04,800**

Dr.   **Abnormal Gain Account**   **Cr.**

Particulars	Unit	`	Particulars	Unit	`
To Normal Loss:			By Output from:		
Process X A/c	2000	2000	Process X A/c	2000	80,000
Process Y A/c	700	1400	Process Y A/c	700	42,000
Process Z A/c	600	1800	Process Z A/c	600	48,000
To Costing Profit & Loss A/c		1,64,800			
	3,300	**1,70,000**		**3,300**	**1,70,000**

Working Notes:

$$\text{Abnormal gain} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal gain (Qty)}$$

$$\text{Abnormal loss} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal loss (Qty)}$$

∴   Process X A/c

     Abnormal gain (`)        $= \left[ \dfrac{64,400 - 4,000}{20,000 - 4,000} \right] \times 2,000$       = ` 80,000

∴   Process Y A/c

$$\text{Abnormal gain (`)} = \left[\frac{9,23,400-5,400}{18,000-2,700}\right] \times 700 = ` 42,000$$

$\therefore$ Process Z A/c

$$\text{Abnormal gain (`)} = \left[\frac{11,56,800-4,800}{16,000-1,600}\right] \times 6,000 = ` 48,000$$

Illustration 11

Product "GUM" passes through three stages. The following information is obtained from the records of a company for the year ended 31.12.13.

Particulars	Process A (`)	Process B (`)	Process C (`)
Direct Material	2,500	2,000	3,000
Direct Wages	2,000	3,000	4,000

Product overheads are ` 9,000, 1,000 units at ` 5 each were introduced to Process A. There was no stock of materials or work-in-progress at the beginning and at the end of the year. The output of each process direct passes to the next process and finally to the Finished Stock A/c. Production overheads are recovered on 100% of direct wages. The following additional data is available:

Particulars	Output during the week	Percentages of normal loss to input	Value of scrap per Unit (`)
Process A	950	5%	3
Process B	840	10%	5
Process C	750	15%	5

Prepare Process Cost Accounts and Abnormal Gain or Loss Accounts for the year ended 31st December, 2013.

Solution:

Dr.   **Process A Account**   Cr.

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Units Introduced	1,000	5	5,000	By Normal Loss/Scrap (5% of 1,000)	50	3.00	150
To Direct Materials			2,500	To Transfer to Process B	950	11.95	11,350
To Direct Wages			2,000				
To Production Overheads (100% of Wages)			2,000				
	1,000		**11,500**		**1,000**		**11,500**

Dr.   **Process B Account**   Cr.

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process A	950	11.95	11,350	By Normal Loss/Scrap (10% of 950)	95	5.00	475
To Direct Materials			2,000	By Abnormal Loss (Note)	15	22.07	331 (Formula)

To Direct Wages			3,000	By Transfer to Process C	840	22.07	18,544
To Production Overhead (100% of Wages)			3,000				
	950		**19,350**		**950**		**19,350**

Dr.   **Process C Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process B	840	22.07	18,544	By Normal Loss/Scrap (15% of 840)	126	5.00	630
To Direct Materials			3,000	By Finished Stock A/c	750	40.49	30,372
To Direct Wages			4,000				
To Production Overheads (100% of Wages)			4,000				
To Abnormal Gain	36 (Note)	40.49	1,458 (Formula)				
	876		**31,002**		**876**		**31,002**

Dr.   **Abnormal Loss Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Process B A/c	15	22.07	331	By Actual Sale	15	5.00	75
				By Costing P & L A/c			256
	15		**331**		**15**		**331**

Dr.   **Abnormal Gain Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Actual Sale	36	5.00	180	By Process C	36	40.49	1,458
To Costing P & L A/c			1,278				
Total	**36**		**1,458**	**Total**	**36**		**1,458**

Working Note:

Process B A/c

$$\text{Abnormal Loss (`)} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal loss (Qty)}$$

$$= \left[\frac{19,350 - 475}{950 - 95}\right] \times 15$$

$$= 331.14 \qquad = ` \ 331$$

$$\text{Abnormal Gain (Process C A/c)} = \frac{28,914 - 630}{840 - 126} \times 36$$

$$= 1,457.8 = ` \ 1,458$$

Illustration 12

(Abnormal Loss/Gain)

Product X is obtained after it is processed through three distinct processes.

The following information is available for the month of March, 2013:

Particulars	Total `	Processes		
		A	**B**	**C**
Material Consumed	11,250	5,200	4,000	2,050
Direct Labour	14,660	4,500	7,360	2,800
Production Overheads	14,660	–	–	–

1,000 units at ` 2 per unit were introduced in Process A. Production overheads to be distributed as 100% on direct labour. The actual output and normal loss of the respective processes are:

Processes	Output in Units	Normal Loss on Inputs	Value of Scrap per unit (`)
Process A	900	10%	1.00
Process B	680	20%	2.00
Process C	540	25%	2.50

There is no stock or work-in-progress in any process. You are required to prepare process Account.

Solution:

Dr.   **Process A Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Units Introduced	1,000	2.00	2,000	By Normal Loss (10% of 1,000)	100	1.00	100
To Materials consumed			5,200	By Transfer to Process B	900	17.89	16,100
To Direct Labour			4,500				
To Production Overheads			4,500				
	1,000		**16,200**		**1,000**		**16,200**

Dr.   **Process B Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process A	900		16,100	By Normal Loss (20% of 900)	180	2.00	360
To Materials Consumed			4,000	By Abnormal Loss (Notes)	40	47.85	1,914
To Direct Labour			7,360	By Transfer to Process C	680	47.86	32546
To Production Overheads			7,360				
	900		**34,820**		**900**		**34,820**

Dr.   **Process C Account**   **Cr**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process B	680		32,546	By Normal Loss (25% of 680)	170	2.50	425

To Materials Consumed			2,050	By Finished Stock A/c	540	72.49	39,146
To Direct Labour			1,400				
To Production Overheads			1,400				
To Abnormal Gain	30	72.50	2,175				
	710		**39,571**		**710**		**39,571**

Working Notes:

Process B A/c

$$\text{Abnormal loss} = \left(\frac{34,820 - 360}{900 - 180}\right) \times 40$$

$$= \frac{34,460}{720} \times 40 \qquad = 1,914$$

Process C A/c

$$\text{Abnormal gain} = \left(\frac{37,396 - 425}{680 - 170}\right) \times 30$$

$$= \frac{36,971}{510} \times 30 \qquad = ` 2,175$$

Illustration 13

Product 'A' is obtained after it is processed through process X, Y, and Z.

The following cost information is available for the month ended 31st March, 2013.

Particulars	Processes		
	X	**Y**	**Z**
Number of Units introduced in the process	1,000	–	–
Rate per Unit of units introduced (`)	08	–	–
Cost of Material	5,200	4,000	2,050
Direct Wages	4,500	7,360	2,800
Production Overheads	4,500	7,360	2,800
Normal Loss (% on units introduced in each process, i.e., input)	10%	20%	25%
Value of Scrap per unit	04	08	10
Output in units	900	680	540

There is no stock in any process.

You are required to prepare the Process Accounts.

Solution

Dr.   **Process X Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Materials Introduced	1,000	8.00	8,000	By Normal Loss (10% of Input)	100	4.00	400
To Direct Materials			5,200	By Transfer to Process Y	900	24.22	21,800
To Direct wages			4,500				

To Production Overheads			4,500				
	1,000		**22,200**		**1,000**		**22,200**

Dr. **Process Y Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process X	900	24.22	21,800	By Normal Loss (20% of Input)	180	8.00	1440
To Direct Materials			4,000	By Abnormal Loss (See Note)	40	54.28	2,171 (Formula)
To Direct Wages			7,360	By Transfer to Process Z	680	54.28	36,909
To Production Overheads			7,360				
	900		**40,520**		**900**		**40,520**

Dr. **Process Z Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process Y	680	54.28	36,909	By Normal Loss (25% of Input)	170	10	1,700
To Direct Materials			2,050	By Finished Stock A/c	540	84.03	45,380
To Direct Wages			2,800				
To Production Overheads			2,800				
To Abnormal Gain	30	84.03	2,521 (Formula)				
	710		**47,080**		**710**		**47,080**

Working Notes:

Process Y A/c

$$\text{Abnormal Loss (`)} = \left[\frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}}\right] \times \text{Abnormal loss (Qty)}$$

$$= \left(\frac{40,520 - 1,440}{900 - 180}\right) \times 40$$

$$= \frac{39,080}{720} \times 40 \quad = ` \ 2,171$$

Process Z A/c

$$\text{Abnormal Gain (`)} = \left(\frac{44,559 - 1,700}{680 - 170}\right) \times 30$$

$$= \frac{42,859}{570} \times 30 \quad = ` \ 2,521$$

Illustration 14

A product passes through three distinct process X, Y and Z. It is known that wastage is incurred in each process as follows:

Process X – 2%, Y – 4%, Z – 10%

The wastage at each process possesses scrap value. The wastage of processes X and Y is sold at 5.00 per unit, and that of process Z at 10.00 per unit. The output of each process passes immediately to the next process and finished units are transferred from process Z into stock. The following information is obtained.

Particulars	X (`)	Y (`)	Z (`)
Material	5,40,000	5,20,000	2,40,000
Wages	8,60,000	4,80,000	2,60,000
Direct Expenses	2,75,000	2,90,000	3,60,000

1,00,000 units were put in Process X at a cost of 20 per unit. The output of each process is as follows:

Process X – 97,500 units, Process Y – 94,000 units, Process Z – 84,000 units.

There is no stock of work-in-progress. Prepare the process accounts, abnormal gain account and abnormal loss account.

Solution:

Dr.   **Process 'X' Account**   **Dr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Materials Introduced	1,00,000	20.00	20,00,000	By Normal Loss (2% of 1,00,000)	2,000	5.00	10,000
To Direct Material			5,40,000	By Abnormal Loss	500	37.40	18,699 (Formula)
To Direct Wages			8,60,000	By Transfer to Process Y	97,500	37.40	36,46,301
To Direct Expenses			2,75,000				
	1,00,000		**36,75,000**		**1,00,000**		**36,75,000**

Dr.   **Process 'Y' Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process X	97,500		36,46,301	By Normal Loss (4% 97,500)	3,900	5.00	19,500
To Direct Material			5,20,000	By Transfer to Process Z	94,000	52.53	49,37,813
To Direct Wages			4,80,000				
To Direct Expenses			2,90,000				
To Abnormal Gain	400	52.53	21,012 (Formula)				
	97,900		**49,57,313**		**97,900**		**49,57,313**

Dr.   **Process 'Z' Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process Y	94,000		49,37,813	By Normal Loss (10% of 94,000)	9,400	10.00	94,000
To Direct Material			240,000	By Abnormal Loss	600	67.42	40,453

							(Formula)
To Direct Wages			2,60,000	By Transfer to Finished Stock	84,000	67.42	56,63,360
To Direct Expenses			3,60,000				
	94,000		**57,97,813**		**94,000**		**57,97,813**

Dr. Abnormal Loss Account **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Process X	500	37.40	18,699	By Cash			
				Process X	500	5.00	2,500
				Process Z	600	10	6,000
To Process Z	600	67.42	40,453	By Costing P &L A/c			50,652
	1,100		**59,152**		**1,100**		**59,152**

Working Notes:

Process X A/c

$$\text{Abnormal Loss (`)} = \left[\frac{36,75,000 - 10,000}{1,00,000 - 2,000}\right] \times 500$$

$$= \frac{36,65,000}{98,000} \times 500 = 18,699$$

Process Y A/c

$$\text{Abnormal gain (`)} = \left[\frac{36,75,000 - 10,000}{1,00,000 - 2,000}\right] \times 500$$

$$= \frac{36,65,000}{98,000} \times 500 = 21,012$$

Dr. Abnormal Gain Account **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Normal Loss	400	5.00	2,000	By Process Y	400	52.53	21,012
To Costing P & L A/c			19,012				
	400		**21,012**		**400**		**21,012**

Working Note:

Process Z A/c

$$\text{Abnormal loss (`)} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal Loss (Qty)}$$

$$= \left[\frac{57,97,813 - 94,000}{94,000 - 9,400}\right] \times 600$$

$$= \frac{57,03,813}{84,600} \times 600 = \text{`} 40,453$$

Illustrations – Transfers/Stock/Sale

Part Transfer to Warehouse at Cost

Illustration 15

PROCTER & GAMBLE LTD. manufactures a chemical which passes through three processes. The following particulars gathered for the month of January, 2013:

Particulars	Process I	Process II	Process III
Materials (Kgs)	200	104	84
Materials Cost	19,200	9,400	3,000
Wages	3,840	3,800	1,100
Normal Loss (% of input)	4%	5%	5%
Scrap Sale Value (per Kg)	–	` 1.5	–
Output transferred to next process	50%	40%	–
Output transferred to warehouse	50%	60%	100%

Overheads are charged @ 50% of Direct Wages.

You are required to prepare Process Accounts.

Solution:

(1) Dr.   **Process I Account**   **Cr.**

Particulars	Kgs	Rate	`	Particulars	Kgs	Rate	`
To Materials	200		19,200	By Normal Loss (4% × 200)	08	–	NIL
To Wages			3,840	By Transfer to Process II (50%)	96	130	12,480
To Overheads (50% of Wages)			1,930	By Transfer to Ware-house (50%)	96	130	12,480
	200		**24,970**		**200**		**24,960**

(2) Dr.   **Process II Account**   **Cr.**

Particulars	Kgs	Rate	`	Particulars	Kgs	Rate	`
To Transfer from Process I	96	130.00	12,480	By Normal Loss (5% × 200)	10	1.50	15
To Materials	104		9,400	By Transfer to Process III (40% × 200)	80	137.83	11,026
To Wages			3,800	By Transfer to Ware-house (60% × 200)	120	137.83	16,539
To Overheads (50% of Wages)			1,900				
	200		**27,580**		**200**		**27,580**

(3) Dr.   **Process III Account**   **Cr.**

Particulars	Kgs	Rate	`	Particulars	Kgs	Rate	`
To Transfer from Process II	80		11,026	By Normal Loss (5% × 164)	08	–	NIL

To Materials	84		3,000	By Transfer to Warehouse (100%)	156	100.49	15,676
To Wages			1,100				
To Overheads (50% of Wages)			550				
	164		**15,676**		**164**		**15,676**

Illustration 16

The product of a company passes through three direct processes, called respectively A, B, and C. From the past experience, it is ascertained that wastage incurred in each process is as under: Process A 2%; Process B 5%; Process C 20%.

The percentage of wastage is computed on the number of units entering the process concerned.

The wastage of processes A and B is sold at ` 25 per 50 units and that of process C at ` 0.75 per unit.

Following information was obtained for the month of March 2013. 10,000 units of crude materials were introduced in Process 'A' at the cost of ` 4,000.

Particulars	Process A (`)	Process B (`)	Process C (`)
Materials Consumed	2,000	750	500
Direct Labour	3,000	2,000	1,500
Manufacturing Expenses	9000	1,750	500
Output in Units	9750	10,500	7,950
Finished Product Stock:			
1st March, 2008	1,000	1,500	2,500
31st March, 2008	750	2,000	?

Stock valuation on 1st March, 2013 per unit ` 1.00, ` 1.50 and ` 2.00 respectively in Process A, B and C. Stocks on 31st March are to be valued as per valuation as on 1st March, 2013. Draw process accounts A, B and C and process stock accounts of process A, B and C.

Solution:

Dr.			Process A	Account			Cr.
Particulars	**Units**	**Rate**	**`**	**Particulars**	**Units**	**Rate**	**`**
To Materials Introduced	10,000		4,000	By Normal Loss (2% of Input)	200	0.50	100
To Direct Materials			2,000	By Abnormal Loss	50	1.00	50 (Formula)
To Direct Labour			3,000	By Transfer to Stock A/c	9,750	1.00	9,750
To Manufacturing Expenses			900				
	10,000		**9,900**		**10,000**		**9,900**

Dr.			Process A	Stock Account			Cr.
Particulars	**Units**	**Rate**	**`**	**Particulars**	**Units**	**Rate**	**`**
To Opening Balance b/d	1,000	1.00	1,000	By Process B A/c	10,000	1.00	10,000
To Process A A/c	9,750	1.00	9,750	By Closing	750	1.00	750

				Balance c/d			
	10,750		**10,750**		**10,750**		**10,750**

Dr. **Process B Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process A	10,000	1.00	10,000	By Normal Loss (5% of Input)	500	0.50	250
To Direct Materials			750	By Transfer to Stock	10,500	1.50	15,750
To Direct Labour			2,000				
To Manufacturing Expenses			1,750				
To Abnormal Gain	1,000	1.50	1,500 (Formula)				
	11,000				**11,000**		

Dr. **Process B Stock Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Opening Balance b/d	1,500	1.50	2,150	By Process C A/c	10,000	1.50	15,000
To Process B A/c	10,500	1.50	15,750	By Closing Balance c/d	2,000	1.50	3,000
	12,000		**18,000**		**12,000**		**18,000**

Process C Account

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Transfer from Process B	10,000	1.50	15,000	By Normal Loss (20% of Input)	2,000	0.75	1,500
To Direct Materials			500	By Abnormal Loss (See Note 1, 2)	500	2.00	100 (Formula)
To Direct Wages			1,500	By Transfer to Stock A/c	7,950	2.00	15,900
To Manufacturing Expenses			500				
	10,000		**17,500**		**10,000**		**17,500**

Dr. **Process C Stock Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Opening Balance b/d	2,500	2.00	5,000	By Transfer to Finished Stock A/c	10,450	2.00	20,900
To Process C A/c	7,950	2.00	15,900				
	10,450		**20,900**		**10,450**		**20,900**

Dr. **Normal Loss Account** **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Process A A/c	200	0.50	100	By Actual Sale – A	200	0.50	100
To Process B A/c	500	0.50	250	By Actual Sale – B	–	–	–
To Process C A/c	2,000	0.75	1,500	By Abnormal Gain – B	500	0.50	250

				By Actual Sale – C	2,000	0.75	1,500
	2,700		**1,850**		**2,700**		**1,850**

Dr.   **Abnormal Gain Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Normal Loss A/c – B	500	0.50	250	By Process B A/c (Cost)	1,000	1.50	1,500
To Costing P & L A/c			1,250				
			1,500				**1,500**

Dr.   **Abnormal Loss Account**   **Cr.**

Particulars	Units	Rate	`	Particulars	Units	Rate	`
To Process A A/c	50	1.00	50	By Actual Sale – A	50	0.50	25
To Process C A/c (Cost)	50	2.00	100	By Actual sale – C	50	0.75	37.5
				By Costing P & L A/c			87.50
	100		**150**		**100**		**150**

Illustration 17

The product passes through three consecutive processes F.Y., S.Y. and T.Y. Relevant details for the month of March, 2013 are as under:

Particulars	F.Y	S.Y.	T.Y.
Quantitative Information in Kilograms:			
Basic Input Kilograms @ ` 10 per Kilogram	2,000	–	–
Output during the month	1,950	1,925	1,679
Stock of Process:			
On 1st March, 2013	200	300 100	
On 31st March, 2013	150	400	59
Percentage of Normal Loss to Input in Process	2%	5%	8%
Monetary Information:	`	`	`
Process Material	9,000	2,100	2,716
Wages	9,064	1,860	4,000
Value of Opening Stock	3,880	6,720	2,800
Scrap Value per Kilogram	` 1	` 2	` 4

Closing stock is to be valued at the respective cost of each process.

Prepare Process Accounts, Process Stock Accounts, Abnormal Loss and Abnormal Gain Account.

Find out the costing profit, when the sales out of T.Y. process stock are made at ` 40 per kilogram.

Solution:

Reliable Yarn Limited

Dr.   **F.Y. Process Account**   **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To Units Introduced	2,000	10	20,000	By Normal Loss (2% of 2,000)	40	1.00	40
To Process Material			9,000	By Abnormal	10	19.40	194

				Loss A/c			
To Wages			9,064	By Transfer to F.Y. Process Stock	1,950	19.40	37,830
	2,000		**38,064**		**2,000**		**38,064**

Dr.   **F.Y. Process Stock Account**   **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To Balance b/d	200		3,880	Bt Transfer to S.Y. Process			
To Transfer from F.Y. Process	1950	19.40	37,830	By Balance c/d	2,000	19.40	38,800
					150	19.40	2,910
	2,150		**41,710**		**2,150**		**41,710**

Dr.   **S.Y. Process Account**   **Dr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To F.Y. Process Stock	2,000	19.40	38,800	By Normal Loss (5% of 2,000)	100	2,00	200
To Process Material			2,100				
To Wages			1,860	By Transfer to S.Y. Process Stock	1,925	22.40	43,120
To Abnormal Gain	25	22.40	560 (Formula)				
	2,025		**43,320**		**2,025**		**43,320**

Dr.   **S.Y. Process Stock Account**   **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To Balance b/d	300		6,720	By Transfer to T.Y. Process	1,825	22.40	40,880
To Transfer from S.Y. Process	1,925	22.40	43,120	By Balance c/d	400	22.40	8,960
	2,225		**49,840**		**2,225**		**49,840**

Dr.   **T.Y. Process Account**   **Dr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To S.Y. Process Stock	1,825	22.40	40,880	By Normal Loss (8% of 1,825)	146	4.00	584
To Process Material			2,716				
To Wages			4,000	By Transfer to T.Y. Process Stock	1,679	28.00	47.012
	1,825		**47,596**		**1,825**		**47,596**

Dr.   **T.Y. Process Stock Account**   **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To Balance b/d	100		2,800	By Transfer to Costing P & L A/c	1,720	28.00	48,160
To Transfer from T.Y. Process	1,679	28.00	47,012	By Balance c/d	59	28.00	1,652
	1,779		**49,812**		**1,779**		**49,812**

Dr. **Normal Loss Account** **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To F.Y. Process A/c	40	1.00	40	By Abnormal Gain A/c	25	2.00	50
To S.Y. Process A/c	100	2.00	200	By Cash (Sale)	261		774
To T.Y. Process A/c	146	4.00	584				
	286		**824**		**286**		**824**

Dr. **Abnormal Loss Account** **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To F.Y. Process A/c	10	19.40	194	By Cash (Sale)	10	1.00	10
				By Costing P&L A/c			184
	10		**194**		**10**		**194**

Dr. **Abnormal Gain A/c** **Cr.**

Particulars	Kgs.	Rate	`	Particulars	Kgs.	Rate	`
To Normal Loss A/c	25	2.00	50	By S.Y. Process A/c	25	22.40	560
To Costing P & L A/c			510				
	25		**560**		**25**		**560**

Dr. **Costing Profit & Loss A/c** **Cr.**

Particulars	`	Particulars	`
To Cost of T.Y. Stock	48,160	By Sales A/c	68,800
To Abnormal Loss A/c	184	By Abnormal Gain A/c	
To Net Profit	20,966		
	69,310		**69,310**

Working Note:

F.Y. Process

$$\text{Abnormal Loss (Amt)} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal Loss (Qty)} = `194$$

S.Y. Process

$$\text{Abnormal Gain (Amt)} = \frac{\text{Dr} - \text{Cr (Amt Column)}}{\text{Dr} - \text{Cr (Qty Column)}} \times \text{Abnormal gain (Qty)} = `560$$

Illustration 18

Product P is obtained finally after it passes through Process A, Process B and Process C. 4,000 units @ ` 10/- per unit were introduced in the Process A.

Other details pertaining to each process were as under:

Particulars	Process A (`)	Process B (`)	Process C (`)
Sundry Materials	8,000	5,000	10,000
Direct Wages	10,000	15,000	12,000
Direct Expenses	7,000	9,000	8,000

Production overheads were charged to each process at 10% of direct wages.

The actual output was:

Process A	3,800 units
Process B	3,400 units
Process C	2,900 units

The percentage of normal loss in each process was:

Process A	5%
Process B	10%
Process C	15%

And the value of scrap per unit in each process was:

Process A	` 3
Process B	` 5
Process C	` 10

You are required to prepare all the three Process Accounts and Abnormal Loss and Abnormal Gain Account.

Solution:

Dr.   **Process A A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units Introduced	4,000	40,000	By Normal Loss	200	600
To Material		8,000	By Units Transferred to Process B (17.21)	3,800	65,400
To Direct Wages		10,000			
To Direct Expenses		7,000			
To Production Overheads (10% of Direct Wages)		1,000			
	4,000	**66,000**		**4,000**	**66,000**

Working Notes:

Input	4,000
(–) Normal Loss	200
Expected	3,800
Actual	3,800
Abnormal Loss/Gain	–

$$PCPU = \frac{Total\ Expenses - Scrap\ (if\ any)}{Expected\ No.\ of\ Units}$$

$$= \frac{66,000 - 600}{3,800} = 17.21 (approx.)$$

Dr.   **Process B A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred from Process A	3,800	65,400	By Normal Loss	380	1,900
To Materials		5,000	By Abnormal Loss	20	550
To Direct Wages		15,000	By Units Transferred	3,400	93,450

			to Process C (27.48)		
To Direct Expenses		9,000			
To Production Overheads (10% of Direct Wages)		1,500			
	3,800	**95,900**		**3,800**	**95,900**

Working Notes

Input	3,800
(–) Normal Loss	380
Expected	3,420
Actual	3,420
Abnormal Loss	20

$$PCPU = \frac{\text{Total Expenses} - \text{Scrap (if any)}}{\text{Expected No. of Units}}$$

$$= \frac{95,900 - 1,900}{3,420} = 27.48 \text{ (approx.)}$$

Process C A/c

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred from Process B	3,400	93,450	By Normal Loss	510	5,100
To Materials		10,000	By Units Transferred to Finished Stock A/c (41.37)	2,900	1,19,964
To Direct Expenses		8,000			
To Direct Wages		12,000			
To Production Overheads (10% of Direct Wages)		1,200			
To Abnormal Gain	10	414			
	3,410	**1,25,064**		**3,410**	**1,25,064**

Working Note:

Input	3,400
(–) Normal Loss	510
Expected	2,890
Actual	2,900
Abnormal	10

$$PCPU = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{1,24,650 - 5,100}{2,890} = 41.37 \text{ (approx.)}$$

Dr. **Abnormal Loss A/c** **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Process B A/c	20	550	By Cash (Sale) A/c	20	100
			By Costing P & L A/c (Loss)		450
	20	**550**		**20**	**550**

Dr. **Abnormal Gain A/c** **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Normal Loss A/c	10	100	By Process C A/c	10	414
To Costing P & L A/c (Profit)		314			
	10	**414**		**10**	**414**

Illustration 19

Product 'P' passes through three processes for completion. The following are the relevant details:

(a) Elements of Cost

Particulars	Process			
	Total (`)	No. 1 (`)	No. 2 (`)	No. 3 (`)
Direct Materials	8,482	2,000	3,020	3,462
Direct Labour	12,000	3,000	4,000	5,000
Direct Expenses	726	500	226	–
Production Overhead	6,000	–	–	–

(b) 1,000 units at ` 5 each were issued to Process No. 1.

(c) Output from each process was:

Process No. 1   920 units

Process No. 2   870 units

Process No. 3   800 units

(d) Normal Loss per process was estimated as:

Process No. 1   10% of units introduced

Process No. 2   5% of units introduced

Process No. 3   10% of units introduced

(e) The loss in each process represented scrap which could be sold to merchant at value as follows:

Process No. 1   ` 3 per unit

Process No. 2   ` 3 per unit

Process No. 3   ` 6 per unit

(f) There was no stock of materials or works-in-progress in any department at the beginning or end of the period. The output of each process passes direct to the next process and finally stock. Production overhead is allocated to each process on the basis of 50% of the cost of direct labour.

Solution:

Dr. **Process No. 1 A/c** **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units introduced	1,000	5,000	By Normal loss	100	300
To Direct Material		2,000	By Units Transferred to	920	11,960

			Process No. 2 A/c (13)		
To Direct Labour		3,000			
To Direct Expenses		500			
To Production overheads		1,500			
To Abnormal Gain	20	260			
	1,020	**12,260**		**1,020**	**12,260**

Working Note:

Input	1,000
(–) Normal Loss	100
Expected	900
Actual	920
Abnormal Gain	20

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{12,000 - 300}{900} = 13/\text{-}$$

Dr.   **Process No. 2 A/c**   **Cr.**

	Units	Amount		Units	Amount
To Units Transferred from Process No. 1	920	11,960	By Normal Loss	46	138
To Direct Materials		3,020	By Abnormal Loss	4	96
To Direct Labour		4,000	By Units Transferred to Process No. 3 A/c (24.10)	870	20,972
To Direct Expenses		226			
To Production overheads		2,000			
	920	**21,206**		**920**	**21,206**

Working Note:

Input	920
(–) Normal Loss	46
Expected	874
Actual	870
Abnormal Loss	4

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{21,206 - 138}{874} = 24.10 \text{ (approx.)}$$

Dr.   **Process No. 3 A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred from Process No. 2	870	20,972	By Normal Loss	87	522

To Direct Material		3,462	By Units Transferred to Finished Stock A/c (40.11)	800	32,094
To Direct Labour		5,000			
To Direct Expenses		—			
To Production Overheads		2,500			
To Abnormal Gain	17	682			
	887	**32,616**		**887**	**32,616**

Working Note:

Input	870
(–) Normal Loss	87
Expected	783
Actual	800
Abnormal Loss/gain	17

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{31,934 - 522}{783} = 40.11 \text{ (approx.)}$$

Dr.   **Abnormal Gain A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Normal Loss A/c	20	60	By Process No. 1 A/c	20	260
To Normal Loss A/c	17	102	By Process No. 3 A/c	17	682
To Costing P & L A/c		780			
	37	**942**		**37**	**942**

Dr.   **Abnormal Loss A/c**   **Cr.**

	Units	Amount		Units	Amount
To Process No. 2 A/c	4	96	By Normal Loss	4	12
			By Costing P & L A/c (Loss)		84
	4	**96**		**4**	**96**

Illustration 20

The product of a manufacturing unit passes through two distinct processes. From past experience, the incidence of wastage is ascertained as under:

Process A	2 per cent
Process B	10 per cent

In each case, the percentage of wastage is computed on the number of units entering the process concerned. Th sales realisation of wastage in process A and B are ` 25 per 100 units and ` 50 per 100 units respectively.

The following information is obtained for the month April, 1985; 40,000 units of crude material were introduced in Process A at a cost of ` 16,000.

Particulars	Process A	Process B
Other Materials	16,000	5,000
Direct Labour	9,000	8,000
Direct Expenses	8,200	1,500
	Units	Units
Output	39,000	36,500
Finished Product Stock:		
April 1	6,000	5,000
April 30	5,000	8,000
Value of Stock per unit on April 1	` 1.20	` 1.60

Stocks are valued and transferred to subsequent process at weighted average costs.

Prepare respective process accounts and stock accounts.

Solution:

Dr.   **Process 'A' A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units introduced	40,000	16,000	By Normal Loss	800	200
To Materials		16,000	By Abnormal Loss	200	250
To Direct Labour		9,000	By Units Transferred to Process A Stock	39,000	48,750
To Direct Expenses		8,200			
	40,000	**49,200**		**40,000**	**49,200**

Dr.   **Process 'A' Stock A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Opening Stock	6,000	7,200	By Process 'B' A/c	40,000	49,733
To Process A A/c	39,000	48,750	By Closing Stock	5,000	6,217
	45,000	**55,950**		**45,000**	**55,950**

Working Note:

Input	40,000
(–) Normal Loss	800
Expected	39,200
Actual	39,000
Abnormal Loss	200

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{49,200 - 200}{39,200} = 1.25$$

$$\text{Weighted Average cost per unit} = \frac{\text{Total Cost of All Units}}{\text{Total No. of Units}}$$

$$= \frac{55,950}{45,000} = 1.243 \text{ (approx.)}$$

Dr.   **Process 'B' A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Process A Stock A/c	40,000	49,733	By Normal Loss	4,000	2,000
To Materials		5,000	By Units Transferred to Process B Stock (1.73)	36,500	63,097
To Direct Labour		8,000			
To Direct Expenses		1,500			
To Abnormal Gain	500	864			
	40,500	65,097		40,500	65,097

Dr.   **Process 'B' Stock A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Opening Stock	5,000	8,000	By Units Transferred to Finished Stock	33,500	57,392
To Process B A/c	36,500	63,097	By Closing Stock	8,000	13,750
	41,500	71,097		41,500	71,097

Working Note:

Input	40,000
(–) Normal Loss	4,000
Expected	36,000
Actual	36,500
Abnormal Gain	500

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{64,233 - 2,000}{36,000} = 1.73 \text{ (approx.)}$$

$$\text{Weighted Average cost per unit} = \frac{\text{Total Cost of All Unit}}{\text{Total No. of Unit}}$$

$$= \frac{71,097}{41,500} = 1.713 \text{ (approx.)}$$

Illustration 21

The product of a company passes through three different processes P, Q and R. It is ascertained from the past experience that loss in each process is incurred as under:

Process P – 2%; Process Q – 5%; Process R – 10%. The percentage of loss in each process is computed on the basis of number of units entering the process concerned. The loss of each has a scrap value.

The loss of Process P and Q is sold at ` 3 per unit and that of Process R at ` 12 per unit. The company gives you the following information for the month of March, 2013: 2,000 units crude material were introduced in process at a cost of ` 24 per unit. Besides this, the following were other expenses:

Particulars	Process P (`)	Process Q (`)	Process R (`)
Materials consumed	24,000	9,000	6,000
Direct labour	36,000	24,000	18,000
Works expenses	6,000	3,000	9,000
	Units	Units	Units
Output	1950	1925	1590
Stock: March 1	200	300	500
Stock: March 31	150	400	------
Stock: Valuation on March 1 per unit	57	81	109.5

Stock on March 31, 2013 to be valued at cost as shown by month's production accounts.

Prepare the process accounts.

Solution:

Dr.   **Process 'P' A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units introduced	2,000	48,000	By Normal Loss	40	120
To Material Consumed		24,000	By Abnormal Loss	10	581
To Direct Labour		36,000	By Units Transferred to Process 'P' Stock (58.10)	1,950	1,13,299
To Work Expenses		6,000			
	2,000	**1,14,000**		**2,000**	**1,14,000**

Dr.   **Process 'P' Stock A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Opening Stock	200	11,400	By Process Q A/c	2,000	1,15,984
To Process 'P' A/c	1,950	1,13,299	By Closing Stock	150	8,715
	2,150	**1,24,699**		**2,150**	**1,24,699**

Working Note:

Input	2,000
(–) Normal Loss	40
Expected	1,960
Actual	1,950
Abnormal Loss	10

$$PCPU = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{1,14,000 - 120}{1,960} = 58.10 \text{ (approx.)}$$

Dr.   **Process 'Q' A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Process P Stock A/c	2,000	1,15,984	By Normal Loss	100	300
To Material Consumed		9,000	By Units Transferred to Process 'Q' Stock A/c	1,925	1,53,680

			(79.83)		
To Direct Labour		24,000			
To Work Expenses		3,000			
To Abnormal Gain	25	1,996			
	2,025	**1,53,980**		**2,025**	**1,53,980**

Dr.   **Process 'Q' Stock A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Opening Stock	300	24,300	By Process R A/c	1,825	1,46,048
To Process 'Q' A/c	1,925	1,53,680	By Closing Stock	400	31,932
	2,225	**1,77,980**		**2,225**	**1,77,980**

Working Note:

Input	2,000
(–) Normal Loss	100
Expected	1,900
Actual	1,925
Abnormal Gain	25

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{1,15,984 - 300}{1,900} = 79.83 \text{ (approx.)}$$

Dr.   **Process 'R' A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Process Q Stock	1,825	1,46,048	By Normal Loss	183	2,196
To Material Consumed		6,000	By Abnormal Loss	52	5,600
To Direct Labour		18,000	By Units Transferred to Process R Stock A/c (107.70)	1,590	1,71,252
To Work Expenses		9,000			
	1,825	**1,79,048**		**1,825**	**1,79,048**

Dr.   **Process 'R' Stock A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Opening Stock	500	54,750	By Finished Stock A/c	2,090	2,26,002
To Process R A/c	1,590	1,71,252			
	2,090	**2,26,002**		**2,090**	**2,26,002**

Working Note:

Input	1,825
(–) Normal Loss	183
Expected	1,642

| Actual | 1,590 |
| Abnormal Gain | 52 |

$$\text{PCPU} = \frac{\text{Total Expenses} - \text{Scrap}}{\text{Expected No. of Units}}$$

$$= \frac{1,79,046 - 2,196}{1,642} = 107.70 \text{ (approx.)}$$

Illustration 22

In a process engineering factory, a product has to pass through three distinct processes before it is ready for sale. From the information appended below, work out the selling price if the management decides to have a mark up of 25% over its works cost.

	I	II	III
1. Stages of Production			
2. Input of Raw Materials at ` 4 per kg.	1,00,000 kg.		
3. Normal Loss on input of each stage	5%	5%	5%
4. Delivered to Net Process (kg.)	90,000	80,000	—
5. Direct Labour cost (Rupees)	14,000	15,000	30,000
6. Variable overheads % on Direct labours	150	120	100
7. Fixed Overheads % on Direct Labour	250	140	200
8. Finished Stocks held back at the stage (units)	4,000	4,000	—

For the purpose of this exercise, abnormal loss, if, any, may be charged to the respective stages.

Solution:

Dr.   **Process I A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Raw Materials	1,00,000	4,00,000	By Normal Loss	5,000	—
To Direct Labour		14,000	By Abnormal Loss	1,000	—
To Variable Overheads		21,000	By Units Transferred to Process II	90,000	4,50,000
To Fixed Overheads		35,000	By Closing Stock (5)	4,000	20,000
	1,00,000	**4,70,000**		**1,00,000**	**4,70,000**

Process II A/c

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred from Process I	90,000	4,50,000	By Normal Loss	4,500	—
To Direct Labour		15,000	By Abnormal Loss (Bal. fig.)	1,500	—
To Variable Overheads		18,000	By Units Transferred to Process III	80,000	4,80,000
To Fixed Overheads		21,000	By Closing Stock (6)	4,000	24,000
	90,000	**5,04,000**		**90,000**	**5,04,000**

Note: It is given in question that cost of Abnormal loss to be charged to that particular stage only, i.e., not to be shown separately. Therefore, total cost is divided by actual number of units of output, to arrive at PCPU.

Illustration 23

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

Purchase of 500 tonnes of copra ` 2,00,000.

	Crushing (`)	Refining (`)	Finishing (`)
Cost of Labour	2,500	1,000	1,500
Electric Power	600	360	240
Sundry Material	100	2,000	–
Repairs to Machinery and Plant	280	330	140
Steam	600	450	450
Factory Expenses	1,320	660	220
Cost of Casks	–	–	750

300 tonnes of crude oil was produced.

250 tonnes of oil was produced by refining process.

248 tonnes refined oil was finished for delivery.

Copra stock sold ` 400.

175 tons of copra residue sold ` 11,000.

Loss in weight in crushing 25 tonnes.

45 tonnes by-product was obtained from refining process valued at ` 6,700.

You are required to show the accounts in respect of each of the following stages of manufacture for the purpose of arriving at the cost per tonne of each process and also the total cost per tonne of finished oil.

    (a) Copra Crushing Process A/c

    (b) Refining Process A/c

    (c) Finishing Process A/c

Solution:

Dr.   **Crushing Process A/c**   **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Purchase of Copra	500	2,00,000	By Loss	25	—
To Labour		2,500	By Sales of Copra	175	11,000
To Electricity		600	By Sale of Copra Sacks		400
To Sundry Material		100	By Units Transferred to Refining Process (646.67)	300	1,94,000
To Repairs		280			
To Steam		600			
To Factory Expenses		1,320			
	500	2,05,400		500	2,05,400

Dr. **Refining Progress A/c** **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred from Crushing Process	300	1,94,000	By Loss	5	—
To Labour		1,000	By By-product	45	6,700
To Electricity		360	By Units Transferred to Finishing Process A/c (768.4)	250	1,92,100
To Sundry Material		2,000			
To Repairs		330			
To Steam		450			
To Factory Expenses		660			
	300	**1,98,800**		**300**	**1,98,800**

Dr. **Finishing Process A/c** **Cr.**

Particulars	Units	Amount	Particulars	Units	Amount
To Units Transferred Refining Process A/c	250	1,92,100	By Loss by Units Transferred to Finished Stock A/c (787.90)	2	—
To Labour		1,500		248	1,95,400
To Electricity		240			
To Sundry Material		—			
To Repairs		140			
To Steam		450			
To Factory Expenses		220			
To Cost of Sacks		750			
	250	**1,95,400**		**250**	**1,95,400**

$$\text{Total Cost per tonne of finished oil} = \frac{1,95,400}{248} = 787.90$$

Questions for Self-practice

I. Objective Type

(A) State True/False

1. Stock reserve is created for unrealised profit where the output of one process is transferred to the next process at cost.
2. Process costing is used in industries working against specific orders.
3. The sales value of scrap is credited to Process A/c.
4. The sale value in units of abnormal loss is credited to Abnormal Loss A/c.
5. The cost of units of abnormal loss is credited to Process A/c.
6. The cost of abnormal gain is debited to Process A/c.
7. Cement companies follow practice process costing.
8. Separate A/c is not necessary for each process.
9. Abnormal loss is non-controllable.

10. Normal loss is controllable.
11. In Abnormal Loss A/c, the balancing figure is transferred to Costing P & L A/c.
12. In Abnormal Gain A/c, the balancing figure is taken to costing P & L A/c.
13. Abnormal gain is excess of normal output over actual output.
14. Normal loss is debited to Process A/c.
15. Cost accounting includes process costing.
16. Process costing, by-products and job costing are same.

[Ans.:   True: 3,4,5,7,11,15
False: 1,2,6,8,9,10,12,13,14,16]

(B) Multiple Choice Questions

1. Abnormal loss is charged to _____.
   (i) Process A/c   (ii) Costing P & L A/c
   (iii) Normal Loss A/c

2. The stage where joint products are separated from each other is known as _____.
   (i) BEP   (ii) Angle of incidence
   (iii) Split-off point

3. Process costing is followed when _____.
   (i) standardised goods are produced   (ii) perishable goods are manufactured
   (iii) consumer goods are manufactured

4. Scrap value of normal loss is _____.
   (i) debited to Process A/c
   (ii) credited to Process A/c
   (iii) debited to Financial A/c

5. Normal loss is a _____.
   (i) Valuation A/c
   (ii) Nominal A/c
   (iii) Real A/c

6. Abnormal gain occurs due to _____.
   (i) good supervision
   (ii) efficiency of production department
   (iii) control over material cost

7. Abnormal loss arises due to _____.
   (i) normal situations
   (ii) abnormal situations
   (iii) unavoidable conditions

8. Abnormal loss is valued at _____.
   (i) market rate
   (ii) scrap value
   (iii) cost of output

9. Process costing is applied when _____.

   (i) large number of identical units are manufactured

   (ii) large number of different units are manufactured

   (iii) small number of different units are manufactured

10. Process cost is based on the concept of _____.

   (i) average cost   (ii) marginal cost

   (iii) standard cost

[Ans. 1. (i), 2. (iii), 3. (i), 4. (ii), 5. (ii), 6. (ii), 7. (ii), 8. (iii), 9. (i), 10. (i).]

(C) Match the Column

A	B
1. Process costing	(i) non-controllable
2. Normal loss	(ii) abnormal conditions
3. Abnormal loss	(iii) excess of actual output over normal output
4. Abnormal gain	(iv) stages of production
	(v) at market price of output
	(vi) standardized costing

[Ans. 1. (iv), 2. (i), 3. (ii), 4. (iii).]

(D) Match the Pair

A	B
1. Abnormal loss	(i) Normal cost/normal output
2. Abnormal gain	(ii) Input × % of normal loss
3. Normal loss	(iii) Actual output – Normal output
4. Unit cost	(iv) Normal output – Actual output
	(v) Unit cost × Unit of Abnormal loss
	(vi) Unit cost × Unit of Abnormal gains

[Ans. 1. (v), 2. (vi), 3. (ii), 4. (i).]

II. Practical Questions

1. ABC LTD. submits the following information in respect of its product which passes through three consecutive processes, viz., Ingestion Process, Digestion Process and Assimilation Process, for the month ended 31st January, 2013.

Particulars	Ingestion Process	Digestion Process	Assimilation Process
Quantitative Information (Kgs)			
Raw Material @ ` 40 per Kg	80,000	–	–
Normal Yield	80%	60%	50%
Output during the month	62,000	36,000	21,000
Stock of Process Output:			
31-12-2012	8,000	8,000	5,000
31-01-2013	10,000	4,000	4,000
Other Additional Information			
Process Material	` 3,45,000	` 8,26,000	` 6,17,000

Labour Man Days	2,400	1,500	1,000
Labour Rate per Man Days	` 80	` 100	` 150
Machine Overheads Materials	60% of wages	50% of Process	` 2,34,000
Other Manufacturing Overheads	` 2,75,800	` 1,63,000	` 1,27,000
Value of Opening Stock per Kg	` 60	` 140	` 300
Scrap Value per Kg	` 10	` 150	` 20

Finished stock of assimilation process was sold at ` 350 per Kg.

Prepare the Process Accounts, Process Stock account, Normal Loss Account and the Abnormal Gain/Loss Account.

[*Ans.: C.P.U. – 62,136, 310*]

2. ADITYA Industries Ltd. is manufacturing a product which passes through three consecutive processes, FIRST Process SECOND Process and THIRD Process. The following figures have been taken from their books for the year 31st March, 2013:

Particulars	First Process	Second Process	Third Process
Quantitative Details			
Basic Input @ ` 300 per unit	4,500	–	–
Output during the year	4,000	3,000	2,500
% of Normal waste	10%	25%	15%
Process Stock – Opening	150	250	50
Process Stock – Closing	250	150	200
Monetary Information	`	`	`
Process Materials	2,10,000	3,30,000	4,36,500
Wages	1,33,500	1,86,750	1,55,500
Manufacturing Overheads	1,20,000	1,26,750	1,20,950
Value of Opening Stock per unit	420	680	900
Scrap Value per unit	250	300	400

Closing stock is to be valued at respective cost of each process (as per the respective process accounts for the year ended 31st March, 2013.

You are required to prepare – (a) Process Accounts, (b) Process Stock Accounts, (c) Abnormal Loss Account and (d) Abnormal Gain Account.

[*Ans.: C.P.U. – 420, 680, 1,000*]

3.

Particulars	Process A `	Process B `	Process C `
Indirect Material	50,000	9,375	8,275
Direct Wages	28,125	17,500	22,450
Direct Expenses	25,625	3,438	5,750
Value of Opening Stock per Unit	25	31	40
Scrap Value per Unit	13.50	11.25	21.00
Output (Units)	4,875	4,813	4,000
Stock of Process Output:			

	750	687	1,000
01-01-2014 (Units)	750	687	1,000
31-12-2014 (Units)	625	1,000	500
Percentage of Wastage	2	5	10

5,000 units of Direct Material were introduced in Process A at the rate of ` 5 per unit. The percentage of wastage is computed on the number of units entering the process concerned. From the above information of RAJESH LTD.

Prepare:

1. Process Accounts,
2. Process Stock Accounts,
3. Normal Loss Account,
4. Abnormal Loss Account, and
5. Abnormal Gain Account. Value closing stock at the respective Process Cost.

[***Ans.: C.P.U. – 26, 33, 43***]

4. The following details for the year ending 31st December, 2013 are available from the books of a trader having three workshops and a wholesale warehouse.

Details for year ending 31.12.13

Particulars	Workshop A	Workshop B	Workshop C
Raw Material Used (Tonnes)	250	152	145
Cost per tonne (`)	600	400	250
Direct wages (`)	4,29,000	1,01,250	52,800
Direct Expenses (`)	69,000	88,350	13.450
Loss of Tonne due to Processing	4%	5%	2.5%
Proportion of Production transferred			
To Workshop B at Cost	20%		
To Workshop C at Cost		50%	
Proportion of Production transferred			
To Wholesale Warehouse	80%	50%	100%
Wholesale Warehouse:			
Stock on 1-1-2013 at cost	12,500	10,000	20,000
Stock on 31-12-2013 in tonne	10	20	

Sales were ` 20,00,000, Salaries ` 2,00,000 and Administrative Expenses ` 1,00,00. Prepare the respective Workshop Accounts showing the cost per tonne in each workshop and an account showing the net profit of the firm for the year 2013. Closing stock in warehouse to be valued at the cost per ton in each workshop.

[***Ans.: C.P.U. – 2,700, 1250, P & L A/c – Net Profit – ` 7,23,000***]

5. A Manufacturer manufactures a product in two grades, Grade I and Grade II from common raw material. Raw material is introduced in 'Basic Process' the produce of which is dealt with as follows:

25% sold in open market.

24% transferred to Grade I Process and the balance 50% transferred to Grade II Process.

The details of processes are as follows:

Particulars	Basic Process	Grade I Process	II Process Grade
Raw materials	500 units	–	–
Cost per unit	` 200	–	–
Other materials	` 12,500	` 15,000	` 15,000
Labour	` 30,000	` 25,000	` 25,000
Manufacturing Overheads	` 37500	` 30,000	` 30,000
Sale Price per unit	` 400	` 1,400	` 900

Prepare process accounts and determine total profit earned by him assuming that there is no stock in any process. **[Ans.: Net Profit – `1,30,000]**

6. KT Ltd. provides you the following information for the year ended 31st March, 2013.

Particulars	Processes		
	A	**B**	**C**
Raw materials (units)	12,000	2,440	2,600
Cost of Raw Material per unit (`)	5	5	5
Direct Wages (`)	34,000	24,000	15,000
Production Overheads (`)	16,160	16,200	9,600
Normal Loss (% of total no. of units entering to the process)	4%	5%	3%
Wastage (% of total no. of units entering to the process)	6%	5%	4%
Scrap per unit of wastages (`)	3	4	5
Output transferred to subsequent process	70%	60%	-
Output sold at the end of the process	30%	40%	100%
Selling price per unit (`)	12	16	17

Prepare Process A, B and C Account.

[Ans.: C.P.U. – 10, 14, S.P.P.U. – 12, 16, 17]

7. Assemblers Ltd. have three Assembly shops, viz., General Assembly, Lower Assembly and Higher Assembly. Part of the output is transferred to the next assembly and part is sold directly. The company furnished the following information.

Particulars	General	Lower	Higher
Raw Material (in Litres)	5,000	1,9,20	3,576
Material Cost per Litre	` 60	` 40	` 80
Labour Cost	` 4,28,000	1,60,000	2,10,000
Direct Expenses	88,000	2,85,200	1,04,800
Wastage as percentage of Total Input	4%	5%	10%
(a) Output Transferred			
To Lower Assembly	60%	–	–
To Higher Assembly	–	40%	–
(b) Output sold in market	40%	60%	100%
Sale Price per Litre	` 200	` 205	` 250
Administration overheads ` 36,000			
Marketing overheads ` 48,000			

Prepare various Assembly Accounts and Costing Profit & Loss Account.

[Ans.: C.P.U. – 170, 210, 202.45; S.P.U. – 200, 205, 250; Net Profit – `1,91,000]

8. TAZA Ltd. manufactures flavoured Tea which passes through three processes. The following particulars are available for the year ended 30-06-2013.

Particulars	Process		
	I	II	III
Raw Material (Kg)	10,000	4,600	1,500
Cost of Raw Materials per Kg (`)	5	6	8
Direct Wages (`)	24,000	18,000	12,250
Direct Expenses (`)	15,200	10,736	8,590
Factory Expenses (`)	20,960	6,000	42,555
Normal Loss (1%)	4%	8%	5%
Weight Loss (%)	6%	2%	NIL
Scrap Value per kg (`)	1.80	2.50	4
Output Transferred to next Process	60%	50%	NIL
Output Sold	40%	50%	80%
Selling Price of Output per kg	14	16	17
Transferred to Finished Stock	NIL	NIL	20%

% of normal loss and % of weight loss are based on total input in the process.

Prepare Process Account and Profit and Loss Account.

[***Ans.: C.P.U. – 12.16, 14, 17.35; Costing P & L A/c – ` 14,028***]

9. M/s Navin Ltd. provides you the following data for the month of January, 2013, about processes R_1, R_2, and R_3.

Particulars		Process R_1	Process R_2	Process R_3
Basic Raw Material Introduced	(Units)	9,000	1,578	1,725
Cost of basic raw material per unit	(`)	5.00	6.00	7.00
Labour Charges	(`)	26,000	18,000	15,000
Factory Overheads	(`)	15,220	7,437	7,830
Normal Loss (% on total number of units input)		6%	5%	4%
Scrap Value per unit	(`)	3.00	4.00	5.00
Output sold at the end of process	(%)	30%	40%	100%
Output Transferred to next process	(%)	70%	60%	–
Selling price per unit of the output sold at the end of process	(`)	13.50	17.50	18.50

Other common expenses not chargeable to process accounts:

Office and Administrative overheads ` 15,000

Selling and Distribution overheads ` 11,818

You are required to prepare process R_1, R_2, and R_3 accounts indicating clearly profit or loss in each process and Costing Profit and Loss Account.

[***Ans.: C.P.U. – 10, 13; S.P.P.U. – 13.50, 17.50, 18.50; Net Profit – ` 12,170***]

❀❀❀❀❀❀

www.himpub.com