



Cost Accounting

Student Handbook



CLASS-XII



CENTRAL BOARD OF SECONDARY EDUCATION

Shiksha Kendra, 2, Community Centre, Preet Vihar, Delhi-110301





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Price: ₹

First Edition :

Copies :

Paper used: 80 GSM CBSE Watermark White Maplitho

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Published By : The Secretary, CBSE, Central Board of Secondary
Education, Shiksha Kendra, 2, Community Centre,
Preet Vihar, Delhi-110301

**Design, Layout
Printed By** : Saraswati Offset Printers (P) Ltd.
Saraswati House A-5, Naraina Industrial Area, Phase-II,
New Delhi-110028

भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म

और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता

प्राप्त कराने के लिए
तथा उन सब में व्यक्ति की गरिमा

¹और राष्ट्र की एकता और अखंडता
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढसंकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई० को एतद्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

1. संविधान (ब्यालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से “प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य” के स्थान पर प्रतिस्थापित।
2. संविधान (ब्यालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से “राष्ट्र की एकता” के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्तव्य

51 क. मूल कर्तव्य - भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह -

- (क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;
- (ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;
- (ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;
- (घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;
- (ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;
- (च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;
- (छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणी मात्र के प्रति दयाभाव रखे;
- (ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;
- (झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;
- (ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;
- ¹(ट) यदि माता-पिता या संरक्षक हैं, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

1. संविधान (छयासीवां संशोधन) अधिनियम, 2002 की धारा 4 द्वारा प्रतिस्थापित।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a '**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC**' and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the² unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

-
1. Subs. by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
 2. Subs. by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation" (w.e.f. 3.1.1977)
-

THE CONSTITUTION OF INDIA

Chapter IV A

FUNDAMENTAL DUTIES

ARTICLE 51A

Fundamental Duties -It shall be the duty of every citizen of India-

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- ¹(k) to provide opportunities for education to his/her child or, as the case may be, ward between age of 6 and 14 years.

-
1. Subs. by the Constitution (Eighty - Sixth Amendment) Act, 2002



Preface

The continuous and efficient functioning of an organization requires utmost care and immense responsibility at various levels. The knowledge of the logistics of every department, including the cost of basic items of stationery like paper clips to nitty-gritties of the biggest deals are a pre-requisite at the managerial level for the success of any organisation. In addition, the determination of the cost per unit of the product and the price at which it should be offered to the customers is of vital importance for the sustenance and growth of any organization.

With the increasing competition and the entry of new ideas in the market on a frequent basis, the organizations are compelled to give in to cost reduction besides keeping prices at the minimum so as to retain the customers. The ultimate objective is to earn adequate profit and eliminate avoidable costs. Cost accounting plays an important role in facilitating the analysis of interplay of cost, selling price and profit.

Cost accounting uses different costing methods across various industries. For example, construction companies which work on the basis of contract use contract costing, pharmaceutical companies which produce medicines in batches make use of batch costing, transport companies and other service organizations use service costing and companies requiring various interlinked processes utilize process costing.

Realizing the enormous demand for the skilled manpower in the country, CBSE is constantly embracing effective measures to provide accessible training and skills development to the youth across the country. To persistently stimulate the enrichment of competency based skills development CBSE has initiated various Skill Competency based Vocational Courses at Senior Secondary Level aimed to educate, enable them to warrant their future employability. The current text on Cost Accounting for Class XII has been prepared keeping in view the importance of knowledge of application of costing methods and techniques to different industries thus, making the students readily acceptable to different sectors of the economy with comparatively more ease than before. The text has been written in a simple language and reader friendly manner. The Convener and his team deserves appreciation for their contribution.

Constructive and helpful suggestions from readers for the improvement of the book are welcome.

Chairman, CBSE



Acknowledgement

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COURSE CONTENTS FOR CLASS XII
PAPER - I: COST ACCOUNTING - II (781)
(THEORY - 60, PRACTICAL - 40)

Theory: 60 Marks

1.	Single or Output Costing	10
2.	Job Costing and Batch Costing	10
3.	Contract Costing	10
4.	Process Costing	10
5.	Operating Costing or Service Costing	10
6.	Reconciliation of Cost and Financial Accounts	10

1.	Single or Output Costing	10
	• Components of Cost for Output Costing • Cost Sheet • Production Account • Treatment of Stock and Scrap	
2.	Job and Batch Costing	10
	• Job Costing • Objectives • Procedure • Batch Costing • Nature and Use of Batch Costing • Determination of Economic Batch Quantity	
3.	Contract Costing	10
	• Specific aspects of Contract Costing • Profit on Incomplete Contracts • Profit on Completed Contracts	
4.	Process Costing	10
	• General Principles • Process Losses and Wastage • By-Products and Joint-Products	



- | | | |
|-----------|--|----|
| 5. | Operating or Service Costing | 10 |
| | <ul style="list-style-type: none">• Meaning of Operating Costing• Determination of Unit of Cost• Transport Costing• Power House Costing• Canteen Costing | |
| 6. | Reconciliation of Cost and Financial Accounts | 10 |
| | <ul style="list-style-type: none">• Causes of Difference• Preparation of Reconciliation Statement or• Memorandum Reconciliation Account | |



CLASS XII
PAPER - II: PRACTICAL COST ACCOUNTING - I (781)

Practical - 40

(30 marks for report and 10 marks for viva-voice)

- I. Prepare a Project Report on Operating Costing or Service Costing of any organization viz., transport, hotel, canteen or any other service organization
- II. Visit a Manufacturing Organization to report based on actual data
 - Treatment of Process Losses
 - Reconciliation of Costing and Financial Profit



UNIT - 1

SINGLE OR OUTPUT COSTING

Unit Code-1	UNIT TITLE: SINGLE OR OUTPUT COSTING			
Location: Class Room	Session-1: Basics of Single or Output Costing			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Concept of Single or Output Costing. 2. Applicability of Single or Output Costing.	1. Describe the importance of output costing. 2. What are different terminologies for output costing. 3. Which industries use output costing.	1. Identify various industries using output costing. 2. Specify various other names for output costing.	Interactive Lecture: Discussing the concept and use of output costing. Activity: Visit any one Industrial unit using output costing to understand its applicability.
Session-2: Components of Cost and Treatment for Stock & Scrap				
	1. Components of Cost. 2. Treatment for Raw Material, Work in Progress & Finished Goods. 3. Treatment for Scrap	1. Describe the prime cost and factory cost. 2. Explain the meaning of office cost and total cost. 3. Explain the treatment for Scrap 4. Describe the treatment for raw material, WIP & finished goods.	1. Identify the various cost components. 2. Apply the procedure for treating raw material & WIP. 3. Identify the process to adjust scrap. 4. List out the procedure for treating finished goods.	Interactive Lecture: Acquaint with the cost components and treatment for stock and scrap. Activity: Visit the sugar manufacturing firm and learn about the various cost elements.



Session-3: Cost Sheet Approach for Output Costing				
	1. Meaning of Cost Sheet.	1. Explain the importance of cost sheet.	1. Identify the various steps in the preparation of cost sheet.	Interactive Lecture: Introduction to cost sheet and its preparation.
	2. Types of Cost Sheet.	2. Enumerate various kinds of cost sheet.	2. Differentiate between historical & estimated cost.	Activity: Prepare a cost sheet for any single output manufacturing firm.
	3. Preparation of Cost Sheet.	3. How to prepare cost sheet.		
Session-4: Production Account Approach for Output Costing				
	1. Concept of Production Account.	1. Explain the production account.	1. Identify the process for preparing production account.	Interactive Lecture: Discussion on production account and its preparation.
	2. Preparation of Production Account.	2. Describe the preparation for production statement.	2. List out the components influencing production account.	Activity: Prepare the production account for any one of the manufacturing firm.

Learning Objectives

After reading this unit, students will be able to:

- understand the concept and applicability of output costing
- identify the components of cost
- understand the treatment for stock and scrap
- explain the meaning and types of cost sheet
- learn the preparation of production account
- explain the meaning of certain keywords

Introduction

Cost in any organization plays an important role in determining its profitability. Cost ascertainment is essential for cost control and cost management. Cost ascertainment is the determination of cost for a unit, product, process or centre based on actual data. There are various methods of costing like job costing, unit costing, batch costing, process costing, operating costing and contract costing which are helpful in ascertaining the cost of a job, product, batch, process, service and contract respectively. The following chapter will emphasis on one of the method of costing for a unit or product which is called as Single, Unit or Output Costing.



Session-1 : Basics of Single or Output Costing

Meaning of Single or Output Costing

In output costing method, the cost per unit of output or production is ascertained. The cost per unit is derived by dividing the total cost with the total quantity produced. This type of costing is applied where the output is in identical quantitative units and manufacturing process is continuous. In this method, the various cost elements like prime cost, work/factory cost, office cost and cost of sales are determined so as to arrive at the total cost of production. There are two approaches to output costing method, i.e. cost sheet and production account. A statement of cost or cost sheet describes various components of cost at various stages. Another alternative to present the cost elements in vertical form account is the production statement or account. Both cost sheet and production account presents the same information with one major distinction. The production account shows sales and profit or loss figures along with the cost of production. The output costing method is useful in ascertaining the total cost and per unit cost of production that can be compared with the past years figures, in the same cost sheet, by the management for decision making. Moreover, it helps the management in deciding the final selling price for the product.

Industries Using Single or Output Costing

Output costing is widely used by the manufacturing units producing a single product or identical products on mass basis with the consistent manufacturing processes. Such concerns also have cost units that are physical and natural. The various major industries using output costing methods are Sugar Industry, Paper Industry, Mining Industry, Cement Industry, Breweries Industry and Flour Milling Industry etc.

	Sugar Industry
	Paper Industry
	Mining Industry
	Cement Industry
	Breweries Industry
	Flour Milling Industry



Knowledge Assessment - I

Fill the blanks with the appropriate answers

1. Output costing is that method of costing which helps in determining the _____ and _____ of output or production.
2. The cost per unit is derived by dividing the total cost with the _____.
3. Output costing is widely used by _____ Industry.
4. Output costing is widely used by the concern producing a single product or _____ products.
5. Output costing is also called as _____.
6. Output costing is used in the firm that has single product, consistent manufacturing processes and cost units that are _____.
7. Output costing helps in arriving at the final _____ price for marketers.
8. Cost sheet and _____ are two approaches to output costing.

[Ans: 1- Total and per unit cost, 2- Total quantity produced, 3- Sugar/Paper/Mining, 4- Identical, 5- Single costing, 6- Physical and natural, 7- Selling, 8- Production statement/account]

Session-2: Components of Cost and Treatment For Stock & Scrap

Components of Cost

The total cost has been divided into sub components representing the cost at various stages. Following are the various components of cost shown in the cost sheet or production account:

1. **Prime Cost:** Prime cost is also named as “Direct Cost”, “Flat Cost”, “Basic Cost” or “First Cost”. It is the summation of all direct costs relating to production, i.e. direct material, direct labour and direct expenses.
2. **Factory Cost:** Factory cost is also named as “Work Cost”, “Manufacturing Cost” or “Production Cost”. It is the summation of prime cost and factory overheads that includes indirect material, indirect labour and indirect expenses of factory. Factory cost includes all the direct cost relating to product and the indirect cost relating to factory.
3. **Office Cost:** Office Cost is also named as “Cost of Production” or “Administration Cost”. Office cost is the summation of factory or work cost and office & administrative overheads. Any cost related to sales and distribution is not the part of office and administrative cost as they form a separate category. This total cost of production is adjusted with the opening and closing stock of finished goods to get the cost of goods sold.
4. **Cost of Sales:** It is also named as “Total Cost”. It is derived by adding selling and distribution overheads to the cost of goods sold.

Illustration 1: Ashwani Industries is into assembling of chairs and has certain expenditures that are mentioned below. You are required to determine the prime cost.

Particulars	Amount (Rs.)
Cost of chair frames	1,20,000
Cost of cushions	75,000
Cost of nuts and bolts	20,000
Wages paid for the assembling of chairs	30,000

Solution:

Cost of all Direct Material	=	Cost of chair frames + Cost of cushions + Cost of nuts and bolts
	=	1,20,000 + 75,000 + 20,000
	=	Rs. 2,15,000
Cost of Direct Labour	=	Wages paid for the assembling of chairs
	=	Rs. 30,000
Prime Cost	=	Direct Material + Direct Labour
	=	2,15,000 + 30,000
	=	Rs. 2,45,000

Illustration 2: Following are the cost details of Vimhans Industries. You are required to calculate the factory cost.

Particulars	Amount (Rs.)
Direct material	2,30,000
Labour cost for manufacturing products	1,25,000
Direct expenses	65,000
Rent for factory	1,00,000
General consumables	40,000
Salary of factory manager	32,000

Solution:

Prime Cost	=	Direct material + Labour cost for manufacturing products + Direct expenses
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	=	2,30,000 + 1,25,000 + 65,000
	=	Rs. 4,20,000
Factory Overheads	=	Rent for factory + General consumables + Salary of factory manager
	=	1,00,000 + 40,000 + 32,000
	=	1,72,000 Rs.
Factory Cost	=	Prime Cost + Factory Overheads
	=	4,20,000 + 1,72,000
	=	Rs. 5,92,000

Illustration 3: Calculate the office cost from the following cost data:

Particulars	Amount (Rs.)
Direct material	12,000
Direct labour	5,000
Direct expenses	2,000
Power and fuel	3,500
Office stationery	1,100
Office telephone charges	200

Solution:

Prime Cost	=	Direct material + Direct labour + Direct expenses
	=	12,000 + 5,000 + 2,000
	=	Rs. 19,000
Factory Cost	=	Prime Cost + Power and fuel
	=	19,000 + 3,500
	=	Rs. 22,500
Office Cost	=	Factory Cost + Office stationery + Office telephone charges
	=	22,500 + 1,100 + 200
	=	Rs. 23,800

Treatment for Raw Material

The actual value of the raw material consumed is to be included in the cost sheet. Thus, the determination of value of raw material consumed becomes important. For the same, the opening and closing stock of raw material is adjusted with the raw material purchased during the year to arrive at the actual value of raw material consumed.

$$\text{Value of raw material consumed} = \text{Opening stock of raw material} + \text{Purchase of raw material} - \text{Closing stock of raw material}$$

Illustration 4: Find out the value of raw material consumed for M/s Deepika from the following given information:

Particulars	Amount (Rs.)
Opening stock of raw material	55,000
Closing stock of raw material	15,000
Purchases of raw material	80,000

Solution:

Value of raw material consumed	=	Opening stock of raw material + Purchase of raw material – Closing stock of raw material
	=	55,000 + 80,000 – 15,000
	=	Rs. 1,20,000

Treatment for Work-in-Progress

Work-in-Progress is that part of stock which has not been completely manufactured. It requires some more work to be done for becoming the finished goods. They are in such a form which is not yet ready to be sold. It is usually abbreviated as “WIP”. It can be valued at prime or factory cost basis. But it is incorrect to value it at prime cost as many of the work overhead expenses get incurred on such goods. Work in progress is to be adjusted before calculating the net factory or work cost. The opening stock of WIP is added and closing stock of WIP is subtracted from gross work cost before arriving at the actual or net work or factory cost.

Illustration 5: Show the treatment of Work-in-Progress in the cost sheet from the available given information:

Particulars	Amount (Rs.)
Prime cost	23,50,000
Factory overheads	8,53,000
Opening WIP	2,10,000
Closing WIP	1,60,000

Solution:

Gross Work Cost	=	Prime cost + Factory overheads
	=	23,50,000 + 8,53,000
	=	Rs. 32,03,000



Work or Factory Cost	=	Gross Work Cost + Opening WIP – Closing WIP
	=	32,03,000 + 2,10,000 – 1,60,000
	=	Rs. 32,53,000

Treatment for Finished goods

Finished goods are the goods that have been manufactured completely from the production's point of view. It is valued at the cost of production as no further cost is to be added at the factory level. The adjustment for finished goods is of key importance for determining the cost of goods sold. We can arrive at the cost of goods sold by adding opening stock of finished goods and subtracting closing stock of finished goods from cost of production.

$$\text{Cost of Goods Sold} = \text{Cost of production} + \text{Opening stock of finished goods} - \text{Closing stock of finished goods}$$

Illustration 6: Determine the Cost of goods sold for M/s. Darwin Enterprises from the following given information:

Particulars	Amount (Rs.)
Cost of production	25,40,000
Opening stock of finished goods	5,60,000
Closing stock of finished goods	6,10,000

Solution:

Cost of Goods Sold	=	Cost of production + Opening stock of finished goods – Closing stock of finished goods
	=	25,40,000 + 5,60,000 – 6,10,000
	=	Rs. 24,90,000

Illustration 7: Find out the Total cost and Factory overheads for Budhiraj & Sons from the following given information:

Particulars	Amount (Rs.)
Prime cost	45,400
Factory cost	52,600
Office overheads	12,500
Opening stock of finished goods	1,000
Closing stock of finished goods	1,500
Salesman salary	5,000

Solution:

Factory Cost	=	Prime Cost + Factory Overheads
Factory Overheads	=	Factory Cost – Prime Cost
	=	52,600 – 45,400
	=	Rs. 7,200
Cost of Production	=	Factory Cost + Office overheads
	=	52,600 + 12,500
	=	Rs. 65,100
Cost of Goods Sold	=	Cost of Production + Opening stock of finished goods – Closing stock of finished goods
	=	65,100 + 1,000 – 1,500
	=	Rs. 64,600
Total Cost	=	Cost of Goods Sold + Salesman Salary
	=	64,600 + 5,000
	=	Rs. 69,600

Treatment for Scrap

Scrap is a left over after the production or manufacturing process of a product. It is of small value which can be sold off to recover some cost. Scrap arises from low quality of raw material and faults in product designing, manufacturing processes etc. The amount realised from the sale of scrap is to be adjusted and should be deducted either from factory overheads or gross work cost.

In case, some material (before being used) are found to be defective and considered to be scrap, then it should be adjusted with the value of raw material used and is to be reduced from the cost of material used. Any loss on sale of such material should be charged to the costing P&L account.

Knowledge Assessment – II
Objective Type Questions

- Prime cost is not called as**
 - Direct Cost
 - Basic Cost
 - Float Cost
 - Flat Cost
- Factory Cost is the summation of**
 - Prime cost and Office overheads
 - Office cost and Office overheads
 - Prime cost and Factory overheads



- d. Office cost and selling overheads
- 3. **Working of cost of goods sold requires**
 - a. Cost of Production and Opening & Closing stock of finished goods
 - b. Cost of Production and Opening & Closing stock of raw material
 - c. Cost of Production and Opening & Closing Work in progress
 - d. None of the above
- 4. **What is required to calculate the value of raw material consumed**
 - a. Opening stock of raw material
 - b. Closing stock of raw material
 - c. Raw material purchased during the period
 - d. All of the above
- 5. **Factory cost is not known as**
 - a. Work Cost
 - b. Industrial Cost
 - c. Manufacturing Cost
 - d. Production Cost
- 6. **Which of these is to be adjusted before calculating the net work cost**
 - a. Opening and Closing stock of raw material
 - b. Opening and Closing stock of WIP
 - c. Opening and Closing stock of finished goods
 - d. Scrap
- 7. **Work in Progress is in the form which is**
 - a. Ready to be sold
 - b. Ready to be used as raw material
 - c. Ready to be worked upon for further processing
 - d. Ready to be kept in warehouse
- 8. **Office cost is the summation of**
 - a. Work cost and office & administrative overheads
 - b. Work cost and selling and distribution overheads
 - c. Work cost and factory overheads
 - d. Prime cost and factory overheads

9. Scrap is

- a. Left over of manufacturing process
- b. Sold off to recover cost
- c. Of small value
- d. All of the above

10. Total cost is also known as

- a. Cost of production
- b. Cost of manufacturing
- c. Cost of sales
- d. None of the above

[Ans: 1(c), 2(c), 3(a), 4(d), 5(b), 6(b), 7(c), 8(a), 9(d), 10(c)]

Session-3: Cost Sheet Approach For Output Costing

The cost data can be presented in two major ways for the purpose of ascertaining, controlling and comparing total and per unit cost. The one is cost sheet discussed in this session and the other is production account discussed in the next session.

Cost Sheet/Cost Statement

Cost sheet is a statement that presents the total and per unit cost of production with regard to any cost unit or cost centre for a specific period of time. It is prepared in a tabular form presenting the various components of cost at various stages. It can be prepared on weekly, monthly, quarterly, half yearly or yearly basis. Cost sheet helps the accountant to determine the selling price by ascertaining the cost. Cost sheet is also a managerial tool for cost manager to judge the efficiency of production. The various cost components may be compared with the budgeted figures to keep them under control. Opening and closing stock variations in the raw material, work in progress and finished goods are also adjusted in the statement. A cost sheet illustrates the following things:

1. Total Cost of Production
2. Total Quantity of Production
3. Per Unit Cost of Total Quantity Produced
4. Components of Cost, i.e. Prime Cost, Work Cost etc.
5. Opening and Closing Raw Material, WIP and Finished Goods
6. Direct and Indirect Classification of Cost

Types of Cost Sheet

There are two variants of cost sheet. They are:

- a. **Historical Cost Sheet:** Historical cost sheet considers the historical cost value that has actually been incurred. In this cost sheet, historical actual cost is presented for the various



cost components.

- b. **Estimated Cost Sheet:** Estimated cost sheet is based on the predictable cost figures which are estimated. The estimation is done by looking at the past figures and analysing the current situation.

Cost Sheet Proforma

Following is the Proforma which is used for preparing the cost sheet and showing the various elements of cost:

M/s. _____ Enterprises
Cost Sheet
 For the year ending 31st March 20__
 Production (in units) _____

Particulars	Total Cost Amount (Rs.)	Per Unit Cost (Rs.)
(A) Purchases during the Year		
(B) Add: Opening Stock of Raw Material		
(C) Less: Closing Stock of Raw Material		
(D) Direct Material Consumed (A+B-C)		
(E) Direct Labour		
(F) Direct Expenses		
(G) Prime Cost (D+E+F)	xxx	xxx
(H) Add: Factory Overheads		
(I) Gross Factory/Work Cost (G+H)	xxx	xxx
(J) Add: Opening WIP		
(K) Less: Closing WIP		
(L) Factory/Work Cost (I+J-K)	xxx	xxx
(M) Add: Office and Administrative Overheads		
(N) Cost of Production/Office Cost (L+M)	xxx	xxx
(O) Add: Opening Finished Stock		
(P) Less: Closing Finished Stock		
(Q) Cost of Goods Sold (N+O-P)	xxx	xxx
(R) Add: Selling and Distribution Overheads		
(S) Total Cost/Cost of Sales (Q+R)	xxx	xxx

Illustration 8: From the books of accounts of M/s. Khurram Enterprises, following details have been extracted for the year ending 31st March, 2015:

Particulars	Amount (Rs.)
Opening stock of raw material	2,88,000
Closing stock of raw material	3,00,000
Material purchased during the year	9,42,000
Direct labour cost	4,43,000
Indirect wages	54,000
Salaries to office staff	2,12,000
Freight outward	43,000
Repairs for plant and machinery	21,000
Factory rent and taxes	55,000
Office rent and taxes	32,000
Distribution expenses	76,000
Salesman salaries and commission	54,000
Manager's salary (40% of his time used in factory & rest in office)	60,000
Factory electricity charges	25,000
Office telephone expenses	5,000
Opening stock of finished goods	2,03,000
Closing stock of finished goods	1,12,000
Depreciation of office furniture	13,000

You are required to prepare cost sheet for the firm from the above given details.

Solution:

M/s. Khurram Enterprises

Cost Sheet

For the year ending 31st March 2015

Particulars	Amount (Rs.)	Amount (Rs.)
(A) Purchases during the year	9,42,000	
(B) Add: Opening stock of raw material	2,88,000	
(C) Less: Closing stock of raw material	<u>(3,00,000)</u>	
(D) Direct Material Consumed (A+B-C)	9,30,000	9,30,000
(E) Direct labour cost		<u>4,43,000</u>
(F) Prime Cost (D+E)		13,73,000
Add: Factory Overheads		
Indirect wages	54,000	
Repairs for plant and machinery	21,000	
Factory rent and taxes	55,000	
Manager's salary – Factory	24,000	
Factory electricity charges	<u>25,000</u>	
(G) Total Factory Overheads	1,79,000	<u>1,79,000</u>
(H) Factory/Work Cost (F+G)		15,52,000
Add: Office and Administrative overheads		
Salaries to office staff	2,12,000	
Office rent and taxes	32,000	
Manager's salary – Office	36,000	
Office telephone expenses	5,000	
Depreciation of office furniture	<u>13,000</u>	
(I) Total Office and Administrative overheads	2,98,000	<u>2,98,000</u>
(J) Cost of Production/Office Cost (H+I)		18,50,000
(K) Add: Opening stock of finished goods		2,03,000
(L) Less: Closing stock of finished goods		<u>(1,12,000)</u>
(M) Cost of Goods Sold (J+K-L)		19,41,000
Add: Selling and Distribution Overheads		
Freight outward	43,000	
Distribution expenses	76,000	
Salesman salaries and commission	<u>54,000</u>	
(N) Total Selling and Distribution Overheads	1,73,000	<u>1,73,000</u>
(O) Total Cost/Cost of Sales (M+N)		<u>21,14,000</u>

Illustration 9: Prepare a cost sheet to show the total cost and cost per unit of goods manufactured by M/s. Abram Enterprises for the month of January 2015. Also, find out the cost of sales.

Particulars	Amount (Rs.)
Stock of raw material (1.1.15)	4,000
Stock of raw material (31.1.15)	5,500
Raw material purchased	29,000
Manufacturing wages	8,000
Depreciation on plant	1,500
Factory rent and rates	4,000
Office rent	1,000
General expenses	1,200
Sales discount	1,000
Advertising expenses	5,000

The number of units produced during the month was 4,000. The stock of finished goods was 300 and 400 units on 1.1.15 and 31.1.15 respectively. The total cost of units in hand on 1.1.15 was Rs. 3,900. All these had been sold during the month.

Solution:

M/s. Abram Enterprises
Cost Sheet
For the month ending 31st January 2015

Particulars	Amount (Rs.)	Amount (Rs.)	Per Unit (Rs.)
(A) Purchases during the year	29,000		
(B) Add: Opening stock of raw material	4,000		
(C) Less: Closing stock of raw material	<u>(5,500)</u>		
(D) Material Consumed (A+B-C)	27,500	27,500	6.875
(E) Manufacturing wages		<u>8,000</u>	<u>2.000</u>
(F) Prime Cost (D+E)		35,500	8.875
Add: Factory Overheads			
Depreciation on plant	1,500		
Factory rent and rates	<u>4,000</u>		



(G) Total Factory Overheads	5,500	<u>5,500</u>	<u>1.375</u>
(H) Factory/Work Cost (F+G)		41,000	10.25
Add: Office and Administrative Overheads			
Office rent	1,000		
General expenses	<u>1,200</u>		
(I) Total Office and Administrative Overheads	2,200	<u>2,200</u>	<u>0.550</u>
(J) Cost of Production/Office Cost (H+I)		43,200	10.80
(K) Add: Opening finished stock		3,900	
(L) Less: Closing finished stock (10.8*400)		<u>(4,320)</u>	
(M) Cost of Goods Sold (J+K-L)		42,780	
Add: Selling and Distribution Overheads			
Sales Discount	1,000		
Advertising Expenses	<u>5,000</u>		
(N) Total Selling and Distribution Overheads	6000	<u>6,000</u>	
(O) Total Cost/Cost of Sales (M+N)		<u>48,780</u>	

Knowledge Assessment – III

State whether the following statements are true (T) or false (F)

1. Cost figures in the cost sheet cannot be compared with the past year figures in the same cost sheet for analysis purpose by the management.
2. Cost Sheet can be prepared on weekly, monthly, quarterly, half yearly or yearly basis.
3. Types of cost sheet are past cost sheet and future cost sheet.
4. Advertising expense is a cost component of selling and distribution overheads.
5. Cost sheet is also a managerial tool for cost manager to judge the efficiency of production.
6. Cost sheet tells about quality and labour efficiency of the production.
7. Prime cost, work cost, office cost and total cost are components of cost sheet.
8. Salary to factory manager is a type of office overhead cost.

[Ans: 1(F), 2(T), 3(F), 4(T), 5(T), 6(F), 7(T), 8(F)]

Session-4: Production Account Approach For Output Costing

Production Account/Production Statement

Production statement is another approach to present the cost information for proper ascertainment and analysis. It also presents the same information that cost sheet or statement show. The production statement is said to provide some more information than cost sheet relating to profit or loss and sales value. The presentation of production statement is generally made in a vertical form of account which is called as “Production Account”.

Production Account Proforma

Following is the Proforma for the Production Account:

_____ Limited
Production Account
For the year ending 31st March 20__

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Direct Material	xxx	By Prime Cost c/d	xxx
To Direct Labour	xxx		
To Direct Expenses	_____		_____
	_____		_____
To Prime Cost b/d	xxx	By Factory Cost c/d	xxx
To Factory Overheads	_____		_____
	_____		_____
To Factory Cost b/d	xxx	By Cost of Production c/d	xxx
To Office Overheads	_____		_____
	_____		_____
To Cost of Production b/d	xxx	By Closing Stock of	xxx
To Opening Stock of Finished	xxx	Finished Goods	
Goods	_____	By Cost of Goods Sold c/d	_____
	_____		_____
To Cost of Goods Sold b/d	xxx	By Sales	xxx
To Selling & Distribution	xxx		
Overheads			
To Profit			
	xxx		xxx

Illustration 10: The following details have been obtained from the cost records of Dish Dyes Limited for the month of December 2014:

Particulars	Amount (Rs.)
Opening stock of raw material	1,25,000
Closing stock of raw material	1,32,000
Direct labour	62,400



Indirect wages	13,500
Sales	3,46,000
Purchase of raw material	96,000
Factory rent	23,000
Depreciation of machinery	6,600
Opening WIP	42,000
Closing WIP	45,000
Carriage inward	2,000
Carriage outward	3,000
Advertising	6,700
Office rent	4,000
Traveller's wages	8,800
Opening stock of finished goods	64,000
Closing stock of finished goods	22,000

Prepare a production account giving the maximum possible breakup of cost and profit.

Solution:

Dish Dyes Limited
Production Account
For the month ending December 2014

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Material Consumed		By Prime Cost c/d	1,53,400
Opening stock 1,25,000			
Add: Purchases 96,000			
Add: Carriage inward 2,000			
Less: Closing stock <u>1,32,000</u>	91,000		
To Direct labour	<u>62,400</u>		
	<u>1,53,400</u>		<u>1,53,400</u>
To Prime Cost b/d	1,53,400	By Gross Factory Cost c/d	1,96,500
To Indirect wages	13,500		
To Factory rent	23,000		

To Depreciation on machine	<u>6,600</u>		
	<u>1,96,500</u>		<u>1,96,500</u>
To Gross Factory Cost b/d	1,96,500	By Closing WIP	45,000
To Opening WIP	<u>42,000</u>	By Factory Cost c/d	<u>1,93,500</u>
	2,38,500		2,38,500
To Factory Cost b/d	1,93,500	By Cost of Production c/d	1,97,500
To Office rent	<u>4,000</u>		
	1,97,500		<u>1,97,500</u>
To Cost of Production b/d	1,97,500	By Closing stock of finished goods	22,000
To Opening stock of finished goods	64,000	By Cost of Goods Sold c/d	<u>2,39,500</u>
	<u>2,61,500</u>		<u>2,61,500</u>
To Cost of Goods Sold b/d	2,39,500	By Cost of Sales b/d	2,58,000
To Carriage outward	3,000		
To Advertisement	6,700		
To Traveller's wages	<u>8,800</u>		
	<u>2,58,000</u>		<u>2,58,000</u>
To Cost of Sales c/d	2,58,000	By Sales	3,46,000
To Profit	88,000		
	<u>3,46,000</u>		<u>3,46,000</u>

Knowledge Assessment – IV

Fill the blanks with the appropriate answers

- The presentation of production statement is generally made in an account form which is called as _____.
- _____ is another approach, apart from cost sheet, to present the cost information for proper ascertainment and analysis.
- Production account depicts various components of _____.
- Production statement is said to provide some more information than cost sheet regarding _____ and sales value.
- The expenses like factory rent and depreciation of plant is shown on the _____ side of production account.
- At the end of production account, the loss figure will come on the _____ side of the account.
- Sales traveller's wages is a part of _____ overhead cost.
- Presentation of production account is made in a _____ form.

[Ans: 1- Production account, 2- Production statement, 3- Cost, 4- Profit or loss, 5- Debit, 6- Credit, 7- Selling and distribution, 8- Vertical account]



Keywords

- **Output Costing:** Output costing is the method in which cost per unit of output or production is ascertained and the amount of each element constituting such cost is determined.
- **Cost Sheet:** Cost sheet is a tool to present the total and per unit cost of production with regard to any cost unit or cost centre for a specific period of time.
- **Prime Cost:** Prime cost is the summation of all direct costs relating to production.
- **Factory Cost:** Factory cost is the summation of prime cost and factory overheads that include indirect material, indirect labour and indirect expenses of factory.
- **Office Cost:** Office cost is the summation of factory or work cost and office & administrative overheads.
- **Cost of Sales:** Cost of sales is the summation of selling and distribution overheads and cost of goods sold.
- **Work in Progress:** Work in progress is that part of stock which has not been completely manufactured.
- **Finished Goods:** Finished goods are the goods that are manufactured completely from the production's point of view.
- **Scrap:** Scrap is a left over after the production or manufacturing process of a product.
- **Production Account:** Production account is a T-form account that presents the cost information for proper ascertainment and analysis.

Summary

- Various methods of costing are job costing, unit costing, batch costing, process costing, operating costing and contract costing.
- Output costing method is useful in determining the total and per unit cost of output.
- Various major industries using output costing methods are Sugar Industry, Paper Industry, Mining Industry, Cement Industry, Breweries Industry and Flour milling Industry etc.
- Major component of costs are Prime Cost, Factory Cost, Office Cost, Cost of Goods Sold and Cost of Sales.
- Cost sheet and production statement are the tools to showcase the total cost of production with regard to any cost unit or cost centre for a specific period of time for proper ascertainment and analysis.

Exercise Questions

Short Answer Questions

1. What do you mean by output costing?
2. Name the Industries that make use of output costing?
3. What do you mean by Prime cost and Factory cost?
4. What do you understand by the term called “Cost of Production”?
5. How do you adjust stock of finished goods?
6. What is work in progress?
7. What are selling and distribution overheads?
8. State some examples of office and administration overheads?
9. What is Scrap? How does it arise?
10. What do you mean by the term “Cost Sheet”?
11. What are the benefits of preparing cost sheet?
12. Which are the types of cost sheet?
13. What is production account or statement?
14. Why production account is prepared?
15. How production account is different from cost sheet?

Long Answer Questions

1. What is output costing? Which are other different methods of costing?
2. Which are the industries that use the output costing and why?
3. What are the various components of cost? Explain them in detail with relevant examples.
4. Show the adjustments to be made for opening and closing stock of raw material, WIP and finished goods in cost sheet?
5. What do you mean by the term “Scrap” and how it is to be treated in the cost sheet?
6. What is a Cost Sheet? Why it is prepared and what information does it provides to an accountant?
7. Briefly explain the term “Cost sheet” along with its basic Proforma? How does it help in determining the cost of sales? Also, explain its major types?
8. What do you mean by production account or statement? How it is different from cost sheet? Also, show the various elements that form part of the production account.



Numerical Questions

1. Calculate the Prime cost from the following cost information given below:

Particulars	Amount (Rs.)
Labour used for production	55,000
Material used for manufacturing	1,02,000
Factory rent	67,000
Carriage inward	13,000
Depreciation of office furniture	7,600

(Ans. Prime Cost: Rs. 1,70,000)

2. Determine the office cost for Maxwell Pvt. Ltd. for the month of June 14 from the following cost information available:

Particulars	Amount (Rs.)
Raw material (1 st Jun 14)	22,000
Raw material (30 th Jun 14)	12,000
Purchase of raw material	43,000
Labour cost for production	54,000
Direct expenses	21,000
Work in progress (1 st Jun 14)	28,000
Work in progress (30 th Jun 14)	42,000
Wages for factory security guard	14,000
Factory generator charges	21,000

(Ans. Office Cost: Rs. 1,49,000)

3. Crystal & sons is interested in determining their total cost for analysis purpose for the quarter April-June 2014. Use the following cost data to determine the total cost:

Particulars	Amount (Rs.)
Prime cost	1,45,000
Supervision cost for factory	12,000

Office stationery	5,000
Office expenses	14,000
Opening stock of finished goods	23,800
Closing stock of finished goods	22,000
Advertisement	15,500
Distribution expenses	16,000

You are also required to prepare the cost sheet for the organization.

(Ans. Total Cost: Rs. 2,09,300)

4. A factory produces a standard product. The following information is given from which you are required to prepare Cost Sheet for the year ending March 2015:

Particulars	Amount (Rs.)
Raw material (Opening)	18,000
Raw material (Purchases)	54,000
Raw material (Closing)	15,000
Direct labour	42,000
Direct expenses	17,000
Factory overheads	80% of Direct labour
Office overheads	20% of Work Cost
Finished goods (Opening)	19,500
Finished goods (Closing)	14,000
Distribution expenses	22,400
Salesmen commission	10% of Distribution expenses

(Ans. Cost of Sales: Rs. 2,09,660)

5. The following details have been obtained from the cost records of Starlight Ltd.:

Particulars	Amount (Rs.)
Raw material (Opening)	95,000
Raw material (Closing)	98,400



Direct wages	32,000
Indirect wages	3,500
Sales	3,31,000
Work-in-progress (Opening)	23,000
Work-in-progress (Closing)	34,000
Purchase of raw material	86,000
Factory rent and rates	19,000
Depreciation of machinery	4,200
Freight	2,600
Carriage outward	5,600
Advertising	13,300
Office rent and taxes	7,800
Traveller, wages and commission	8,900
Opening stock of finished goods	1,04,000
Closing stock of finished goods	87,000

Prepare a production account giving the maximum possible breakup of cost and profit.

(Ans. Total Cost: Rs. 1,85,500, Profit: Rs.1,45,500)

UNIT - 2

JOB AND BATCH COSTING

Unit Code-2	UNIT TITLE: JOB AND BATCH COSTING			
Location: Class Room	Session-1: Introduction and Objectives of Job Costing			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Meaning of job costing.	1. Explain the meaning of Job costing.	1.Describe the specific order costing.	Interactive Lecture: Introduction to Job Costing. Activity: Conceptual Case discussion.
	2. Objectives of the job costing.	2. Mention the objectives of job costing.	2. Identify the industries in which job costing is used.	
	3. Advantages of job costing.	3. Elaborate the advantages of job costing.	3. Explain the advantages of job costing for different industries.	
	4. Limitations of job costing.	3.Explain the limitations of job costing in comparison to other costing methods.	4. Mention major limitations of job costing.	
Session-2: Procedure of Job Costing				
	1. Procedure of preparing job cost sheet.	1. Discuss various stages of job costing.	1. Prepare the format of production order.	Interactive Lecture: Procedure of Job Costing. Activity: Preparation of the job cost sheet using industry data.
		2. Describe the relevance of assigning job numbers.	2. Describe the procedure of preparing job cost sheet.	
		3. Discuss the components of job cost sheet.		



Session-3: Introduction, Uses and Procedure of Batch Costing

1. Concept of Batch costing and its objectives.	1. Define the concept of Batch Costing. 2. Explain the objectives of batch costing. 3. Differentiate job costing and batch costing.	1. Identify the industries in which Batch costing is used.	Interactive Lecture: Introduction to Batch Costing. Activity: Discussion of brief cases from industries in which batch costing is used.
2. Concept of Economic Batch Quantity.	4. Describe Economic Batch Quantity.	2. Explain the usefulness of EBQ in industry.	Interactive Lecture: Procedure of determination of EBQ.
3. Formulae of EBQ determination.	5. Explain the method of EBQ determination with the help of a relevant example.		Activity: Determination of EBQ on Industry data.

Learning Objectives

After reading this unit, students will be able to:

- understand the meaning of job costing and batch costing;
- explain the objectives of job costing and batch costing;
- identify the industries in which job and batch costing methods are used;
- describe the costing procedure used to ascertain the cost of a job or a batch;
- determine Economic Batch Quantity (EBQ); and
- explain the meaning of certain keywords.

Since beginning of cost accounting, various costing methods have been evolved to compute manufacturing cost of products and services as per the need of the industry. Each organization or industry has its own way of costing the products and services. However, basic principles relating to cost computation remain same in all methods of costing. Costing Methods used in various industries are broadly classified into two categories: (1) Specific Order Costing (2) Continuous Operation Costing.

In case of special-order concerns products produced or jobs undertaken are of diverse nature. They involve materials and labour in different quantities and entail different amounts of overhead costs. In such concerns, it is necessary to keep a separate record of each lot of products or jobs from the time the work on the job or product begins till it is completed. A separate job card or cost sheet is maintained for each job or product in which all expenses of materials, labour, overheads are entered and cost of completing a job or manufacturing a product is found out. Such a cost system is known as job or terminal or specific costing. The specific order costing methods are further classified into (i) Job Costing (ii) Batch Costing and (iii) Contract Costing. On the other hand, continuous operation costing methods

are adopted by the business organizations which are involved in mass production of products. Products will be sold from stock and will not be produced according to the specific need of the customers. The continuous operation costing includes process costing, operation costing, output costing and service costing.

This chapter is focused on specific order costing comprising of job and batch costing methods, remaining costing methods will be discussed later in the book.

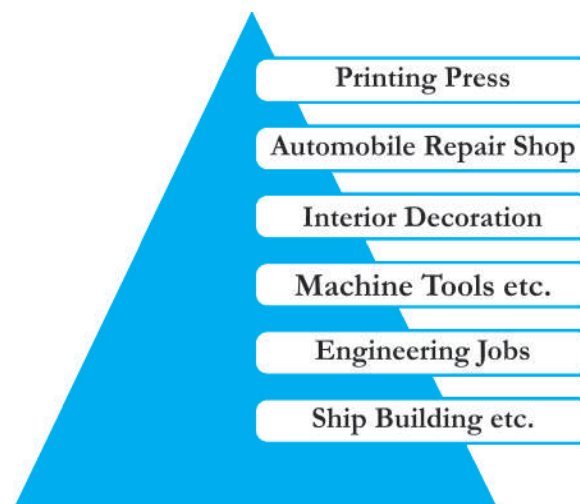
Session-1: Introduction to Job Costing

Job refers to a customized work order received from customers as per their needs and requirements. A job is a cost unit which consists of a single order. For example; tailor-made garments are made according to the choice and size of the individual customer. In this costing method, each element of cost, i.e. direct materials, direct labour and overheads incurred on production is identifiable with a particular job. A separate job card or cost sheet is maintained for each job or product in which all expenses incurred on the job would be included and finally, the cost of manufacturing a product or completing a job is found.

Job costing can be defined as “that form of specific order costing which applies where work is undertaken to customers’ special requirements and each order is of comparatively of short duration (compared with those to which contract costing applies). The work is usually carried out within a factory or workshop and moved through processes and operations as a continuously identifiable unit. The term may also be applied to work such as property repairs and the method may be used in the costing of internal capital expenditure jobs.”

Job costing is used in engineering jobs, ship building, printing press, automobile servicing shop, furniture making, fabrication jobs, interior decoration, and machine tools etc.

Industries Using Job Costing



Features of Job Costing

Special features of job costing are as follows:

1. Production order is customized as per customer's requirements.



2. Each job has unique characteristics and requires special attention.
3. It is concerned with the cost of each job irrespective of time taken for the job.
4. Cost of each job comprises of direct materials, direct labour and overheads.
5. Flow of production from one department to another department is not uniform it depends on the nature of the job.

Objectives of Job Costing

Objectives of job costing are as follows:

1. It ascertains the cost of each job separately and also indicates the profit or loss made out on its completion. It also helps in decision making regarding continuation or discontinuance of job.
2. It assists the management in controlling the cost of each job by comparing the actual cost with the estimated cost.
3. It provides a basis for determining the cost of similar jobs to be undertaken in future and quoting the appropriate price for the same.

Advantages of Job Costing

Advantages of job costing are as follows:

1. Data generated by the job costing records can be used for analysis and cost control by the management.
2. It indicates the profitable or non-profitable jobs.
3. It can be easily fitted into the double entry system.

Disadvantages of Job Costing

Major problems associated with the job costing method are as follows:

1. It is too expensive.
2. It is very time consuming.
3. It is very tedious task to maintain separate records for each job.

Knowledge Assessment - I

Multiple Choice Questions

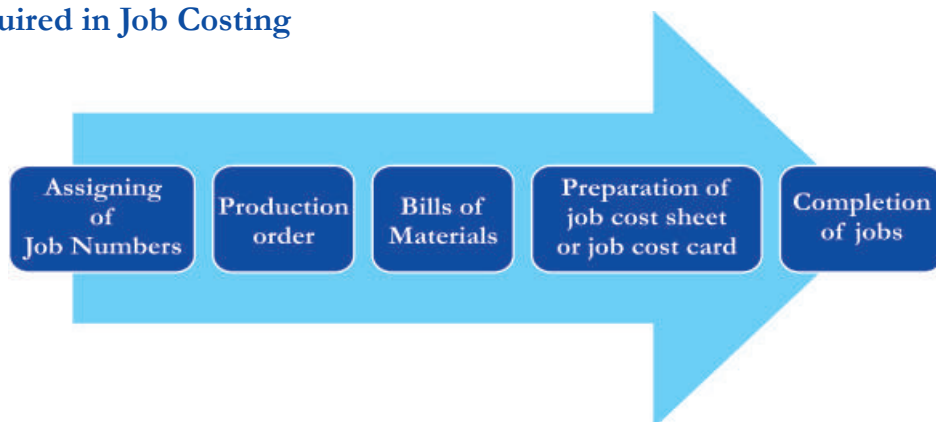
1. **Job costing is ideally suited for which of the following?**
 - a) Food processing company
 - b) Automobile repair shop
 - c) City bus transport service
 - d) None of the above

- 
2. **Job costing is suitable for**
- a) Non-specific needs
 - b) Specific needs
 - c) None of the above
 - d) Both of the above
3. **Which one of the following is the objective of job costing:**
- a) It ascertains the cost of each job separately and also indicates the profit or loss making jobs.
 - b) It helps the management in controlling the cost of each job by comparing the actual cost with the estimated cost on each job.
 - c) It helps in decision making regarding continuation or discontinuance of job.
 - d) All of the above.
4. **Which one of the following is an example of a direct cost in the manufacturing of Almond jelly?**
- a) Salary of supervisors
 - b) Almonds
 - c) Electricity
 - d) Depreciation
5. **Which one of the following costs would be an indirect cost in the manufacturing of a LCD?**
- a) Picture tube
 - b) Assemblers wages
 - c) LCD screen
 - d) Electricity
6. **Actual costing is not usually used because:**
- a) Actual overhead cannot be determined until the end of the year, which is too late for some decisions that need to be made.
 - b) The actual units of the basis of allocation cannot be determined until the year is over, which is too late for some decisions that need to be made.
 - c) Normal costing controls the inefficient use of resources.
 - d) All of the above are reasons for not using actual costing.

[Ans: 1(b), 2(b), 3(d), 4(b), 5(d), 6(d)]

Session-2: Job Costing Procedure

Steps Required in Job Costing



The following is the procedure for implementation of job costing:

1. **Job Identity Number:** when a work order is received, a unique job number must be assigned to each job for the identification of the same. This number will remain same throughout the production process.
2. **Production Order:** It is an authority letter, issued by the production control department to manufacturing department to initiate work on the job. Multiple copies of production order are created and sent to the following departments:
 - i. All departmental foreman concerned with the job
 - ii. Storekeeper for issuance of materials
 - iii. Tool room for an advance notification of tools required.

Proforma - Production Order

Product.....				Production Order No.....	
Ordered by.....				Date of Order.....	
Date to commence.....				Date to Complete.....	
				Authorized by.....	
Qty.	Description	Bill of Materials No.	Drawing No.	List of Tools Symbol No.	Pattern No
For Office Use:					
Entered in Cost Sheet No..... Date actually started.....					
By.....Date actually finished.....					
Checked by.....Quantity actually produced..					

3. **Bill of Materials:** It is a list of materials and stores required for a particular job is prepared by the Production and Planning Department for the smooth execution of the job is known as the bill of materials. This document serves the purpose of the prior intimation to the storekeeper who may arrange essential materials and stores for the job. The foreman of the concerned job receives a copy of bill of materials along with the production order for showing it to the storekeeper at the time of collection of materials from him.
4. **Job Cost Sheet or Job Cost Card:** A separate job cost sheet is prepared for each job including all expenses incurred in the completion of a job. Cost sheet is prepared according to the job rather than according time consumed in completing a job. Following are the components of job cost sheet and method of determining the cost of each element:
 - (a) **Materials:** Cost of materials consumed in each job is recorded in the materials or stores requisition slips. These slips can also be used to extract information regarding cost of materials or stores used. Generally, in case of large job orders, material abstracts are prepared for determining the value of materials consumed in various jobs. The value of material is used for entries in stores ledger control account and work-in-progress control account.
 - (b) **Labour:** In case of large size business organizations where multiple jobs are undertaken at a time, estimation of labour cost incurred on each job is done by preparing 'Wage Abstract'. On the other hand, small organizations use job cards, time sheets, clock cards etc. to compute the cost of labour. The total of wages chargeable to various jobs is debited to work-in progress control account. Wages paid for indirect labour will be included under the head of factory overheads.
 - (c) **Overheads:** Indirect materials, indirect wages and indirect expenses which cannot be identified with a specific job are known as overheads. Factory overheads are apportioned on the basis of a predetermined rate. The rate may be based on direct labour hours, direct labour cost, machine hours, total cost or other recognized basis.
5. **Completion of Job:** When job is completed, 'Job Completion Report' is sent to the costing department for ascertaining the profits or losses occurred on the job. All costs incurred on a job are debited to job account and value of job or sales price of job is credited to the job account. The difference of the two sides will be the profit or loss suffered on the job.

The following is the proforma for preparing the job cost sheet. The direct materials, direct labor and direct overheads absorbed in a job are collected and recorded in the below mentioned manner:

Proforma- Job Cost Sheet

Product.....			Job No.....			Customer.....		
Customer's purchases order No.....								
Date of Commencement.....								
Date of Completion.....								
Department X								
Direct Material Cost			Direct Labour Cost			Factory Overheads		
Date	Reference	Amount	Date	Reference	Amount	Date	Reference	Amount
	(Store Req. No.)			Worker's Ticket No				(Based on pre-determined overhead rate)
Department Y								
Direct Material Cost			Direct Labour Cost			Factory Overheads		
Date	Reference	Amount	Date	Reference	Amount	Date	Reference	Amount
	(Store Req. No.)			Worker's Ticket No				(Based on pre-determined overhead rate)
Summary								
Selling Price xxxx								
			Deptt. X	Deptt. Y	Total			
Costs: Direct Material			x x	x x	x xx			
Direct Labour			x x	x x	x xx			
Factory Overheads			x x	x x	x xx			
Total Cost			x x	x x	x xx	x xxx		
Gross Profit						x xxx		

Illustration 1: The Tomsay Ltd. has the following cost data for the year 2013:

Description	Production Department Amount (Rs.)	Finishing Department Amount (Rs.)
Material used	50,000	20,000
Direct Labour cost	80,000	60,000
Overhead (Actual)	96,000	40,000
Machine hours		2,000

Compute (a) the overhead rates to be used for 2014 based on direct labour cost for the production department and machine hours for the finishing department and (b) the total overhead to be applied to Job No. 502, which had Rs. 3000 direct labour cost in production department and 250 working hours in the Finishing Department.

Solution:

(a) Overhead Rates: Production Department, based on direct labour cost: $\frac{\text{Overhead cost}}{\text{Direct Labour cost}} = \frac{96,000}{80,000} = 1.2$ Finishing Department based on Machine hours: $\frac{40,000}{2,000} = \text{Rs. 20 per machine hour}$	
(b) Overhead applied to Job No. 502	
	Amount (Rs.)
Direct Labour Cost (Rs. 3,000 @ Rs. 1.2)	3,600
Machine Hours (250 hours @ Rs. 20 per hour)	5,000
Overhead applied	8,600

Illustration 2: In an automobile factory, various jobs are undertaken in the premises in two departments. The following information is related to the cost incurred on Job No. 103:

Material consumed	Rs. 6,830
Wages:	
Department A	100 hours @ Rs. 2.0 per hour
Department B	50 hours @ Rs. 3.0 per hour
Overheads incurred were as follows:	
Variable Overheads:	
Department A:	Rs. 3000 for 2000 direct labour hours
Department B:	Rs. 5000 for 2500 direct labour hours

Prepare job cost sheet for Job No. 103. Also estimate the profit earned on the job if the price quoted was Rs. 10,250.

Solution:

Cost Sheet
Job No. 103

Particulars	Amount (Rs.)	Amount (Rs.)
Direct Materials	6,830	
Direct Wages:		
Department A (100 hours @ 2.00 per hour)	200	
Department B (50 hours @ 3.00 per hour)	150	
Prime Cost		7,180
Overheads:		
Variable:		
Deptt. A $\frac{3,000}{2,000} \times 100$	150	
Deptt. B $\frac{5,000}{2,500} \times 50$	100	250
Fixed: $\frac{6,500}{10,000} \times 50$		98
Total Cost		7,528
Profit		2,722
Selling Price		10,250

Illustration 3: (Scrap) SARA engineering has Job No. 238 which is conducted in three departments namely X, Y and Z. Information available regarding this job is as follows:

Particulars	X	Y	Z
Materials required for job (in Rs.)	10,000	1,200	700
Direct labour hour (No. of hours)	1,000	2,000	5,000
Rate of direct labour per hour (in Rs.)	2.00	2.50	3.00
Sale of scrap of materials arising from job (in Rs.)	1,000	250	50
Overheads of departments (in Rs.)	11,000	13,500	25,000
Labour hours of departments	10,000	30,000	40,000

Prepare job cost sheet from the above given information.

Solution:

Cost Sheet
Job No. 238

Particulars	Amount (Rs.)	Amount (Rs.)
Direct Material (less scrap)		
Department X (10,000 -1,000)	9,000	
Department Y (1,200- 250)	950	
Department Z (700 – 50)	650	10,600
Direct Wages:		
Department X (1,000 hours @Rs. 2.00 per hour)	2,000	
Department Y (2,000 hours @ Rs. 2.50 per hour)	5,000	
Department Z (5,000 hours @ Rs. 3.00 per hour)	15,000	22,000
Prime Cost		32,600
Overhead:		
Department X $\frac{11000}{10,000} \times 1000 = 1,100$	1,100	
Department Y $\frac{13,500}{30,000} \times 2000 = 900$	900	
Department Z $\frac{25,000}{40,000} \times 5000 = 3,125$	3,125	5,125
Total Cost		37,725

Calculation of Work-in-Progress

Various cost control accounts are maintained in the costing ledgers. Work-in-Progress accounts are separately maintained for each job, product or process. All expenses namely Materials, Labor and overheads which are incurred on job, product or process will be debited to Work-in-Progress account and the cost of production of completed jobs is credited to Work-in-Progress account. The difference between debit and credit will indicate the value of incomplete jobs.

One Work-in-Progress account can be prepared for the whole factory that is called as composite account. A separate account can be prepared for each department or process. It will depend on the nature of business.

Job Ticket

The production and planning department issues job ticket to provide up-to-date information regarding the status of each job completion at each operation. Job ticket comprises of hook-on section of each operation. On the Job completion of each operation, relevant portion is detached from the ticket and sent it to the production and planning department for the keeping the production schedule up-to-date.



It is a very important document for both Production and Planning Department and costing department. With the help of job ticket “Departmental Summary of Production” can be prepared which is very useful for costing purposes.

Progress Advice

Progress advice is prepared to ensure the timely completion of each job. This indicates the stages of completion of each job. Periodically, foreman of each job sends it to the production and planning department.

Illustration 4: (Work-in-Progress) The following information for the year ended on 31st March 2014 is obtained from the records of a mobile cover making factory:

Particular	Completed Jobs Amount (Rs.)	Work-in-Progress Amount (Rs.)
Raw material supplied from stores	2,00,000	60,000
Labour	1,25,000	10,000
Direct Expenses	12,000	5,000
Material transferred to Work-in-Progress	3,000	3,000
Material returned to stores	2,000	—
Works overhead employed in job is 70% of labour and office overhead is 25% of factory cost. Worth of job at the end was Rs. 5,50,000.		

Prepare (i) Completed Job Ledger Control Account (ii) Work-in-Progress Ledger Control Account (iii) Cost of Sales Account

Work-in-Progress Ledger Control Account

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Raw material consumed: Supplied from stores 60,000 Add: Transfer from WIP <u>3,000</u> To Labour To Direct expenses Prime Cost To Factory overhead (70% of labour cost) Work Cost To Office overhead (25% of factory cost)	 63,000 10,000 <u>5,000</u> 78,000 <u>7,000</u> 85,000 21,250	By Balance c/d	1,06,250
Total Cost	1,06,250		1,06,250

Completed Job Ledger Control Account

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Raw material consumed:		By Cost of Sales	5,24,375
Supplied from stores 2,00,000			
Less: Transfer to WIP 3,000			
Less: Return to stores <u>2,000</u>	1,95,000		
To Labour	1,25,000		
To Chargeable expenses	<u>12,000</u>		
Prime Cost	3,32,000		
To Factory overhead	<u>87,500</u>		
(70% of labour cost)			
Work Cost	4,19,500		
To Office overhead			
(25% of factory cost)	1,04,875		
	5,24,375		5,24,375

Cost of Sales Account

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To completed Jobs A/c	5,24,375	By Sales	5,50,000
To Profit	25,625		
	5,50,000	5,50,000	

Knowledge Assessment - II

Multiple Choice Questions

- Which account would be debited in recording a materials requisition for direct materials?
 - Raw Materials Inventory
 - Factory Overhead
 - Raw Materials Purchases
 - Goods in Process Inventory
- Document used for determining job cost?
 - Wage abstract
 - Materials requisition slip



- c. Job cost card
- d. None of the above
- e. All of the above

3. The predetermined overhead rate is Rs. 10.12 per direct labour hour. Job 913 required 410 direct labour hours of which 309 hours were incurred for completing this job. Calculate amount of overhead should be applied to Job 913?

- a. Rs. 3,066.00
- b. Rs. 3,127.08
- c. Rs. 4149.20
- d. Rs. 1,281.00

4. Production reports for the second quarter show the following data:

Month	Machine-Hours	Direct Labour Hours	Direct Materials Cost	Actual Overhead
April	9,000	12,000	Rs. 32,000	Rs. 45,020
May	12,000	10,000	Rs. 28,500	Rs. 60,000
June	10,000	9,000	Rs. 45,000	Rs. 50,100

Which variable would be the most likely basis for allocating overhead?

- a. Machine-hours
- b. Labour Hours
- c. Labour Cost
- d. Materials Cost

5. Direct Materials Consumed: Rs. 25,000

Factory overhead: Rs. 35,000

Beginning goods in process: Rs. 0

Ending goods in process: Rs. 8,000

Cost of goods manufactured: Rs. 60,000

Calculate the amount of Direct Labour?

- a. Rs. 8, 000
- b. Rs. 1,28,000
- c. Rs. 5,000
- d. Rs. 68,000

6. Job No. 201 was in process at the end of the accounting period. The total cost involved in the Job is Rs. 15,000 of which Rs. 5,000 is direct material. Factory overhead is allocated to goods in process at 150% of direct labour cost. Compute the amount of direct labour charged to Job No. 201
- Rs. 9,000
 - Rs. 4,000
 - Rs. 4,000
 - Rs. 3,000
7. The document which provides information regarding the progress of each job at each operation is known as:
- Progress advice
 - Job ticket
 - Job order
 - None of the above

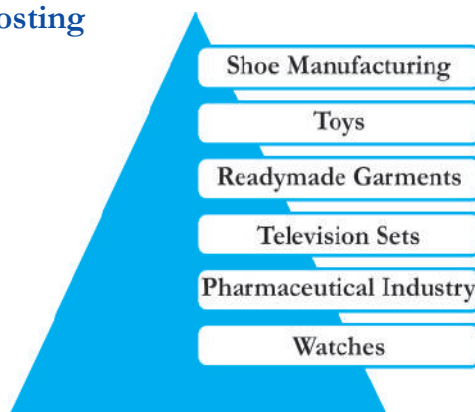
[Ans: 1 (d), 2 (c), 3 (b), 4(a), 5(a), 6(b), 7(b)]

Session-3: Introduction, Nature and Uses of Batch Costing

Introduction

A batch refers to the bunch of identical items of products or components. Batch Costing is defined as “that form of specific order costing which applies where similar articles are manufactured in batches either for sale or for use within the undertaking”. Batch costing is very similar to job costing. Whenever, a particular product is required, one unit of such product is not manufactured but a lot of say 500 or 1000 units of such product are produced. It is therefore also known as “Lot Costing”.

Industries Using Batch Costing



Batch Costing Procedure

Each batch is treated as a job or cost unit; therefore, procedure of job costing can be used for batch costing also. Each component of cost i.e. Direct Materials, Direct Labour, and Overheads are estimated



for a lot or batch rather than individual unit. Numbers are assigned to each batch material requisitions, wage abstracts and overheads are also prepared for each batch. When a batch is completed, the total cost of the batch is divided by quantity produced in the batch to arrive at the cost per unit as required.

Determination of Economic Batch Quantity

As we know, each batch contains multiple units. Therefore, deciding optimum quantity in each batch is a very important decision to minimize the cost of production. Inventory control principle of calculating the Economic Order Quantity (EOQ) will be used to compute Economic Batch Quantity (EBQ). Formulae for calculating the same is as follows:

$$\text{Economic Batch Quantity} = \sqrt{(2U \times P)/S}$$

U = Annual Demand

P = Setting up and order placing costs (per batch)

S = Storage or inventory carrying over cost per unit per annum

Illustration 5: A pharmaceutical company is having annual demand of its medicine 9,000 units. For the production of units, company has to bear setting up and order processing cost of Rs. 220. Cost of manufacturing one unit is Rs. 1,250. Cost of carrying is 10% per annum.

Solution:

$$\begin{aligned}\text{Economic Batch Quantity} &= \sqrt{\frac{(2 \times 9,000 \times 220)}{(1250 \times 10\%)}} \\ &= \sqrt{\frac{396000}{125}} \\ &= 177.98 \text{ units or } 178 \text{ units}\end{aligned}$$

Illustration 6 : XYZ Company manufacture components of shoes in a cost centre:

Materials cost	Rs. 6 per component
Time consumed in manufacturing	10 minutes in manufacturing per component
Machine hour rate	Rs. 15 per hour
Machine operator is paid	Rs. 7.2 per hour

The setting-up of the machine to produce component of shoes; taken 2 hours 30 minutes.

Using above given information, prepare a comparative cost sheet presenting the production and setting up cost, both in total and per component assuming a batch of

(a) 100 components (b) 1000 components (c) 10,000 components are produced.

Solution:

Particular	Batch size in components		
	100	1000	10,000
Set up cost:			
Machine operators wages (2.5 hours @ Rs. 7.2 per hour)	18.00	18.00	18.00
Machine hour rate (2.5 hours @ Rs. 15 per hour)	37.50	37.50	37.50
Production Cost:	55.50	55.50	55.50
Material cost (Rs. 6 per component)			
Time consumed (10 minutes per component)	600.00	6000.00	60000.00
Cost of time is 7.2 per hour $\frac{10}{60} \times 7.2 =$	120.00	1200.0	12000.00
Overheads@ 15 per hour			
$\frac{10}{60} \times 100 \times 15 =$	250.00		
$\frac{10}{60} \times 1,000 \times 15 =$		2500.00	
$\frac{10}{60} \times 10,000 \times 15 =$			25000.00
Total cost	1025.50	9755.50	97055.50
Cost per Component	10.25	9.75	9.70

Knowledge Assessment- III

State with reasons whether following is True (T) or False (F):

1. Batch costing procedure is similar to job costing procedure.
2. Setting up cost increases with the increase in batch size.
3. Batch costing is suitable for pharmaceutical industry.
4. Computation method of Economic Batch Quantity is based on the principle of Economic Order Quantity.
5. Wage Abstract is not prepared in case of batch costing.
6. Each batch is treated as a job or cost unit.

[Ans: 1 (T), 2(F), 3(T), 4(T), 5(F), 6(T)]

Keywords

- **Job Costing:** Job costing is the form of specific order costing which applies where work is undertaken to customers' special requirements and each order is of comparatively of short



duration (compared with those to which contract costing applies). The work is usually carried out within a factory or workshop and moved through processes and operations as a continuously identifiable unit.

- **Batch Costing:** Batch Costing is the form of specific order costing which applies where similar articles are manufactured in batches either for sale or for use within the undertaking”.
- **Direct Materials:** Materials which can be directly associated with a particular job are known as direct material.
- **Direct Labour:** Labour time which is directly related with a particular product or job is known as direct labour.
- **Overheads:** All indirect expenses incurred on a job are called as overheads.

Summary

- Job refers to a customized work order received from customers as per their need and requirement. A job is a cost unit which consists of a single order. For example; tailor made garments are made according to the choice and size of the individual customer.
- A separate job cost sheet is prepared for each job including all expenses incurred in the completion of a job for ascertainment of cost of job.
- For preparing job cost sheet, a unique job number is allotted to each job so that separate jobs are identifiable at all stages of production.
- A batch refers to the bunch of identical items of products or components.
- Costing method used for a batch is called as batch costing which is very similar to job costing. Whenever, a particular product is required, one unit of such product is not manufactured but a lot of say 500 or 1000 units of such product are produced. It is therefore also known as “Lot Costing”.
- Inventory control principle of calculating the Economic Order Quantity (EOQ) will be used to compute Economic Batch Quantity (EBQ).

Exercise Questions

Short Answer Questions

1. What is job costing?
2. Explain the objectives of job costing.
3. Mention any two industries where job costing can be applied.
4. What is the use of ‘Wage Abstract’?
5. Explain the concept of batch costing.
6. What is Economic Batch Quantity?
7. Differentiate job costing and batch costing.
8. Mention the advantages of using job costing.
9. Highlight the disadvantages of using job costing method.

Long Answer Questions

1. Job order costing method is a specific costing method – Explain.
2. What do you mean by job order costing system? Identify the suitable industries in which it can be implemented.
3. What is job costing? Enumerate the objectives, features, advantages and disadvantages of job order costing system.
4. Explain the complete procedure of job costing with the help of a relevant example.
5. Explain the utility of preparing material and labour abstract in determining the cost of a job.
6. Explain Batch costing. How is it different from job costing? Also, identify the manufacturing activities where it can be applied.

Numerical Questions

1. Kaya manufacturers provided following information regarding Job No. 450. Calculate the total cost of Job No. 450

Particulars	Amount (Rs.)
Direct Materials	5,000
Direct Wages	2000
Chargeable Expenses	1000

Factory overheads are 55% on prime cost, and office overhead is 20% on works cost.

[Ans: Total cost is Rs. 14,880]

2. The following information has been collected from the costing records of Alpha Manufacturing Company regarding job no. 768

Materials costing Rs. 8,020

Wages:
Deptt. A 120 hours @ Rs. 3 per hour
Deptt. B 80 hours @ Rs. 2 per hour
Deptt. C 20 hours @ Rs. 5 per hour
Overheads:
Variable overheads:
Deptt. A Rs. 7,000 for 7000 labour hours
Deptt. B Rs. 5,000 for 2,500 labour hours
Deptt. C Rs. 4,000 for 1,000 labour hours



Fixed Overheads:

Estimated at Rs. 2,000 for 10,000 normal working hours.

You are required to calculate the cost of Job No. 768 and calculate the price to give profit of 25% on selling price.

[Ans: Total Cost is Rs. 9,044, Profit Rs. 3,015, Selling Price Rs. 12,059]

3. Gamma engineering works estimated materials costs of Job No. 250 is Rs. 10,000 and direct labour cost is likely to be Rs. 2,000.

On this job, two machines are engaged. Machine No. 1 will be operated for 25 hours and Machine No. 2 for 9 hours. Machine hour rates for Machine No. 1 and Machine No. 2 are Rs. 16 and Rs. 20 respectively. The direct wages in all other shops last year amounted to Rs. 1,60,000 as against Rs. 96,000 factory overheads. Last year, factory cost of all jobs amounted to Rs. 5,00,000 as against 75,000 office expenses. Prepare a quotation which guarantees 20% profit on selling price.

[Ans: Total Cost is Rs. 15,847 Profit Rs. 3,962, Selling Price Rs. 19,810]

4. The Jain & company provided information regarding following costs for the 2014:

Details	Amount (Rs.)
Material Consumed	3,50,000
Direct Labour	3,00,000
Actual Overheads	3,50,000
Work-in-Progress (closing)	1,90,000

Calculate (a) Overheads for year would be apportioned on the basis of direct labour and (b) the other components of work-in-process if materials are 30% of total cost.

[Ans: (a) Overhead rate 1.17 (b) Components of WIP: Materials 57,000, Labour 61,290, Overheads 71,710]

5. Ajanta printing press wants to compute the cost of Job No.409 on the basis of following information obtained from its books for the year ended on 31 December 2014:

Details	Amount (Rs.)
Materials consumed	1,90,000
Direct labour	1,75,000
Sales and Distribution Overheads	1,52,500
Administrative Overheads	1,42,000
Work Overheads	1,45,000
Profit	1,00,900

I. A job cost sheet containing the Prime Cost, Works Cost, Production Cost, Cost of Sales and the Sales Price using above information.

- II. Next year in 2015, the Ajanta printing press received various job orders. On the basis of last year records it is estimated that direct materials required will be Rs. 2,20,000 and direct labour will cost Rs. 1,75,000. Calculate sales value of these jobs if press aims to earn the same rate of profit on sales. It has also been assumed that the selling and distribution overheads have increased by 15%? Works overheads will be recovered as a percentage of direct labour and administration and selling and distribution overheads as a percentage of works cost, based on cost rates prevailing in the previous year.

[Ans: (i) Sales price Rs. 8,17,400 (ii) Sales price Rs. 11,34,153]

6. A customer has asked for price quotations from PCS Manufacturing Company regarding manufacturing of two customized machines. The following data regarding cost estimates for each machine has been provided.

Material	Machine 1 (Rs.)		Machine 2 (Rs.)	
Materials required	45,000		65,000	
Parts to be purchased	12,500		17,500	
	Number of Hours		Hourly Rates (Rs.)	
Labour and overhead	Machine 1	Machine 2	Labour	Overhead
Department A	13	14	12.5	12.5
Department B	15	25	12.7	12.2
Department C	10	18	12.35	11.75
Department D	60	100	10.20	10.90
Department E	0	20	11.1	9.90

Selling and administrative expenses and profit is permitted upto 20%, based on sales. Estimated spoilage is 8% of direct labour and materials cost. Calculate the estimated Bid Price for each machine.

[Ans: Quoted price: Machine 1-Rs. 85,852.2 Machine 2-Rs. 1,24,257.12]

7. A computer Hardware Company manufactures a number of computer components. As per demand components are manufactured in batches, batch sizes vary from component to component. Each item of component requires a separate machine set up. Once the set up is done, the manufacturing time per unit of the component remains constant.

The company estimates component motherboard has a demand of 40,000 units per annum. Manufacturing of motherboard will take direct labour of 20 hours in setting-up. Cost of direct labour is 50 Rs. per hour. Overhead cost is Rs. 30 per machine hour for set-up and Rs. 60 per machine hour while on production. Material required per component will cost Rs. 200. Time taken to manufacture a unit is 12 minutes, during which time direct labour personnel tends to the machine. Cost of carrying one component over a year is Rs. 8. Present company policy is to execute four production runs in a year. The company has been advised to use Economic Batch Quantity model to regulate the production runs for this component. Calculate the cost per component under the two methods namely (i) four production runs in a year and (ii) Economic Batch Quantity (EBQ) method.

[Ans: (i) Rs. 222.80 (ii) Rs. 223.16]

UNIT - 3

CONTRACT COSTING

Unit Code-3	UNIT TITLE: CONTRACT COSTING			
Location: Class Room	Session-1: Basics of Contract Costing			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Concept of Contract Costing.	1. Describe the importance of Contract Costing.	1. Identify various Jobs using Contract Costing.	Interactive Lecture: Discussing the concept and use of Contract Costing.
	2. Applicability of Contract Costing.	2. Discuss jobs where contract costing is applicable.	2. Specify stages of Contract Costing.	Interactive Lecture: Describe jobs and stages of Contract Costing.
	3.Features of Contract Costing.	3.Discuss application of contract costing on jobs.	3. Discuss the features and application of Contract Costing.	Activity: Visit any one job where contract costing is applied to understand its applicability.
Session-2: Specific Aspects of Contract Costing				
	1. Identify specific aspects of Contract Costing.	1. Define different items of direct cost.	1. Identify the treatment of various direct expenses.	Interactive Lecture: Acquaint with the expenses attributable to contract costing.
	2. Explain different aspects of Cost plus Contract.	2. Define different aspects of cost plus contracts.	2. Discuss the treatment of cost plus contract and work in progress in the books of accounts.	Interactive Lecture: Familiarize with different aspects of contract plus costing.
	3. Define Work certified and not certified.	3. Explain the difference between work certified and work not certified.	3. Identify the accounting treatment for work certified and not certified.	Activity: Visit the construction firm and learn about the various elements of costs.

Session-3: Treatment of Profits or Loss on Contracts Account

1. Computation of profit on incomplete contracts.	1. Explain the treatment of profit on contracts that are at different stages of completion.	1. Describe the stages of completion of contract in order to determine the profit to be taken to the reserve account.	Interactive Lecture: Discuss the accounting treatment of incomplete contracts. Activity: Prepare a contract account for a construction company.
2. Computation of profit on completed contracts.	2. Discuss accounting treatment for completed contracts.	2. Enumerate various kinds of costs that are to be deducted to arrive at profit/loss.	

Learning Objectives

After reading this unit, the student will be able to :

- understand the meaning of contract costing;
- get familiar with specific aspects of contract costing ;
- compute cost and profit from the contract;
- learn the treatment of profit on incomplete contracts; and
- explain the meaning of certain key terms.

Session-1: Introduction To Contract Costing

Contract is a special form of job costing also known as terminal costing. The only difference between job costing is the size of the job. When the size of the job is big, which require considerable time to complete and comprising of activities to be done outside the factory area, the system of contract costing is employed. In this method of costing each contract is a cost unit and an account is opened for each contract in the books of contractor in order to ascertain profits. The system is very common with constructional engineers, ship builders etc. who undertake definite contracts. The contract price is the price agreed to be paid by the contractee to contractor. For each contract a separate account is opened in the general ledger or the contract ledger, which are maintained if there are large number of contracts. The contract account is debited with all the direct and indirect expenditure in relation to the contract account and credited with the amount of contract price on the completion of the contract. The balance represents profit or loss made on the contract and is transferred to the Profit and Loss account.

Jobs Where Contract Costing is Used:

- Building construction
- Road construction
- Bridge construction



- Ship building and
- Other civil engineering works.

Features of Contract Costing

The following are the features of contract costing :

1. The size of the job is generally large.
2. A contract usually takes more than one year to complete.
3. The work on the contract is carried out at the site of the contract.
4. Each contract is considered to represent a cost unit.
5. A separate contract account is prepared in the books of the contractor for each contract.
6. Material is specifically purchased for the contract.
7. Labour and other expenses are direct in nature.
8. Plant and equipment may be purchased or hired for the contract.
9. Payments to the contractor by the contractee are made at various stages of completion.

Knowledge Assessment - I

Fill in the blanks with appropriate words

1. Contract is a special form of job costing also known as_____.
2. The _____ is the price agreed to be paid by the contractee to contractor.
3. For each contract a separate account is opened in the _____ or the contract ledger, which are maintained if there are large number of contracts.
4. Profit or loss made on the contract and is transferred to the _____.
5. Payments to the contractor by the _____ are made at various stages of completion.

[Ans: 1- Terminal costing, 2- Contract price, 3- General ledger, 4- Profit and Loss account, 5-Contractee]

Session-2: Specific Aspects of Contract Costing

Materials

When materials is specially purchased for the contract, the contract account will be debited and suppliers or cash account will be credited with the value of materials purchased. In case the materials have been issued from stores, the relevant contract account will be debited and stores account in the General Ledger will be credited with the amount of materials issued. In case certain materials charged to contract are returned to stores, stores control account will be debited and contract account will be credited. The sale proceeds of surplus material at the contract site should be credited to the concerned contract account.

Labour

All labour engaged at site and the salaries and wages paid to the labour are treated as direct cost and debited to contract account. The salary of supervisory staff will also be considered as a direct charge against a contract if they have rendered whole time attention to it. Wages of the workers which cannot be identified with a particular contract or salary of the supervisory staff looking over two or more contracts will be considered as indirect expenses and apportioned over the contracts on reasonable basis.

Direct Expenses

All direct expenses (electricity, insurance, telephone, postage, sub-contracts, architect's fees, etc.) are treated as direct cost and debited to contract account.

Overhead Cost

In the case of contract costing, overhead constitute an insignificant part of the total cost of contract account. Such cost may be apportioned on suitable basis and debited to the contract account.

Plant & Machinery

The plant used on a contract can be dealt within the contract accounts in any of the following ways:

- (a) Where a plant is specifically purchased for a particular contract the contract account should be debited with the cost of the plant. On completion of the contract, the depreciated value will be credited to the contract account or the contract account can also be debited with the amount of depreciation calculated. On the completion of the contract if the plant is sold then sale proceeds are credited to the contract account.
- (b) If a plant is used for a contract for a short period, then the contract account should be debited with the usual depreciation of the plant (there is no need of debiting the cost of the plant to the contract account).

Cost plus Contracts

In certain contracts the contractee agrees to pay to the contractor the cost price of the work done on the contract plus an agreed percentage thereof by way of overhead expenses and profit. Such contracts are known as cost-plus contracts. The system of cost plus contract costing is employed in case where it is very difficult for the contractor to quote the contract price because there is no precedent which may be taken as the basis.

Sub-Contractor

The contractor may entrust certain portion of work under the contract to a sub-contractor such work is usually specialised in nature and a direct charge (eg. special flooring, steel works etc.) assigned by the contractor to the sub-contractor who is responsible to the main contractor for the work assigned to him. This is debited to the contract account.

Work-in-Progress

In the case of the small contracts the contractee pays the contract price on the completion of the



contract. In case of large contracts *Progress Payment* is adopted. The contractee agrees to pay part of the contract price from time to time depending upon the satisfactory progress of the work. The work shall be judged by contractee's architect, surveyor or engineer who will issue certificate stating the value of work done so far and approved by him such work is known as work certified. The contractee usually pays 75% or 80% of the value of work certified depending upon the terms of the contract. The balance not paid is known as *Retention Money*.

The value of the **work certified** and consequent payment is dealt in any of the two ways:

- (a) The value of work certified is debited to the contractee's personal account and credited to the contract account on the receipt of money the contractee, his personal account is credited and cash or bank account is debited. For example the value of work certified is Rs.50,000 and contractee has paid 80% in cash the following journal entry shall be passed.

Contractee's A/c	Dr.	Rs. 50,000
To Contract A/c		Rs. 50,000
(Being the value of work certified)		
Bank A/c	Dr.	Rs. 40,000
To Contractee's A/c		Rs. 40,000
(Being the amount of cash received)		

In the balance sheet the contractee's account is shown on the asset side. It to be carefully observed that the value of work certified should not include Rs. 50,000 as the entry for the same has already been passed.

- (b) The cash received from the contractee is credited to his personal account. The value of work is debited work in progress account and credited to the contract account. The work in progress is shown as an asset in the balance sheet after deducting the amount received from the contractee. In the beginning of the next year the work in progress is transferred to debit side of contract account. On completion of the contract the contractee's personal account is debited and contract account is credited.

Work in progress A/c	Dr.	Rs. 50,000
To Contract A/c		Rs. 50,000
(Being the value of work certified)		
Bank A/c	Dr.	Rs. 40,000
To Contractee's A/c		Rs. 40,000
(Being cash received from the contractee)		

In the Balance Sheet the items will appear as follows:

Balance Sheet as on

Assets		Amount(Rs.)
Work in Progress(Contract No.—)	50,000	
Less: Amount received from the contractee	<u>40,000</u>	10,000

Work Uncertified

If the progress of a work is unsatisfactory or the work has not reached the specified stage, though certain work is completed, such work does not qualify for a certificate by the Contractee's Architect or Surveyor is termed as "Work Uncertified." It is valued at cost and credited to Contract Account and debited to Work-in-Progress Account which will be transferred to the debit of the contract account at the beginning of the next year.

The value of work in progress can be ascertained as under:

Cost of work certified	x
Add: Cost of work uncertified	<u>x</u>
Cost of work to date	x
Add: Profit taken to P&L A/c	<u>x</u>

It is to be observed that profit made on contract in progress is the excess of the value of work certified over its cost. A part of such profit is kept as reserve while the other is taken to Profit and Loss A/c.

The Work in Progress Account will appear as follows in the balance sheet.

Balance Sheet as on _____

Assets	Amount(Rs.)
Work in-Progress	
Value of work certified	x
Add: cost of work uncertified	x
	xx
Less: Amount received from contractee	x
	x
Less: Reserves for unrealized profit	xx
	xxx

Knowledge Assessment - II

State whether the following statements are (T) or (F)

1. The contract account is credited with materials purchased for the contract.
2. If the progress of a work is unsatisfactory or the work has not reached the specified stage, though certain work is completed, such work does not qualify for a certificate by the Contractee's Architect or Surveyor.
3. In the balance sheet the contractee's account is shown on the liabilities side.
4. Profit made on contract in progress is the excess of the value of work certified over its cost.
5. The work shall be judged by contractee's architect, surveyor or engineer who will issue certificate stating the value of work done so far and approved by him such work is known as work certified.



6. The balance of money not paid by contractee is known as Retention Money.
7. In cost-plus contracts contractee agrees to pay to the contractor the cost price of the work done on the contract.
8. Overhead cost may be apportioned on suitable basis and credited to the contract account.

[Ans: 1-F, 2-T, 3-F, 4-T, 5-T, 6-T, 7-F, 8-F]

Session-3: Treatment of Profits or Loss on Contracts Account

The accounting treatment of profits or loss of contracts in the following stages :

(A) Profit or Loss on incomplete contracts

At the end of the accounting period there would be certain completed contracts and while others are still in process and will be completed in the coming years. The total profit made on completed contracts may be taken safely to the Credit of Profit and Loss Account. But in case of the contracts in process there is possibility of profits being turned into losses due to rise in the prices of material and labour and losses on account of unforeseen contingencies. Hence, it is important to consider profit on in completed contracts after providing for the unknown contingencies.

In the case of incomplete contracts, the following rules may be followed :

- (i) Profit should be considered in respect of work certified only, work uncertified should always be valued at cost.
- (ii) Completion of Contract is Less than 25% : In this case no profit should be taken to Profit and Loss Account.
- (iii) Completion of Contract is upto 25% or more but Less than 50% : In this case one-third of the notional profit, reduced in the ratio of cash received to work certified, should be transferred to Profit and Loss Account. The balance should be allowed to remain as reserve. It can be expressed as :

$$\frac{1}{3} \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$$

- (iv) Completion of Contract is upto 50% or more : In this case two-third of the notional profit reduced by proportion of cash received to work certified is transferred to Profit and Loss Account. The equation is:

$$\frac{2}{3} \times \text{Notional Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}}$$

- (v) Completion of Contract is upto 90% or more than 90%, i.e., it is nearing completion: In this case the profit to be taken to Profit and Loss Account is determined by deducting total estimated cost from the contract price.

$$\text{Estimated Profit} \times \frac{\text{Work Certified}}{\text{Contract Price}}$$

- (vi) The whole of loss if any, should be transferred to Profit and Loss Account.
- (vii) As per Accounting Standard (*Revised*): While accounting for construction contracts a foreseeable loss on the entire contract should be provided for in the financial statements. Hence, the profit earned is notional profit on the basis of work certified, and is reduced on the basis of cash received as the principle of conservatism is followed. The accounting entry for the transfer of profit to the profit and loss account and Work-in-Progress account for unrealised profit will be as under:

Contract A/c (with total profit)	Dr.
To Profit and Loss A/c (with profit transferred)	
To Work-in-Progress A/c (with profit kept as reserve)	

(B) Profit or loss on completed contracts

When the contract is complete, the contractee's account is debited and contract account is credited with the contract price. As there is no work in progress the entire profit or loss is transferred to profit and loss account. The balance of retention money in respect of work certified earlier is also received. Thus the contractee's account and contract account all stand closed.

Knowledge Assessment - III

Fill the blanks with the appropriate answers

1. The total profit made on completed contracts may be taken safely to the _____ of Profit and Loss Account.
2. When the contract is complete, the _____ account is debited and contract account is credited with the contract price.
3. In the case the contract is nearing completion the profit to be taken to _____ is determined by deducting total estimated cost from the contract price.
4. Profit should be considered in respect of work certified only, _____ should always be valued at cost.
5. It is important to consider profit on in completed contracts after providing for the _____.
6. When the contract is complete, the contractee's account is _____ and contract account is credited with the contract price.

**[Ans: 1. Credit 2.contractee's 3.Profit and Loss Account 4. work uncertified
5. unknown contingencies 6. debited]**

Illustration 1: The following was the expenditure on a contract for Rs. 6,00,000

Particulars	Amount
Material	1,20,000
Wages	1,64,000
Plant	20,000
Overheads	8,600

Cash received on account of the contract was Rs. 2,40,000 being 80% of the work certified. The Value of material in hand was Rs. 10,000. The plant has undergone 20% depreciation.

Solution:

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)		
To Materials	1,20,000	By Material in hand	10,000		
To Wages	1,64,000	By Plant on hand	16,000		
To Plant	20,000	By Work-in-Progress			
To Overheads	8,600	Work Certified (2,40,000x100/80)	3,00,000		
To Notional profit	13,400				
	3,26,000		3,26,000		
To Profit and Loss A/c	7,147	By Notional Profit b/d	13,400		
To Work In Progress	6,253				
	13, 400		13, 400		

Illustration 2: XY Ltd undertook a contract, the following was the expenditure on a contract for Rs. 3,00,000.

Material issued to contract	Rs. 51,000
Plant issued for contract	Rs. 15,000
Wages	Rs. 81,000
Other expenses	Rs. 5,000

Cash received on account of contract up to 31st March, 2014 amounted to Rs. 1,28,000 being 80% of work certified. Of the plant and material charged to the contract plant costing Rs. 1,500 and material costing Rs. 2,000 were lost. On 1st March 2014, plant which cost Rs. 1,000 was returned to the store, the cost of work done but not certified was Rs. 1,500 and material costing Rs. 1,250 were in hand on site. Provide 10% depreciation on plant, reserve 1/3 of profit received and prepare contract account from the above particulars.

Solution:

Contract Account			
Dr.			Cr.
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Materials	51,000	By Work-in-Progress A/c	
To Plant	15,000	Work certified	
To Wages	81,000	(1,28,000×100/80)	1,60,000
To Other Expenses	5,000	Work uncertified	<u>1,500</u>
To Notional Profit c/d	23,400	By Profit & Loss A/c	1,58,500
(Balancing Figure)		Plant lost	1,500
		Material lost	<u>2,000</u>
		By Plant returned	1,000
		Less depreciation	<u>100</u>
		By Material in hand	1,250
		By Plant at site	
		(15,000-1,500-1,000)	12,500
		Less depreciation	<u>1,250</u>
			11,250
	1,75,400		1,75,400
To Profit & Loss A/c	12,480	By Notional Profit b/d	23,400
(23,400×2/3×80/100)			
To Work In Progress	10,920		
(Reserve) A/c			
	23,400		23,400

Illustration 3: Mr. A has undertaken several contract works. He maintains a separate record for each contract. From the records for the year ending 31-12-14, prepare contract account for Contract No.50 and find the amount transferred to profit and loss account.

	Rs.
Direct purchase of material	90,000
Material issued from stores	25,000
Wages	1,22,000
Direct expenses	12,000
Machinery purchased	80,000
Establishment charges	27,000

The contract price was Rs. 7,50,000. Cash received up to 31-12-2008 was Rs. 3,00,000 which is 80% of work certified. Material at site Rs. 8,000. Depreciation for Machine Rs. 8,000.



Solution:

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Materials		By Material at site	8,000		
Direct purchase 90,000		By Machinery on hand	72,000		
Issued from stores <u>25,000</u>	1,15,000	(80,000-8,000)			
To Wages	1,22,000	By Work-in-Progress A/c			
To Direct expenses	12,000	Work Certified	3,75,000		
To Machinery purchased	80,000				
To Establishment charges	27,000				
To Notional Profit c/d	99,000				
	<u>4,55,000</u>				<u>4,55,000</u>
To Profit & Loss A/c (99,000×2/3×80/100)	52,800	By Notional Profit b/d			
To Work-in-Progress A/c	46,200				99,000
	<u>99,000</u>				<u>99,000</u>

Illustration 4: The following is the condensed record of the transactions as on 31st December 2014 relating to special contract completed during the year.

Materials bought from market	Rs. 1,500
Materials issued from the stores	Rs. 500
Wages	Rs. 2,440
Direct expenses	Rs. 294
Works on cost 25% of direct wages	
Office on cost 10% of prime cost	
Contract price	Rs. 6,000

You are required to prepare a contract account keeping in view that the material returned amounted to Rs. 240.

Solution:

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)		
To Materials		By Material Returned	240		
Purchased 1,500		By Contractee's Account	6,000		
Issued from store <u>500</u>	2,000				
To Wages	2,440				
To Direct Expenses	294				
To Work on Cost (2,440×25/100)	610				
To Office on cost (10% of Rs. 4,494)	450				
To Profit and Loss A/c	446				
	6,240				6,240

Note:

1. Prime cost=(1,500+500+2,440+294)-240=Rs.4,494
2. Since the contract has been completed in the first year itself hence, no reserve is required. The entire excess of credit over debit in contract account called Notional Profit has been credited to the Profit & Loss A/c

Illustration 5: A construction company has undertaken to construct a bridge. The following detail relate to this contract for the year ending 31st December 2014.

Particulars	Rs.	Particulars	Rs.
Materials		General plant in use:	
Direct purchases Rs. 50,000		Written down value 1,00,000	
Issued from store Rs. <u>10,000</u>	60,000	Depreciation there on <u>(10,000)</u>	90,000
Wages for labour	45,000	Direct expenses	3,500
Share of overhead	2,000	Materials on hand	1,000
Material lost by fire	500	Salvage value of material lost	150
Wages accrued due	5,000	Value of work certified	1,59,000
Direct expenses accrued due	500	Cost of work uncertified	4,500



The value of the contract is Rs.2,15,000 and it is the practice of the contractee to retain 10% of the work certified. From the above prepare a contract account .

Solution:

Contract Account			
Dr.	for the year ending 31st December 2014		Cr.
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Materials		By Work-in-Progress	
Direct purchases 50,000		Value of work certified 1,59,000	
Issued from store <u>10,000</u>	60,000	Cost of work uncertified <u>4,500</u>	1,63,500
To Wages for labour 45,000			
To Wages accrued due <u>5,000</u>	50,000	By Materials on hand	1,000
To Direct expenses 3,500		By Plant on hand at the end	90,000
To Direct expenses accrued <u>500</u>	4,000	(1,00,00-10,000)	
To Share of overhead	2,000	By Costing Profit & Loss A/c	500
To General plant in use	1,00,000	(Material lost by fire)	
To Notional Profit c/d	39,000		
	<u>2,55,000</u>		<u>2,55,000</u>
To Profit credited to P&L A/c (39,000×2/3×90/100)	23,400	Notional Profit c/d	39,000
To Work in Progress (Reserve)	15,600		
	<u>39,000</u>		<u>39,000</u>

Illustration 6:

- (a) Given: Notional Profit Rs.79,000; Cash Received Rs.3,30,000; Work Certified Rs.4,00,000; Contract Price Rs.6,00,000. Calculate profit that can be credited to the P&L A/c.
- (b) How much profit if any you would allow to be considered in the following case? Contract Cost Rs. 5,60,000; Contract Value Rs. 10,00,000; Cash Received Rs. 5,40,000; Uncertified Work Rs. 60,000. Deduction from bills by way of security deposit 10%.
- (c) The following is the information relating to contract account 123:
Contract price Rs. 6,00,000; Wages Rs. 1,64,000; General Expenses Rs. 8,600; Raw Material Rs. 1,20,000; Plant Rs. 20,000.

As on date, cash received was Rs. 2,40,000 being 80% of the work certified. The value of materials remaining at site was Rs. 10,000. Depreciate plant by 10%. Prepare Contract A/c.

Solution:

(a) Profit to be credited to P&L A/c

$$= \text{National Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}} \times \frac{2}{3}$$

$$= 79,000 \times \frac{3,30,000}{4,00,000} \times \frac{2}{3}$$

$$= \text{Rs. 43,450}$$

(b) Retention money in the form of security deposit is 10% n, i.e. cash received is 90% of work certified.

$$\text{Value of work certified} = \frac{5,40,000 \times 100}{90} = 6,00,000$$

Less: Cost of Work Certified :

Cost of contract till date 5,60,000

Cost of work uncertified 60,000 5,00,000

Notional Profit 1,00,000

$$\text{Profit to be credited to P\&L A/c} = \text{National Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}} \times \frac{2}{3}$$

$$1,00,000 \times \frac{5,40,000}{6,00,000} \times \frac{2}{3}$$

$$= \text{Rs. 60,000}$$

(c)

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Material	1,20,000	Work certified	3,00,000		
To Wages	1,64,000	(2,40,000 × 100/80)			
To General expenses	8,600	Material at site at the end	10,000		
To Plant	20,000	Plant on site at the end	18,000		
To Notional Profit c/d	15,400	(20,000 - 2,000)			
	<u>3,28,000</u>				<u>3,28,000</u>
To Profit & Loss	8,213	Notional Profit c/d	15,400		
A/c (15,400 × 2/3 × 80/100)					
To Work-in-Progress A/c	7,187				
	<u>15,400</u>				<u>15,400</u>



Illustration 7: Engineers limited undertook several contracts during the year 2015. The following information pertains to contract no 107:

Particulars	Amount(Rs.)	Amount(Rs.)
Direct materials		20,250
Direct wages		15,500
Stores issued		10,500
Loose tools		2,400
Tractor expenses :Running material	2,300	
Wages of driver	<u>3,000</u>	5,300
Other direct charges		2,650

The contract took 13 weeks on its completion. The value of loose tools and stores returned at the end of the period were Rs. 200 and Rs. 3, 000 respectively. The plant was also returned at a value of Rs. 16,000 after charging a depreciation of 20%. The value of tractor was Rs. 20,000. The office and administration expenses are to be provided at 10% on works cost. Profit to be charged at the rate of 20% of the total cost.

Solution :

Contract Account			
Dr.			Cr.
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Direct materials	20,250	By loose tools returned	200
To Direct wages	15,500	By stores returned	3,000
To Stores issued	10,500	By Contractee's A/c	76,758
To Loose tools	2,400		
To Tractor (2,300+3,000)	5,300		
To Depreciation on tractor	750		
To Depreciation on Plant (20,000-16,000)	4,000		
To Other direct charges	2,650		
To Administrative and office expenses(10% of works cost)	5,815		
To Profit and Loss A/c (20% of total cost)	12,793		
	79,958		79,958

Working Note :

Works cost	=	(Rs. 20,250+15,500+10,500+2,400+5,300+750 +4,000+2,650-3,000- 200)
Works cost	=	Rs. 58,150
Total cost	=	Rs. 58,150+5,815
Total cost	=	Rs. 63,965
Depreciation on tractor	=	15% of Rs. 20,000
Depreciation on tractor	=	Rs. 3,000
($\frac{1}{4}$ of Rs.3,000)	=	Rs. 750

Illustration 8: A company undertook a contract for total value of Rs. 24,00,000. Prepare a contract account for the year ending 31st March 2014 from the following particulars:

Particulars	Amount (Rs.)
Wages	6,00,000
Plant	2,00,000
Materials	3,00,000
Overhead	1,20,000
Depreciation @10% to be provided on plant	
Materials lying on site on 31 st March 2014	40,000

Work certified was to the extent of Rs. 16,00,000 and 80% of the same was received in cash.

5% of the value of materials issued and 6% of the wages may be taken to have been incurred for the portion of the work completed but not yet certified. Overheads are charged as a percentage of direct wages. Ignore depreciation on the plant for use of uncertified portion of the work. As certain notional profit and amount to be transferred to Profit and Loss A/c. Show workings clearly.

Solution

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Materials	3,00,000	By Work-in-Progress			
To Wages	6,00,000	Work certified	16,00,000		
To Overhead(20% of wages)	1,20,000	Work uncertified	<u>58,200</u>		16,58,200
To Plant	2,00,000	By Plant at site			1,80,000
To Notional Profit	6,58,200	By Material at site			40,000
	18,78,200				18,78,200



To Profit and Loss A/c (6,58,200×2/3×4/5)	3,51,040	By Notional Profit b/d	6,58,200
To Work-in-Progress (Reserve)	3,07,160		
	<u>6,58,200</u>		<u>6,58,200</u>

Calculation of Work Uncertified :	Rs.
Materials 5% of Rs.3,00,000	15,000
Wages 6% of 6,00,000	36,000
Overheads (20% of wages)	<u>7,200</u>
	<u>58,200</u>

Illustration 9 : A company undertook a contract for a total value of Rs. 24,00,000. Prepare a contract account for the year ending 31st March 2014 from the following particulars:

Particular s	Amount (Rs.)
Wages	6,00,000
Plant	2,00,000
Materials	3,00,000
Overheads	1,20,000
Depreciation to be provided @10% on plant .	
Materials lying at the site on 31 st March 2014	40,000

- Work certified was to the extent of Rs. 16,00,000 and 80% of the same was received in cash.
- 5% of the value of materials issued and 6% of the wages may be taken to have been incurred for the portion of the work completed but not certified.
- Overheads are charged as percentage of direct wages.
- Ignore depreciation on plant for use on uncertified portion of the work.
- Ascertain notional profit and the amount to be transferred to Profit and Loss A/c
- Show workings clearly.

Solution:

Dr.		Contract Account		Cr.	
Particulars	Amount (Rs.)	Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Materials	3,00,000	By Work-in-Progress			
To Wages	6,00,000	Work certified	16,00,000		
To Overheads	1,20,000	Work uncertified	<u>58,200</u>		16,58,200
To Plant	2,00,000	By Plant at site			1,80,000
To Notional Profit c/d	6,58,200	By Material at site			40,000
	18,78,200				18,78,200
To Profit and Loss A/c (Rs.6,58,200×2/3×4/5)	3,51,040	By Notional Profit b/d			6,58,200
To Work-in-Progress (Reserve)	3,07,160				
	6,58,200				6,58,200

Calculation of work uncertified

Materials 5% of Rs. 3,00,000	15,000
Wages 6% of Rs. 6,00,000	36,000
Overheads 20% of wages	<u>7,200</u>
	58,200

Keywords

- **Contract Costing:** That form of specific order costing which applies where work is undertaken as per customer's special requirement.
- **Cost plus Contract:** A contract where the contractee agrees to pay to the contractor the cost price for the work done on the contract plus an agreed percentage thereof by way of overhead cost and profit.
- **Escalation Clause:** A provision in a contract for adjustment of prices quoted and accepted, in the event of specified contingencies.
- **Work Certified:** Work approved by the contractee or his nominee on a specific date.
- **Work Uncertified:** Work which has not been so far approved by the contractee or his nominee.



Summary

- Contract is a special form of job costing also known as terminal costing. In this method of costing each contract is a cost unit and an account is opened for each contract in the books of contractor in order to ascertain profits.
- Materials is specifically purchased for the contract and is direct cost. All labour engaged at site and the salaries and wages paid to the labour are treated as direct cost. All direct expenses (electricity, insurance, telephone, postage, sub-contracts, architect's fees, etc.) are treated as direct cost and debited to contract account.
- The contracts where the contractee agrees to pay to the contractor the cost price of the work done on the contract plus an agreed percentage are known as cost-plus contracts. The contractor may entrust certain portion of work under the contract to a sub-contractor which is usually specialised in nature. The work judged by contractee's architect, surveyor or engineer who issue certificate stating the value of work done and approve it by him is known as work certified.
- If the progress of a work is unsatisfactory or the work has not reached the specified stage, though certain work is completed, and does not qualify for a certificate by the Contractee's Architect or Surveyor is Work Uncertified.

Exercise Questions

Short Answer Question

1. What is contract costing
2. Explain the term work certified
3. Write short notes on:
 - (a) Cost plus contract
 - (b) Work certified
 - (c) Work uncertified

Long Answer Questions

1. Explain briefly the distinguishing features of contract costing.
2. Distinguish between Job Costing and Contract Costing.
3. Describe briefly the principles to be followed while taking credit for profit on incomplete contracts.
4. Write a short note on the escalation clause.
5. Write short notes on
 - (i) Work certified
 - (ii) Work not certified
 - (iii) Cost plus contracts
 - (iv) Escalation Clause
6. What is the relevance of escalation clause provided in the contracts.

7. Explain briefly the concept of Cost plus contracts.

Numerical Questions

1. Surya constructions limited started business with paid up capital of Rs.50,00,000. On 1st April 2013, it undertook a contract to construct a building for Rs.60,00,000. Cash received on account of contract upto 31st March 2014 was Rs.18,00,000, being 90% of the work certified. Work uncertified as on 31st March 2014 was estimated to be Rs.1,00,000. As on 31st March 2014, the cost of materials at site was Rs.30,000 and outstanding wages Rs.5,000. Of the Plant and Machinery charged to the contract, Machinery costing Rs.2,00,000 was returned to stores on 31st March 2014. Plant and Machinery charged to the contract to be depreciated by 5%. The following were the ledger balances

(Debit Balances as per Trial balance as on 31st March 2014)

Particulars	Amount (Rs.)
Land and Building	23,00,000
Plant and Machinery (60% at site)	25,00,000
Furniture	60,00,000
Materials	14,00,000
Fuel and Power	1,25,000
Site Expense	5,000
Office Expenses	12,000
Rates and Taxes	15,000
Cash at Bank	133,000
Wages	2,50,000

Prepare contract account and Balance Sheet for the year ended 31st March.

(Ans:- Work certified Rs. 20,00,000, P&L Ac Rs. 72,900, Reserve Rs. 1,70,100)

2. The contract account in the books of contractor limited appears as follows.

Particulars	Amount (Rs.)
Material	5,000
Plant and Machinery	12,500
Labour	4,600
Indirect Labour	640
Overhead	1,950



You are informed that it is the practice of the firm to take credit for 2/3 of the profits earned on the contract in progress after taking into account the value of work certified.

You are required to

- a) prepare the contract account
- b) Amount transferred to P&L

Value of work certified for payment is Rs. 10,000. Cost of work carried out but not certified is Rs. 3,800, The stock of material not used is Rs.950. The value of plant at site after depreciation is Rs. 11,875.

(Ans: Profit to P&L A/c Rs. 1,290)

3. The following is the information related to contract account 101.

Contract Price Rs. 6,00,000, Wages Rs. 1,64,000, General expenses Rs. 8,600, Raw Materials 1,20,000, Plant Rs. 20,000. As on date cash received was Rs.2,40,000, being 80% of the work certified. The value of material remaining at site was Rs.10,000. Depreciate plant by 10%. Prepare the contract account.

(Ans : Work certified Rs. 3,00,000, P&L Ac 8,213, Reserve A/c 7,187)

4. ABC Limited has undertaken the construction of a bridge over river Yamuna for MCD. The value of contract is Rs. 12,50,000 subject to a retention of 20% until one year after the certified completion of the contract and final approval of corporations engineer. The following are the details shown in the books on 30th June 2014

Particulars	Amount (Rs.)
Labour on site	4,05,000
Material – Direct on site less returns	4,20,000
Material from stores	1,81,200
Higher end use of plant	12,100
Direct expenses	23,000
General overheads allocated to contract	37,100
Material in hand on 30 th June 2014	6,300
Wages accrued on 30 th June 2014	7,800
Direct expenses accrued on 30 th June 2014	1,600
Work not yet certified at cost	16,500
Amount certified by corporation engineer	11,00,000
Cash received on account	8,80,000

- 1) Prepare contract account.
- 2) Prepare Contractee account and
- 3) How relevant items would appear in the Balance sheet

(Ans :- P&L Ac Rs.72,000, Reserve Rs.63,000)

5. The following expenditure was incurred for the contract on construction of building of Rs.12,00,000 for the year ended 31st December 2014.

Particulars	Amount (Rs.)
Material	2,40,000
Wages	3,28,000
Plant	40,000
Overheads	17,200

Cash received on account of contract to 31st December 2014, Rs. 4,80,000 being 80% of the work certified. Value of material in hand was Rs.20,000. The plant had undergone 30% depreciation, prepare contract account.

(Ans :- P&L Rs. 14,293, Reserve 12,507)

6. Two contracts commenced on 1st January 2014 and 1st July 2014 respectively were undertaken by contractor and their accounts on 31st December 2014 showed the following position

Particulars	Contract 1 (Rs)	Contract 2 (Rs)
Contract price	4,00,000	2,70,000
Material	72,000	58,000
Wages	1,10,000	1,12,000
General charges	4,000	2,800
Plant	20,000	16,000
Material	4,000	4,000
Wages accrued	4,000	4,000
Work certified	2,00,000	1,60,000
Cash received	1,50,000	1,20,000
Work done but not certified (at cost)	6,000	8,000



The plant was installed on the date of commencement of each contract with 10% depreciation per annum. Prepare contract account.

(Ans: Contract 1 Total profit Rs. 18,000, profit taken to P&L Ac Rs. 9,000,
Contract 2 Total loss Rs. 6,000)

7. The following particulars related to the contract account of Ajit Engineers,

Particulars	Amount (Rs.)
Material	85,349
Wages	74,375
Plant	15,000
Direct expenses	3,167
Establishment charges	4,126
Material returned to stores	549
Work certified	1,95,000
Work uncertified	4,500
Material in hand at end of year	1,883
Wages accrued	2,400
Direct expenses accrued	240
Value of plant at end of the year	11,000
Contract price	2,50,000
Cash received	1,80,000

You are required to prepare the contract account and contractee account.

(Ans : P&L Rs. 17,400, Reserve Rs. 10,875)

8. Mr. B undertook contract for 15,00,000 on a condition that 80% of the value of the work certified would be paid immediately and remaining 20% until the contract was completed. In 2013 the of expenses were

Particulars	Amount (Rs.)
Material	1,80,000
Wages	1,70,000
Carriage	6,000

Cartage	1,000
Sundry expenses	3,000

The work was certified for Rs.3,75,000 and 80% of it was paid as agreed. In year 2014, the expenditure were

Particulars	Amount (Rs.)
Material	2,20,000
Wages	2,30,000
Carriage	23,000
Cartage	2,000
Sundry expenses	4,000

$\frac{3}{4}$ th of the contract was certified and 80% of this was paid accordingly. The value of closing stock and work in progress uncertified was 20,000.

In 2015 the expenditure were

Particulars	Amount (Rs.)
Material	1,26,000
Wages	17,000
Cartage	6,000
Sundry expenses	3,000

By 30th June 2015, the entire contract was completed. Show how the contract and contractee account would appear in the books of contractor. Assuming that balance due to him was received on completion of contract.

(Ans : 2013 Profit P&L Rs. 4,000; 2014 Profit P&L Rs. 1,61,067; 2015 Profit P&L Rs. 1,90,933)

UNIT - 4

PROCESS COSTING

Unit Code-4	UNIT TITLE: PROCESS COSTING			
Location: Class Room	Session-1: Basics of Process Costing			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Concept of Process Costing.	1. Describe the importance of Process Costing.	1. Identify various industries using Process Costing.	Interactive Lecture: Discuss the concept and use of Process Costing.
	2. Applicability of Process Costing.	2. Understand the type of industries where process costing is applied.	2. Specify various sorts of industries using process costing technique.	Interactive Lecture: Discuss the processing in industries where Process Costing is applied.
	3. Difference between Job Costing and Process Costing.	3. Enumerating the basic difference between Job and Process Costing.	3. Identify the basis of difference between Job and Process Costing.	Activity: Visit any one Industrial unit using process costing to understand its applicability.
Session-2: Process Costing Procedure				
	1. Stages of process costing.	1. Describe the sequence of the flow of raw material.	1. Identify the various stages till completion of product.	Interactive Lecture: Acquaint with the stages of process costing.
	2. Treatment for loss and wastages.	2. Explain the meaning of normal loss and abnormal loss.	2. Describe the treatment of normal and abnormal loss in the books of accounts.	Interactive Lecture: Elucidate the meaning and treatment of losses.
	3. Treatment for Scrap value of the wastage or loss.	3. Explain the treatment for scrap value of normal loss.	3. Identify the accounting treatment for sale of scrap.	Interactive Lecture: Discuss the treatment for normal and abnormal wastages.
	4. Identify the Abnormal Effectives.	4. Explain the concept of Abnormal effectives.	4. Identify the accounting treatment for abnormal effectives.	Activity: Visit the paper manufacturing firm and learn about the various costs elements.

Session-3: Joint Products and By-products

1. Meaning of Joint products and by-products.	1. Explain the occurrence of Joint products and by-products.	1. Identify the various types of Joint products and by-products in different industries.	Interactive Lecture: Introduction to the accounting treatment of Joint products and by-products. Activity: Prepare process accounts for the manufacturing of sugar.
2. Difference between joint products by-products and co-products.	2. Enumerate various kinds of costs	2. Accounting treatment for joint products, by products and co-products.	

Learning Objectives

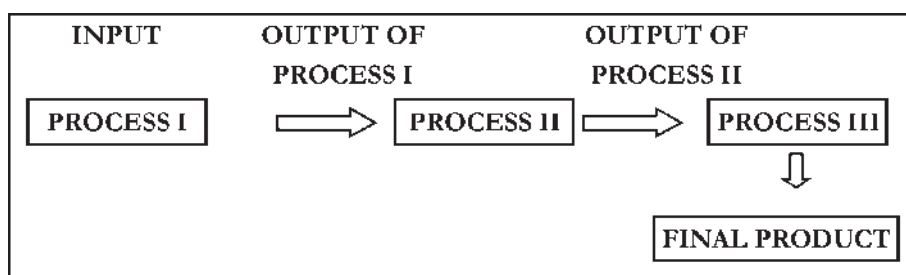
After reading the unit, the students will be able to:

- understand the general principles applicable to process costing;
- differentiate between job and process costing;
- deal with process losses and wastages;
- explain the concept of treatment of work in process accounts;
- understand the accounting treatment of joint products, by-products and co-products;
- appreciate the need for adjustment for inter process profits; and
- explain the meaning of certain key words.

Introduction

Process costing is employed in businesses which involve mass production where the product moves in the production line through a same process or set of processes each distinct and well defined. In industries such as paper, rubber products, medicines and chemical products the processes are standardised and identical. A separate account for each process is opened and all expenditure pertaining to the process is charged to that process account which enables to compute the cost at each stage of manufacturing. This unit will focus on the very basic method of costing for goods that involve mass production called as Process Costing.

Process Diagram





Session-1: Meaning of Process Costing

Process costing is employed in business where the product passes through different stages of production each distinct and well defined. For each process a separate process account is created and all the expenditure pertaining to a process is charged to that process account. In this form of costing the output of one process forms the input of the succeeding process. Process costing is applied in those industries where the products are homogeneous, standardized and the final product is the result of sequence of processes. It is employed in mass production industries where production is continuous and costs are accumulated process wise. The cost per unit is the average cost which is calculated by dividing the total process cost by number of units produced in that particular process.

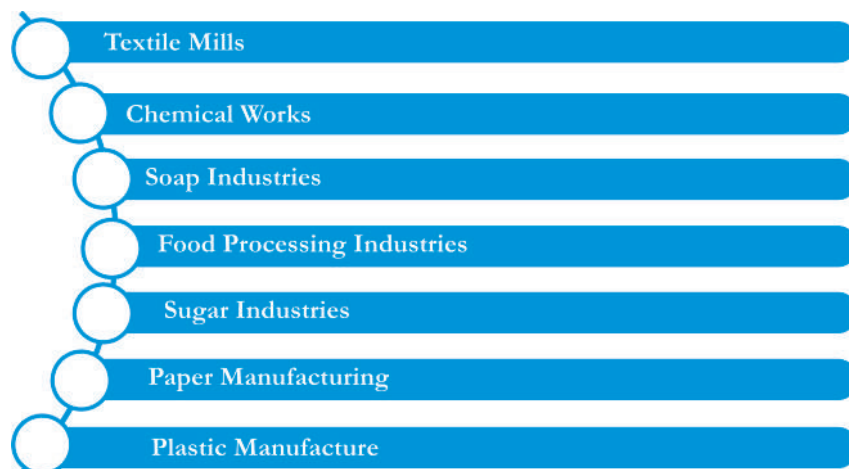
General Principles of Process Costing

In order to ascertain cost the following principles are followed in process costing:

- (a) All the production activities are classified by processes and each process or department includes number of operations which are not separately measurable.
- (b) All the direct and indirect costs that relate to a particular process are debited to that process account.
- (c) The cost per unit is computed by dividing the total process cost by number of units produced in that particular process.
- (d) The operations are in a sequence which is specific and predetermined.
- (e) In case certain products remain in process at the end of the period, their stage of completion is assessed and the inventory is calculated in terms of completed units.
- (f) If there is some loss in process which cannot be avoided, then the cost of such loss is borne by the units produced in that department. This leads to increase in cost per unit.
- (g) The processing of raw materials leads to the production of several products from the same raw material and such products may be joint products or by-products.

Industries Using Process Costing

Process costing is used in mass production industries producing standard products. The major industries using process costing are:



Knowledge Assessment - I

Fill the blanks with the appropriate answers

1. Process costing is employed in businesses which involve _____ where the product moves in the production line through a same process or set of processes each distinct and well defined.
2. The cost per unit is the _____ which is calculated by dividing the total process cost by number of units produced in that particular process.
3. Some loss of material in process is unavoidable and such a loss leads to _____ in the average cost per unit of that department.
4. All the direct and indirect pertaining to a particular process are _____ to that process account.
5. The processing of raw materials leads to the production of several such products may be _____ or _____.
6. Process costing is used in the business where the products are _____.
7. For each process a separate process account is created and all the _____ pertaining to a process is charged to that process account.
8. The sequence of operations is _____ and _____.

[Ans: 1 - mass production, 2 - average cost, 3 - increase, 4 - debited, 5 - joint products, by products, 6 - homogeneous, 7 - expenditure, 8 - specific, predetermined]

Difference between Job Costing and Process Costing

The basic difference between job costing and process costing is as follows:

S.No	Basis of difference	Process Costing	Job Costing
1	Cost Computation	Costs are calculated according to each process and the cost per unit is the average cost.	Costs are computed for each job separately which is the cost unit.
2	Cost Unit	The cost unit in case of process costing is a process.	The cost unit in case of job costing is a "job".
3	Specific Order	The goods are manufactured for mass consumption and hence no. specific order.	Production is against orders from customers.
4	Nature	Each process for the total output is same.	Each job may be different.
5	Supervision and Control	Less Supervision and Control is required as the work is standardized.	More Supervision and Control is required as each job is different.



6	Completion of job	Cost is computed at the completion of each process hence it is not important to complete the Job.	After the completion of the job all the costs are added in order to determine the total cost of the job.
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Session-2: Process Costing Procedure

The essential stages in Process Costing are as follows:

1. The factory is divided into number of processes and an account is maintained for each process.
2. Each process is debited with material cost, labour cost, direct expenses and overheads allocated or apportioned to the process.
3. The output of a process is transferred to the subsequent process in a manner that the output of one process becomes the input of other process.
4. The finished output of the last process is transferred to the finished goods account.

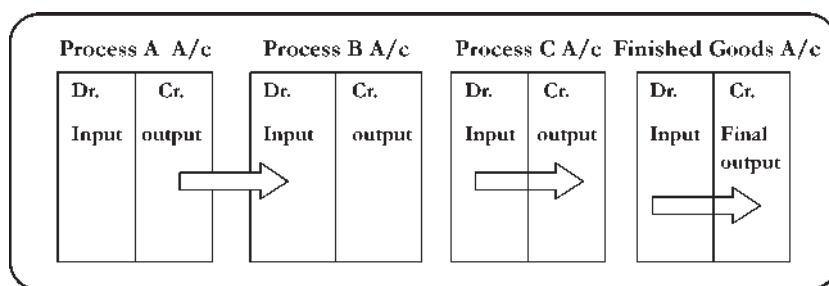


Illustration 1: A product passes through three processes to completion. These processes are Process A, Process B and Process C respectively. During the week ending 30th June 2015, 2000 units are produced. The following information is obtained:

	Process A (Rs.)	Process B (Rs.)	Process C (Rs.)
Material	12,000	6,000	4,000
Labour	10,000	8,000	10,000
Direct expenses	2,000	400	2,000

The indirect expenses for the period were Rs.5,600 apportioned to the process on the basis of labour cost. Prepare process account showing total cost and cost per unit.

Solution:

Dr. Process A Account (Output 2000 Units)			Cr.		
Particulars	Total (Rs.)	Per unit (Rs.)	Particulars	Total (Rs.)	Per unit (Rs.)
To Materials	12,000	6	By output transferred to Process B	26,000	13
To Labour	10,000	5			
To Direct expenses	2,000	1			
To indirect expenses	2,000	1			
	26,000	13		26,000	13

$$\begin{aligned}
 \text{Indirect expenses as a percentage of labour} &= \frac{5,600}{10,000+8,000+10,000} \times 100 \\
 &= \frac{5,600}{28,000} \times 100 \\
 &= 20\%
 \end{aligned}$$

Dr. Process B Account (Output 2000 Units)			Cr.		
Particulars	Total (Rs.)	Per unit (Rs.)	Particulars	Total (Rs.)	Per unit (Rs.)
To Process A (Tfr.)	26,000	13	By output transferred to Process B	42,000	21
To Materials	6,000	3			
To Labour	8,000	4			
To Direct expenses	400	0.20			
To Indirect expenses	1,600	0.8			
	42,000	21		42,000	21

Dr. Process C Account (Output 2000 Units)			Cr.		
Particulars	Total (Rs.)	Per unit (Rs.)	Particulars	Total (Rs.)	Per unit (Rs.)
To Process (Tfr.)	42,000	21	By output transferred to Finished Stock	60,000	30
To Materials	4,000	2			
To Labour	10,000	5			
To Direct expenses	2,000	1			
To Indirect expenses	2,000	1			
	60,000	30		60,000	30



Illustration 2: From the given information prepare the process accounts indicating the cost of process and the total cost. The production was 960 articles per week.

	Process I(Rs.)	Process II(Rs.)	Process III(Rs.)
Material	6,000	2,000	800
Labour	3,200	8,000	2,400
Direct expenses	1,040	2,880	1,000

Indirect expenses amounting to Rs.3,400 should be apportioned on the basis of wages. Ignore stock in hand and work in progress at the beginning and end of each week.

Solution:

Dr. Process I Account (Output 960 Units) Cr.

Particulars	Amount (Rs.)	Per unit (Rs.)	Particulars	Amount (Rs.)	Per unit (Rs.)
To Materials	6,000	6.25	By output transferred to Process II	11,040	11.50
To Labour	3,200	3.33			
To Direct expenses	1,040	1.08			
To indirect expenses	800	0.83			
	11,040	11.50		11,040	11.50

$$\begin{aligned}
 \text{Indirect expenses as a percentage of labour} &= \frac{3,400}{3,200+8,000+2,400} \times 100 \\
 &= \frac{3,400}{13,600} \times 100 \\
 &= 25\%
 \end{aligned}$$

Dr. Process II Account (Output 960 Units) Cr.

Particulars	Amount (Rs.)	Per unit (Rs.)	Particulars	Amount (Rs.)	Per unit (Rs.)
To Process I (Transfer)	11,040	11.50	By output transferred to Process III	25,920	27
To Materials	2,000	2.08			
To Labour	8,000	8.33			
To Direct expenses	2,880	3			
To Indirect expenses	2,000	2.08			
	25,920	27		25,920	27

Dr. Process III Account (Output 960 Units)			Cr.		
Particulars	Amount (Rs.)	Per unit (Rs.)	Particulars	Amount (Rs.)	Per unit (Rs.)
To Process II (Transfer)	25,920	27	By output transferred to	30,720	32
To Materials	800	0.83	Finished Stock		
To Labour	2,400	2.5			
To Direct expenses	1,000	1.04			
To Indirect expenses	600	0.625			
	30,720	32		30,720	32

Process Losses and Wastages

There is certain amount of loss that occurs at various stages of production which may be attributable to evaporation, chemical reaction, inefficiency etc that results in wastage of units during the course of manufacturing process. Such loss can be classified into normal or abnormal loss.

Normal Process Loss

It is the percentage of wastage arising in a particular process during normal conditions which cannot be avoided. The loss due to normal wastage should be charged to the good units (effectives) arising out of the process. This loss is absorbed as an additional cost of good units produced by the process.

Treatment of Normal Loss

- In case the scrapped units have certain value, such an amount should be credited to the process account.
- In case the scrap is of very small value then the total proceeds of the scrap will be credited to the Works Overhead Account. The loss in weight or volume must be shown in the Process Account.
- In some processes a proportion of the output must be re-worked either in the same process or an earlier one. The process should be credited with the value of such materials and should be charged to the process where the material is relegated.

Illustration 3 : The following information pertains to Process X:

Particulars	Amount
Material	500 kg @ Rs. 6 per kg
Labour	Rs. 2,500
Direct expenses	Rs. 500
Indirect expenses allocated to Process X	Rs. 500
Normal wastage	10% of Input



Prepare Process X account when:

- (a) Scrap value of normal loss is nil
- (b) Scrap arising out of normal has a sale value of Rs.1 per unit

Solution:

- (a) Scrap value of normal loss is nil

Dr. Cr. Process X Account					
Particulars	Kg.	Amount (Rs.)	Particulars	Kg.	Amount (Rs.)
To Materials	500	3,000	By Normal Loss	50	—
To Labour		2,500	By output transferred to	450	6,500
To Direct expenses		500	Process II		
To Indirect expenses		500			
	500	6,500		500	6,500

Cost per unit = Rs. 6,500 ÷ 450 units = Rs. 14.44

The normal loss is absorbed by production of goods and as a result cost per unit of a product inflates. When there is no loss the cost per unit is Rs. 13 (i.e Rs. 6,500 ÷ 500 units). But when there is normal loss cost per unit goes up to Rs. 14.44.

- (b) When scrap of normal loss has a sale value of Rs. 1 per unit

Dr. Cr. Process X A Account					
Particulars	Kg.	Amount (Rs.)	Particulars	Kg.	Amount (Rs.)
To Materials	500	3,000	By Normal Loss	50	50
To Labour		2,500	By output transferred	450	6,450
To Direct expenses		500	to Process II		
To Indirect expenses		500			
	500	6,500		500	6,500

Cost per unit = Rs. 6450 ÷ 450 units = Rs. 14.33.

We can observe from above that the value realized from the sale of the normal wastage reduces the cost to the extent of the sale value.

Illustration 4: The raw material used for producing commodity A is 400 tonnes which passes through two processes. The costs are as follows:

Particulars	Process I (Rs.)	Process II (Rs.)
Material	4,000	-
Labour	2,000	1,000
Work expenses	1,000	600

10% of the material is wasted in the process. The wastage has been normal. The scrap is realized at Rs. 100. Show Process I Account only.

Solution:

Dr. Process 1 Account			Cr.		
Particulars	Unit (Tonnes)	Amount (Rs.)	Particulars	Kg.	Unit (Tonnes)
To Material	400	4,000	By Normal Wastage	40	100
To Labour		2,000	By transfer to	360	13,900
To Work Expenses		1,000	Process II		
	400	14,000		400	14,000

Cost per unit of process I is $\text{Rs. } 13,900 \div 360 \text{ tonnes} = \text{Rs. } 38.61 \text{ per tonne}$

Illustration 5: Prepare the process accounts for the information given as follows:

Particulars	Process I	Process II	Process III
Wages and Material	30,400	12,000	29,250
Works Overhead	5,600	5,250	6,000
Production (in units)	36,000	37,500	48,000
Stock (Units from preceeding process 1 st July 2015)		4,000	16,500
Stock (Units from preceeding process 31 st July 2015)		1,000	5,500

Solution:

Dr. Process I Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Wages and Material	36,000	30,400	By transfer to Process II (Cost per unit Rs. 1)	36,000	36,000
To Works Overhead		5,600			36,000
	36,000	36,000		36,000	36,000



Dr. Process II Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To opening stock @ Rs.1 per unit	4,000	4,000	By Wastage	1,500	—
To Transfer from Process I (Cost per unit Rs.1)	36,000	36,000	By Stock as on 31 st July 2015	1,000	1,000
To Wages and Material		12,000	By transfer to process III (Cost per unit Rs.1.5)	37,500	56,250
To Works Overhead		5,250			
	40,000	57,250		40,000	57,250

Dr. Process III Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To opening stock @ Rs. 1.5 per unit	16,500	24,750	By Wastage	500	—
To transfer from Process II	37,500	56,250	By Stock as on 31 st July 2015 @ Rs.1.50 per unit	5,500	8,250
To Wages and Material		29,250	By Finished Goods	48,000	1,08,000
To Works Overhead		6,000	Account (Cost per unit Rs.)		
	54,000	1,16,250		54,000	1,16,250

Abnormal Process Loss

Any loss in excess of normal process loss is known as Abnormal Process Loss. This loss may be attributable to faulty plant design, sabotage, carelessness, breakdown of the machinery, accident, use of defective materials etc. The abnormal loss is not absorbed by the cost of production as it would unreasonably inflate the cost of production per unit rather it is transferred to Costing Profit and loss A/c.

Treatment of Abnormal Loss

- To find out the amount of normal loss.
- After considering normal loss find out the cost per unit in that process assuming that there is no abnormal loss by using the following formula:

$$\text{Cost per unit} = \frac{\text{Total cost-Value of normal loss}}{\text{Units introduced - Normal loss units}}$$

- Multiply the Abnormal Loss units with the cost per unit as computed above. This gives

the total value of abnormal wastage.

- (d) The abnormal wastages account is to be debited and the relevant Process Account shall be credited with the amount and quantity of abnormal wastage.
- (e) The balance in the process account reflects the cost of good units produced in the process.
- (f) The scrap or saleable value of abnormal loss units shall be credited to the “Abnormal Wastage Account “ and shall be closed by transferring it to the Costing and Profit and Loss A/c.

Illustration 6: 2,000 units of raw material were introduced in a process at a cost of Rs. 8,000. The normal wastage allowed is 10%, each unit of waste realizes Rs. 2.5. The actual production was 1,700 units (with abnormal wastage of 100 units).The expenses being as follows:

Direct wages Rs. 13,000

Indirect expenses Rs. 6,500

Prepare the process account to show the effect of wastage.

Solution:

Dr.			Process Account		Cr.
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Raw Material	2,000	8,000	By Normal Loss A/c	200	500
To Direct Wages		13,000	By Abnormal LossA/c	100	1,500
To Indirect expenses		6,500	By transfer to Next Process	1,700	25,500
	2,000	27,500		2,000	27,500

Working Notes

Particulars	Units	Cost
Introduced	2,000	27,500
Normal loss	200	500
Normal output	1,800	27,000

$$\text{Cost per unit for the normal output} = \frac{\text{Rs. 27,000}}{1,800}$$

$$\text{Cost per unit for the normal output} = \text{Rs.15}$$

$$\text{Cost of abnormal loss} = 15 \times 100 = 1,500$$



Dr. Abnormal Loss Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Process A/c	100	1,500	By Sale proceeds@Rs.2.5	100	250
			By Profit and Loss A/c		1,250
	100	1,500		100	1,500

Abnormal Effectives

Abnormal effectives occur when the actual production exceeds the expected production. The excess of actual production is known as abnormal effectives. The abnormal effectives should not affect the cost of goods under the normal circumstances. The value of effectives would be similar to the good units that would have been valued had there been wastage at the normal rate. The amount shall be debited to the Relevant Process account and credited to the Abnormal Effectives account which shall be then transferred to the Costing Profit and Loss Account.

Illustration 7 : A product passes through three processes X,Y,Z. The normal wastage of each process is as follows: Process X- 3%, Process Y- 5%, Process Z-8%. Wastage of process X was sold at 25 paisa per unit, that of process Y at 50 paisa per unit and Process Z at Rs. 1 per unit. 5,000 units were issued to process X in the beginning of November 2014 at a cost of Rs. 1 per unit. The other expenses are as follows:

Particulars	Process X	Process Y	Process Z
Sundry materials	500	750	250
Labour	2,500	4,000	3,250
Direct expenses	525	594	1,004.50
Actual Output	4,750	4,550	4,050

Prepare the process account assuming there were no opening or closing stocks. Also give abnormal wastage and abnormal gain account.

Solution:

Dr. Process X Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Units Introduced	5,000	5,000.00	By Normal Loss A/c	150	37.50
To Raw Material		500.00	(3% of 5,000)		
To Labour		2,500.00	By Abnormal Loss A/c	100	175.00
To Direct Expenses		525.00	By Transfer to Process Y	4,750	8,312.50
	5,000	8,525		5,000	8,525

$$\begin{aligned}
 \text{Value of abnormal Wastage} &= \frac{8.525-37.50}{5000-150} \times 100 \text{ units} \\
 &= \frac{\text{Rs. } 8,487.50}{4850} \\
 &= \text{Rs. } 1.75
 \end{aligned}$$

Dr. Process Y Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Process X	4,750.00	8,312.50	By Normal Loss A/c (5% of 4,750 units sold at 50 paise per unit)	237.50	118.75
To Raw Material	37.50	750.00	By Process Z	4,550.00	13,650.00
To Labour		4,000.00			
To Direct Expenses		594.00			
To Abnormal Gain		112.25			
	4,787.50	13,768.75		4,787.50	13,768.75

Dr. Process Z Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Process Y	4,550	13,650.00	By Normal Loss A/c (8% of 4,550 units sold at Rs. 1p.u)	364	364.00
To Raw Material		250.00	By Abnormal Loss A/c	136	577.50
To Labour		3,250.00	By Finished Goods A/c	4,050	17,212.50
To Direct Expenses		1,004.50			
	4,550	18,154		4,550	18,154

Calculation of Abnormal Loss and Abnormal Effectives

Process X

$$\text{Cost of Abnormal Loss} = \frac{8,487.50}{4,850} \times 100$$

Process Y

$$\text{Cost of Abnormal Effectives} = \frac{13,537.50}{4,12.50} \times 37.50$$



Process Z

$$\text{Cost of Abnormal Loss} = \frac{17,790.50}{4,186} \times 136$$

Dr. Abnormal Loss Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Process X	100	175.00	By sale of wasted units :	100	25.00
To Process Z	136	577.50	Process X @ 25 Paisa p.u	136	136.00
			By sale of wasted units :		
			Process Z @ Rs. 1p.u		
			By Costing Profit and Loss Account		591.50
	236	752.50		236	752.50

Dr. Abnormal Gain Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Normal wastage A/c @ 50 paisa per unit	37.50	18.75	By Process Y	37.50	112.50
To Costing and Profit and Loss A/c		93.75			
	37.50	112.50		37.50	112.50

Dr. Normal Loss Account			Cr.		
Particulars	Unit	Amount (Rs.)	Particulars	Unit	Amount (Rs.)
To Process X A/c (3% of 5,000)	150.00	37.50	By sale proceeds of wasted units:		
To Process Y A/c (5% of 4,750 units sold at 50 paisa per unit)	237.50	118.75	Process X	150.00	37.50
To Process Z A/c (8% of 4,550 units sold at Rs.1p.u)	364.00	364.00	Process Y	200.00	100.00
			Process Z	364.00	364.00
			By Abnormal Effectives A/c	37.50	19.00
	751.50	520.25		751.50	520.25

***Note:** Actual wastage in Process Y is only 200 units, but we have credited the Process A/c with the sale proceeds of abnormal loss i.e 237.50 units. The shortfall in the sale of normal loss of 37.50 units @50 paisa per unit has been debited to abnormal effectives account and credited to Normal Loss account.

Knowledge Assessment - II

State whether the following statements are (T) or (F)

1. The cost unit in case of job costing is a process.
2. In process costing, less Supervision and Control is required as the work in process gets standardized.
3. In process costing, each process is debited with material cost, labour cost, direct expenses and overheads allocated or apportioned to the process.
4. The finished output of the last process is transferred to the finished goods account.
5. Normal Loss represents unusual Loss of Output quantity which can be controlled.
6. When actual output obtained is higher as compared to expected output, then such loss of output is known as Abnormal Loss.
7. Process costing entail certain amount of loss occurs at various stages of production which may be attributable to evaporation, chemical reaction, inefficiency etc. which is called normal loss.
8. The cost of spoiled and loss units is absorbed as an additional cost of good units produced by the process.
9. Faulty plant design, sabotage, carelessness, breakdown of the machinery, accident, use of defective materials etc. are the causes for abnormal losses.
10. Abnormal effectives occur when the actual production falls below the expected production.

[Ans: 1(F), 2(T), 3(T), 4(T), 5(F), 6(F), 7(T), 8(T), 9(T), 10(F)]

Session-3: By-Products and Joint Products

By-Products

By-products are secondary products whose value is relatively small and are incidental to the production of the main product. For example in the production of sugar mills the sugar is the main product but molasses and bagasse are incidental to the production of sugar. These molasses and bagasse are relatively of smaller value and hence are the by-product of sugar.

By products may be

- Sold in their original form without further processing
- Sold after further processing.



Examples of By-products:

Industry	By-product
Sugar	Bagasse, Molasses
Cotton textile	Cotton seed
Edible oil	Oil cake
Meat	Bones
Rice mills	Husk

Accounting for By-products

There are various methods to account for By-products as follows:

1. If the joint products are of small value then the cost of joint product is not apportioned to By-product. The net income by the sale of by-products may be treated in any of the following ways :
 - (i) It may be treated as miscellaneous income and credited to costing and profit and loss account
 - (ii) It may be credited to the process account in which the by product has arisen.

Note:

1. Any selling and distribution expenses incurred in the sale of by-product or any cost of further processing of by-products in order to make them saleable must be deducted from the sale value of by-products for determining the net income from by-products.
2. If by-products are of relatively high value then it is feasible to apportion a part of joint cost to by-products. Such cost of by products is debited to by-products account and credited to the main product account. Any cost incurred in further processing of by product is debited to by-product account. The by-product account is credited with its sale value and any profit/loss arising out of this account is transferred to costing profit and loss account. The apportionment can be done by either of the four methods:
 - (i) Sales value method
 - (ii) Physical units method
 - (iii) Average cost method
 - (iv) Points value or survey method
3. Where by-products require further processing: In such a situation the profit and further processing cost is subtracted from the net realizable value in order to arrive at the share of by-product in joint product at the split off point using the reverse cost method.

Co-Products

In case of joint products the production of two or more products has to proceed simultaneously

while in case of co-products the production of one or more co-products can proceed without the production of other products. For example in automobile industry different products like Sedans, Hatchbacks Crossover Cars and SUV's are co-products.

Illustration 8: Product Zeta yields two by-products A and B. The joint cost of manufacture is Rs. 32,900. From the following information apportion the joint cost of manufacture:

Particulars	Zeta	A	B
Sales Rs.	50,000	20,000	12,500
Manufacturing cost after separation		2,500	2,000
Estimated selling expenses on sales		20%	20%
Estimated profit on sales		25%	30%

Solution:

Statement of Cost of By-Products A and B

	A (Rs.)	B (Rs.)
Sales	20,000	12,500
Less: profit	5,000	3,750
Cost(i)	15,000	8,750
Less: cost after separation	2,500	2,000
selling expenses	2,500	4,000
Total (ii)	6,500	4,500
Share in joint cost (i-ii)	8,500	4,250

Joint Products

The joint product is a term used for two or more products of almost equal economic value which are simultaneously produced from the same manufacturing process and the same raw material. Hence, the joint products usually require more processing with each product in a proportion that no single product is designated as a major product.

Characteristics of Joint Products:

- They are produced simultaneously from the same raw material in natural proportions.
- They are produced simultaneously by common process.
- Their economic value is almost same.
- They can be sold after separation or after further processing.



Examples of Joint products:

Industry	Joint Products
Oil refining	Petrol, diesel, kerosene, grease, lubricating oils etc
Dairy	Skimmed milk, butter
Mining	Several metals from the same ore. e.g copper, silver, zinc, iron
Meat processing	Meat, hides, bones, grease.
Coal gas	Coke, tar, benzol and sulphate of ammonia
Sheep rearing	Meat, wool, hide

Accounting for Joint Products

Accounting for joint products means apportionment of joint cost to each of the joint product. The objective for apportionment of cost is as follows:

- (a) To determine cost per unit of the product.
- (b) To help inventory valuation.
- (c) To determine profit or loss on each line of product.
- (d) To determine the price of each product.

Following are the major methods of apportioning the joint costs to various joint products :

1. **Market Price Method:** Under this method the joint costs are apportioned to the various joint products upto the split off point. The market price may be either (i) at the split off point or (ii) after further processing. In case of (i) method the costs are apportioned to the joint products according to the proportion of total selling price of each of the joint product. However where the market price at the split off is not available then method (ii) is adopted. In this case the selling price of each of the product is reduced by the cost of manufacture beyond the split off point is considered as the basis for allocation of the joint cost.

Illustration 9: The total joint cost of product X, Y and Z till the split off point are Rs. 28. The market price of these products are Rs. 12, Rs. 18 and Rs. 38 respectively. Cost of manufacture beyond the split off point are Rs. 4, in case of product X, Rs. 2 in case of product Y and Rs. 6 in case of product Z. Allocate the joint cost by market price method.

Solution:

Products	Market price of joint products (Rs.)	Cost of manufacture beyond split off point (Rs.)	Market price - Cost of manufacture beyond split off point (Rs.)	Base of allocation	Joint cost apportioned to joint products (Rs.)
X	12	4	8	1/7	4
Y	18	2	16	2/7	8
Z	38	6	32	4/7	16
			56	7/7	28

Adoption of this method may create problems in times of fluctuating market prices of the joint products. It will be appropriate in such times to consider the average market price for each month for each product.

- Unit method:** Under this method the common costs of the joint products are allocated on the basis of physical output of each joint product at the split off point. If the output of different joint products is not measurable in the same units, then they must be converted into common denominator. For example in the manufacture of coke, products such as coke, sulphate of ammonia, gas, benzol, coal, tar are measured in different units. The yield of these recovered units is measured on the basis of quantity of product extracted per tonne of coal.

Illustration 10: The following data has been extracted from the books of Andhra Coke Ltd.

Joint products	Yield (in lb.) of recovered products per tonne of coal
Coke	1,420
Coal tar	120
Benezol	22
Sulphate of ammonia	26
Gas	412
Total	2,000

The price of coal is Rs.80 per tonne. The direct labour and overhead cost to the point of split off are Rs.40 and Rs.60 respectively per tonne of coal. Calculate the material, labour and total cost of each product on the basis of weight.



Solution:

Statement of Apportionment of Joint Cost

Particulars Rs.	Yield in lbs Rs.	% of total cost Rs.	Apportionment of cost			Total Rs.
			Coal Rs.	Direct labour Rs.	Overhead Rs.	
Coke	1,420	71.00	56.80	28.40	42.60	127.80
Coal tar	120	6.00	4.80	2.40	3.60	10.80
Benezol	22	1.10	0.88	0.44	0.66	1.98
Sulphate of ammonia	26	1.30	1.04	0.52	0.78	2.34
Gas	412	20.60	16.48	8.24	12.36	37.08
Total	2,000	100	80.00	40.00	60	180.00

3. **Reverse Cost method or working backward method:** This is the most practical method. In this method from the sale value of each product we deduct the estimated net profit, selling expenses and the processing costs after the split off point. This gives the estimated cost of each product at the split off point. The common costs may be apportioned to different products in the ratio of these estimated cost.
4. **Survey Method:** This method is based on the realization that joint costs cannot be allocated satisfactorily by considering one or two factors. Under this method the management conducts a survey in order to collect all information of the factors involved. This method is more equitable as combination of related factors is considered.

Illustration 11: The three joint products produced in a factory are A,B,C. Their joint costs is Rs.60,000. Quantities produced are as follows:

A	2,000
B	800
C	1,200

On the basis of technical evaluation, points allotted to products A,B,C are 3,2,5 and 8% per unit respectively. Apportion the joint cost.

Solution:

Products	Units produced (a)	Points assigned (b)	Weighted units (c)	*Cost per weighted units (d)	Apportione weighted units (d)
A	2,000	3.2	6,400	3	19,200
B	800	5	4,000	3	12,000
C	1,200	8	9,600	3	28,800
			20,000		60,000

***Working note:**

$$\frac{\text{Joint Cost}}{\text{total number of weighted unit}} = \frac{\text{Rs. 60,000}}{20,000 \text{ units}} = \text{Rs. 3 per unit}$$

Knowledge Assessment - III

Fill the blanks with the appropriate answers

1. _____ mean secondary products that are relatively of smaller value which are incidentally or unavoidably produced in the course of manufacturing the main product.
2. In the production of sugar, the sugar is the main product but _____ is incidental to the production of sugar.
3. Where _____ are of small value, it is not practical to apportion any part of joint cost to by-products.
4. Where _____ are of considerable total value, it is appropriate to apportion a part of joint cost to by-products.
5. In case of _____ the production of one or more products can proceed without the production of other products.
6. The _____ is a term used for two or more products of almost equal economic value which are simultaneously produced from the same manufacturing process and the same raw material.
7. Under _____ method, the joint costs are apportioned to the various joint products upto the split off point.
8. Under unit method, the common costs of the joint products are allocated on the basis of _____ of each joint product at the split off point.
9. Reverse Cost method is also known as _____ method.
10. Under _____ method, the management conducts a survey in order to collect all information of the factors involved.

[Ans: 1- By-products, 2- Molasses/Bagasse, 3- Joint products, 4- By-products, 5- Co-products, 6- Joint product, 7- Market price, 8- Physical output, 9- Working backward, 10- Survey]

Keywords

- **Process Costing:** This method of costing is employed in mass production industries where production is continuous and costs are accumulated process wise.
- **By-product:** A product that is secondary to main product and obtained during the course of manufacture of recognized main product.
- **Common cost:** The cost of facilities or services that is common to more than one activity.



- **Joint costs:** The common cost of facilities or services employed in the output of two or more simultaneously produced or otherwise closely related operations, commodities or services.
- **Joint products:** Two or more products separated in the course of processing, each having sufficiently high saleable value to merit recognition as a main product.

Summary

- Process costing is used in the business where the products are homogeneous, standardized and the final product is the result of sequence of process. Process costing is used in mass production industries producing standard products. The major industries using process costing are Sugar Industry, Paper Industry, Mining Industry, Cement Industry, Breweries Industry and Flour Milling Industry etc.
- The usual percentage of wastage arising in a particular process or operation is known as Normal Loss. It is a loss that cannot be avoided as it is expected to occur during normal conditions. Any loss in excess of normal process loss is known as Abnormal Process Loss. This loss may be attributable to faulty plant design, sabotage, carelessness, breakdown of the machinery, accident, use of defective materials etc. Abnormal effectives occur when the actual production exceeds the expected production. The amount shall be debited to the relevant process account and credited to the Abnormal Effectives account which shall be then transferred to the Costing Profit and Loss Account.
- By- products mean secondary products that are relatively of smaller value which are incidentally or unavoidably produced in the course of manufacturing the main product. Two or more products separated in the course of processing, each having sufficiently high saleable value to merit recognition as a main product are known as joint products. In the production of co-products, one or more co-products can proceed without the production of other products. Such co-products are produced simultaneously from the same raw material in natural proportions, by common process.

Exercise Questions

Short Answer Questions

1. What do you mean by Job Costing?
2. How is a Normal Loss different from Abnormal Loss?
3. What is process costing?
4. Explain the concept of survey method of costing.

Long Answer Questions

1. Distinguish between Job Costing and Process Costing.
2. Define joint products and by-products and cite an example on each.
3. Explain various basis for the apportionment of Joint cost to Joint products.

4. Explain the normal and abnormal wastage and how would they be dealt in process costing.
5. How would you deal with by products in costing :
 - (i) Where they are of small total value.
 - (ii) Where they are of considerable total value
 - (iii) Where they require further processing
6. Write short notes on :
 - (i) By-products
 - (ii) Abnormal gain in process costing
 - (iii) Normal Loss
 - (iv) Process costing
7. How would you distinguish between joint products, co-products and by-products?
8. What are the different methods of allocating joint costs?

Numerical Questions

1. A food manufacturing process has a normal wastage of 5% which can be sold as animal food stuff at Rs. 10 per tonne. The following data for a given period was collected: input material 200 tonnes @ Rs. 25 per tonne labour and overhead expenses Rs. 3,000. Losses were at the normal level. Compute the cost per tonne.

(Ans: Cost per tonne-Rs. 41.58, Normal wastage 10 units)

2. Ayush Ltd. produces a herbal shampoo which is made by subjecting the herbs to two successive processes A and B. The following data in respect of processing has been obtained from the accounting records of the company for a cost period.

Particulars	Process A	Process B
Inputs(units)	50,000	46,000
Normal Loss	10%	?
Costs Incurred	Rs.	Rs.
Material(Herbs)	9,00,000	1,96,000
Direct Labour	4,26,000	2,47,000
Production Overheads	2,84,000	1,78,000
Scrap Value	7	20

The output of process A is transferred to process B. The output of process B was 43,200 units, which were sold at Rs. 60 per unit showing a profit of 20% on cost.



(Ans: Process A: Transferred to Process B 46,000, Normal Loss-5,000, Process B: Transferred to Finished output 43,200, Normal Loss-2,300, Abnormal Loss -500)

3. The product of company A passes through two processes A and B and then to the finished stock account. In each process 5% of the total weight is lost and 10% is scrap which realises from process A Rs. 80 per tonne and process B Rs. 200 per tonne respectively.

The following are the figures relating to both the processes:

Particulars	Process A	Process B
Material (tonnes)	1,000	70
Cost of material per tonne (Rs.)	125	200
Wages (Rs.)	28,000	10,000
Expenses(Rs.)	8,000	5,250
Output (tonnes)	830	780

Prepare process account, abnormal loss account and abnormal gain account .

(Ans: Process A: Transferred to Process B 830, Loss in weight -50, Normal Loss-100, Abnormal loss-20, Process B: Transferred to Finished output 780, Loss in weight -45, Normal Loss-90, Abnormal Effectives -15)

4. A product is completed in two processes A and B. During a particular month, the input to process A of the basic raw material was 5,000 units at Rs. 2 per unit. Other information for the raw material is as follows:

Particulars	Process A	Process B
Output (units)	4,700	4,300
Normal loss (% of input)	5	10
Scrap value per unit (Rs.)	1	5
Direct wages (Rs.)	3,000	5,000
Direct expenses (Rs.)	9,750	9,910

Total overheads Rs. 16,000 were recovered as percentage of direct wages .There were no opening or closing work in progress stocks. Prepare Process A and B accounts.

(Ans: Process A: Transferred to Process B 4,700, Normal Loss-250, Abnormal loss-50,Process B: Transferred to Finished output 4,300, Normal Loss-470, Abnormal Effectives-70)

5. 600 kg of material was charged to process A@ Rs. 4 per kg. The direct labour accounted for

Rs. 200 and then other department expenses Rs. 760. The normal loss is 10% of the input and the net production was 500 kg assuming that the process scrap itself is saleable at Rs. 2 per kg. Prepare Process A clearly showing the value of normal and abnormal loss. Also prepare normal and abnormal loss account.

(Ans: Process A: Transferred to Process B 500, Normal Loss-60, Abnormal loss-40)

6. The output of Process X was 5,000 units. Normal loss allowed was 10% of the input. Abnormal loss was 400 units. The following information is further provided:

Material @ Rs. 5 per unit

Labour Rs. 8, 000

Overheads Rs. 6, 700

Wastage realised Rs. 2.50 per unit

Prepare Process X Account and Abnormal Loss Account.

(Ans: Process X: Transferred to Process Y 5000, Normal Loss-600, Abnormal Loss-400)

7. A product passes through two distinct processes A and B and then to finished stock. The output of A passes direct to B and that of B passes to finished product, From the following information you are required to prepare the process account.

Particulars	Process A (Rs.)	Process B (Rs.)
Materials consumed	12,000	6,000
Direct labour	14,000	8,000
Manufacturing expenses	4,000	4,000
Input in process A (units)	10,000 units	
Input in process A (value)	10,000	
Output (units)	9,400 units	8,300 units
Normal wastage (% of input)	5%	10%
Value of normal wastage (per 100 units)	8	10

No opening or closing stock is held in process .

(Ans: Process A: Transferred to Process B 9,400, Normal Loss-500, Abnormal loss-100, Process B: Transferred to Finished output 8,300, Normal Loss-940, Abnormal loss -160)

8. The following details have been taken from the costing records of Nirmal Coconut Mills for the year ending March 31, 2015:



Purchase of 500 tonnes of copra

Rs.2,00,000

Particulars	Crushing (Rs.)	Refining (Rs.)	Finishing (Rs.)
Cost of labour	2,500	1,000	1,500
Electric power	600	360	240
Sundry materials	100	2,000	—
Repairs of machinery	280	330	140
Steam	600	450	450
Factory expenses	1,320	660	220

Costs of casks

Rs. 7,500

Tonnes of crude oil produced 300 tonnes

Oil produced by refining process 500 tonnes

Refined oil finished for delivery 496 tonnes

Copra sacks sold for

Rs. 400

175 tonnes of copra residue sold for

Rs. 11,0000

Loss in weight in crushing 25 tonnes

45 tonnes of by-product obtained from refining process valued at Rs. 6,750

Prepare the account of each of the stages of manufacturing for the purpose of arriving at the cost per tonne of each process and the total cost per tonne of finished oil:

- Copra crushing process
- Refining process
- Finishing process (including Casking)

(Ans: cost of crude oil transferred to refining process Rs. 1,94,000, cost of refined oil transferred to finishing process Rs. 1,92,050, Cost of finished oil produced Rs. 1,94,600)

UNIT - 5

OPERATING OR SERVICE COSTING

Unit Code-5	UNIT TITLE: OPERATING OR SERVICE COSTING			
Location: Class Room	Session-1: Basics of Operating or Service Costing			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Concept of Operating /Service Costing. 2. Unit of Cost under Operating/Service Costing. 3. Applicability of Operating Costing.	1. Describe the significance of operating costing. 2. Which are various cost units for service undertakings. 3. Which businesses use operating costing.	1. Specify the importance for collecting the cost data. 2. Identify various type of businesses using operating or service costing. 3. How do you determine the unit of cost for service undertakings.	Interactive Lecture: Discussing the concept and use of operating costing. Activity: Visit any service undertaking using operating costing to understand its applicability and its cost unit.
Session-2: Transport Costing				
	1. Costing for Transport Business. 2. Cost heads under Transport Costing. 3. Daily Log Sheets in Transport Costing.	1. Explain the concept of transport costing. 2. Explain various cost heads under transport costing. 3. Describe the use of log sheets in transport business.	1. Identify the various cost components in transport costing technique. 2. Prepare a log sheet for bus service business. 3. Calculate the cost unit for the transport business carrying goods.	Interactive Lecture: Introduction to Transport costing. Activity: Visit any transport company and understand the log sheets and cost units.



Session-3: Power House and Canteen Costing				
	1. Concept of Power House Costing.	1. Explain the importance of power house costing.	1. List out the procedure for doing power house costing.	Interactive Lecture: Discussion on power house and canteen costing.
	2. Concept of Canteen Costing.	2. Enumerate the Proforma for canteen cost sheet.	2. Identify the various steps in the preparation of canteen cost sheet.	Activity: Prepare a canteen cost sheet for any one canteen of a school.

Learning Objectives

After reading this unit, student will be able to:

- understand the concept of operating costing
- determine the unit of cost under operating costing
- learn the costing for transport business
- explain the concept of power house costing
- understand the concept of canteen costing
- explain the meaning of certain keywords

Introduction

The products available in the market can be in tangible or intangible form. The intangible products are popularly known as “Services”. We have learnt various costing methods like unit costing, job costing, batch costing etc. which are applicable for the tangible manufacturing output. A service undertaking has to follow a different kind of costing method known as “Operating or Service Costing”. A service can be internal or external. Internal services are those services which are rendered internally to another department for a transfer price. For example, a maintenance department is providing repair services to the factory, canteen providing catering services to the factory labour etc. External services are those services which are rendered to the external customers for a selling price. There are many service undertakings offering services like transport service by transport company carrying goods/passengers, food service by canteens/caterers, electricity service by power house companies, hospitality service by hotels and motels, health care service by hospitals etc. All these undertakings are required to calculate the cost of rendering a service unit for which they use “Operating or Service Costing.”

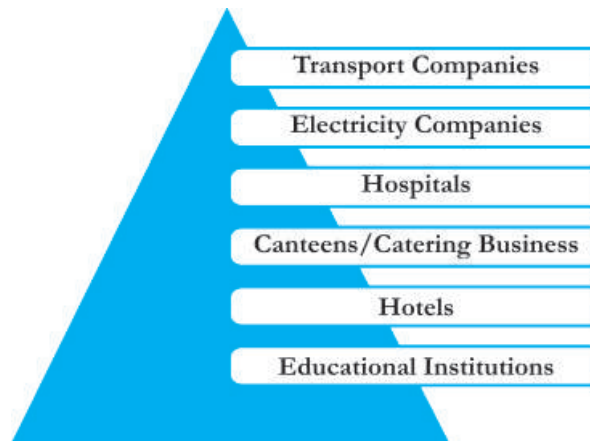
Session-1: Basics of Operating or Service Costing

Meaning of Operating/Service Costing

Operating costing is concerned with the ascertainment of operating cost for rendering a unit of service. It is a method of costing for the enterprises producing services rather than tangible commodities. CIMA has defined “Operating Costing” as that form of costing which applies in case of standardised service offering by an undertaking or by a service cost centre within that undertaking. The calculation of cost of service unit is not a complex job. The various cost associated with the operations of

services for a particular period are ascertained and grouped under appropriate heads. The total cost is then divided by the total number of service units to determine the cost per unit of service. This costing method helps the enterprise to fix the selling price for their services. In case of operating costing, the determination of unit of cost is a major chore which would be discussed in the next section. Major Service organizations that use operating costing are:

1. Transport Companies
2. Electricity Companies
3. Hospitals
4. Canteens/Catering Businesses
5. Hotels
6. Educational Institutions, etc.



Determination of Unit of Cost

In operating costing, an appropriate unit of cost is required to be established for the determination of cost per unit of service. Cost unit can be a simple cost unit or a composite cost unit depending upon the type of service. Transport cost on per kilometre basis is an example of simple cost unit. In case of catering services, cost per meal is also a simple cost unit. The composite cost unit refers to both quantum and period of service. For example, per tonne-km is a composite cost unit in case of transport of goods business and per passenger-km for transport of passenger business. Cost per tonne-km represents the cost of transporting one tonne of goods for one kilometre. Similarly, in case of Electricity Corporation, a composite unit like per kilowatt-hour represents cost charges for one kilowatt for one hour. Figure below presents the cost units for various service undertakings:

	Passenger Transport · Per KM · Per Passenger-KM
	Goods Transport · Per KM · Per Tonne-KM · Per Quintal-KM
	Electricity · Per Kilowatt · Per Kilowatt-Hour
	Canteen · Per Meal · Per Person · Per Dish
	Hospital · Per Bed · Per Patient-Day



Composite units can be worked out in two different ways:

1. **Absolute Composite Units:** It is the weighted average of two units which is arrived at by multiplying the load quantity by the respective distance in case of tonne-km or quintal-km.
2. **Commercial Composite Units:** In commercial tonne-km case, the unit is arrived at by multiplying simple average tonnes with the total distance.

Illustration 1: A truck starts with carrying 40 tonnes from station X to station Y. It unloads 20 tonnes at station Y and carried 20 tonnes to station Z. From station Z to Station X, it carries 30 tonnes. The distance between station X and Y, Y and Z and from Z to X is 15 km, 20 km and 30 km respectively. Calculate absolute and commercial tonne-km.

Solution:

Absolute tonne-km	$= 40 \times 15 + 20 \times 20 + 30 \times 30$ $= 600 + 400 + 900$ $= 1900 \text{ tonne-km}$
Commercial tonne-km	$= \text{Average tonnes} \times \text{Total distance travelled}$ $= (40+20+30)/3 \times 65$ $= 1950 \text{ tonne-km}$

Collection of Cost Data

After the unit cost for the service has been determined, the total cost data for rendering the services is to be recognised and collected in a suitable manner. Cost data is further to be classified under appropriate heads. The total cost elements are segregated under Fixed, Semi-variable, Variable heads for proper management and control. Fixed cost is the cost that does not change with the change in service units rendered in the particular period. Variable cost directly varies with the number of service units rendered. Semi-variable or Semi-fixed is the cost component that comprises both the fixed and variable costs elements.

Illustrations 2: The following are the details of tonnes of goods transported by M/s. Gurinder Enterprises on certain days of February 2015:

Dates	Tonnes	Kilometre Travelled
4 th February 2015	60	40
6 th February 2015	35	100
14 th February 2015	50	20
28 th February 2015	20	35

You are required to calculate the cost per tonne-km, if the total cost for the enterprise is Rs. 4,18,000 for the above mentioned month.

Solution:

Total cost units and cost per Tonne-Km:

4 th February 15	= 60 X 40	= 2400 Tonne-Km
6 th February 15	= 35 X 100	= 3500 Tonne-Km
14 th February 15	= 50 X 20	= 1000 Tonne-Km
28 th February 15	= 20 X 35	= 700 Tonne-Km
Total cost units in February		= 7600 Tonne-Km
Cost per Tonne-Km is		= 4,18,000 / 7600
		= 55 Rs per Tonne-Km

Knowledge Assessment – I

State whether the following statements are true (T) or false (F)

1. A service undertaking has to opt for a different kind of costing method called as operating costing.
2. Cost unit can be a simple cost unit or multiple cost units depending upon the type of service.
3. Operating costing is concerned with the ascertainment of operating cost for manufactured tangible product.
4. Operating costing method helps the enterprise to fix the selling price for their services.
5. Operating costing applies in case of a business having standardised service offering to external clients or internal departments.
6. Hospitals do not use the operating costing.
7. Operating costing is also known as service costing.
8. Fixed cost varies with the service output.

[Ans: 1(T), 2(F), 3(F), 4(T), 5(T), 6(F), 7(T), 8(F)]

Session-2: Transport Costing

Meaning of Transport Costing

Transport business is one of the major service businesses that make use of operating costing method. There are transporters who provide services for carrying either goods or passenger (or both). Tonnes or quintals of raw material and finished goods are transported widely by the manufacturing industries for which they use the services of transport companies. The transporter has to provide a quote to their client which is the price set by him for his services. To arrive at the selling price, he is supposed



to work out the cost per service unit. The service units in case of transporter carrying goods are usually cost per kilometre, cost per tonne-km, cost per quintal-km etc. The service units in case of transporter providing services to passenger are cost per kilometre, cost per passenger, cost per passenger-km etc. A transport operating cost sheet is prepared wherein the components of cost are categorized differently based on the nature of service business. These cost components in transport costing has been discussed in one of the upcoming section.

Log Sheet

Driver of the vehicle is provided with a log book that contains various log sheets. This log sheet provides the cost and other data on daily basis regarding the kilometre run, petrol usage, passenger/goods carried etc. This sheet is to be filled up by the driver so as to maintain the data regularly. The same is used by the cost accountant for compiling the cost records for the particular period. Proformance statement is also prepared by the costing department showing the total and unit cost details. The specimen of the log sheet is as follows:

Proforma for Log Sheet

Vehicle Regn. No.:_____				Date:_____				
Driver's Name:_____				Start Time:_____				
Driver's Licence No.:_____				End Time:_____				
Route No.:_____				Remarks:_____				
Trip No.	From	To	Goods/Passenger At Start	Goods/Passenger Collected en route	Km (In)	Km (Out)	Time (In)	Time (Out)
Total								
Supplies:			Time spent:			Time lost:		
Petrol/Diesel			Driver			Loading delay		
Oil			Assistant			Traffic delay		
Grease			Cleaner			Accident delay		
Others			Mechanic					

Cost Components under Transport Costing

The cost sheet under transport costing includes various types of cost that are classified under the following heads:

1. **Fixed or Standing Cost:** These are the cost which is to be incurred regardless of vehicle being in use or not. Such costs are usually fixed in nature and does not vary with the kilometre run and passengers/tonnes transported. Example: Fixed salaries, Insurance cost, Road tax, Rent of garage etc.
2. **Maintenance Cost:** They are semi-variable in nature wherein some part of the cost is fixed and the other is variable in nature. Example: Repair and maintenance of vehicle, Overhauling, Cost of tyres etc.
3. **Running Cost:** These types of cost are incurred based on the running of the vehicle. It varies with the level of operation. Thus, it is variable in nature. Example: Fuel charges, Consumables like oil and grease, driver daily wages etc.

For convenience purpose, the cost elements can also be classified under the heads like fixed cost, semi-variable cost and variable cost. In the absence of information about semi-variable cost, the costs may be shown under two heads only, i.e. fixed and variable.

Illustrations 3: Raghuram Pvt. Ltd. operates 2 busses between Delhi and Karnal which are 120 Km apart. Seating capacity of each bus is 40 passengers. Following particulars were obtained from their books for April, 2015:

Particulars	Amount (Rs.)
Wages	2,00,000
Monthly salaries of office staff	4,00,000
Diesel	50,000
Insurance premium	20,000
Repairs and overhauling	56,000
Depreciation	35,000
Interest and other charges	25,000

Both the busses ran all the days of the month. Each bus made one round trip per day. You are required to find out the cost per passenger km.

Solution:

Number of Busses	= 2
Capacity of Bus	= 40
Capacity of Fleet	= 2 X 40, i.e. 80 Passengers
Number of Trips per Day	= 2
Number of Days	= 30
Distance Run per Trip	= 120 Km
Service Rendered	= 120 X 2 X 30 X 80 = 5,76,000 Passenger-Km



Raghuram Pvt. Ltd.
Operating Cost Sheet
For the month ending April 2015

Particulars	Amount (Rs.)	Per passenger -km
Standing Cost		
Monthly salaries of office staff	4,00,000	
Insurance premium	20,000	
Depreciation	35,000	
Interest and other charges	<u>25,000</u>	
Total Standing Cost	<u>4,80,000</u>	0.833
Maintenance Cost		
Repairs and overhauling	<u>1,34,000</u>	
Total Maintenance Cost	<u>1,34,000</u>	0.232
Running Cost		
Wages	2,00,000	
Diesel	<u>50,000</u>	
Total Running Cost	<u>2,50,000</u>	0.434
Total Cost	8,64,000	1.500

Illustration 4: Prepare an operating cost sheet for the period 2013-14 for M/s. Pandit Enterprises which is into transport business running 5 busses in Delhi. Following are the details extracted from the books of accounts:

The cost of 5 passenger busses are Rs. 25,00,000 (Rs. 5,00,000 each). Yearly fuel expenses is Rs. 5,00,000. Annual Repair and maintenance is 70% of fuel cost. 1500 passengers were carried over 5,000 kms during the year by the fleet of busses. Other information is as follows:

Particulars	Amount (Rs.)
Wages of 10 cleaners	5000 each per month
Wages of 5 drivers	10,000 each per month
Yearly interest cost	10% on capital
Office salaries	60,000 per month
Rent of 5 garages	5,000 each per month
Tax and licences	1,00,000 annual
Office establishment	3,50,000 annual
Cost recovery by sale of old tyres	20,000 annual

Solution:

M/s. Pandit Enterprises
Operating Cost Sheet
For the year ending 31st March 2014

Particulars	Amount (Rs.)	Per passenger -km
Annual Fixed Cost		
Interest (10% of 25,00,000)	2,50,000	
Rent for garage (5 X 5,000 X 12)	3,00,000	
Office salaries (60,000 X 12)	7,20,000	
Office establishment	3,50,000	
Tax and licences	1,00,000	
Wages of driver (5X 10,000 X 12)	6,00,000	
Wages of cleaner (10 X 5,000 X 12)	<u>6,00,000</u>	
Total Annual Fixed Cost	<u>29,20,000</u>	0.389
Annual Variable Cost:		
Fuel cost	5,00,000	
Repair and maintenance	<u>3,50,000</u>	
Total Annual Variable Cost	<u>8,50,000</u>	0.113
Total Cost:	37,70,000	
Less recovery from old tyres	<u>(20,000)</u>	<u>(0.002)</u>
Net Total Cost	<u>37,50,000</u>	<u>0.500</u>

Working notes: Total Service units are:

1,500 passengers X 5,000 Kms = 75,00,000 Passenger-Kms

Knowledge Assessment – II

Objective Type Questions

1. Which one of these is not the component of cost in transport costing
 - a. Running Cost
 - b. Standing Cost
 - c. Production Cost
 - d. Maintenance Cost
2. Example of running cost is
 - a. Road Tax



- b. Monthly Salaries
 - c. Fuel Charges
 - d. Interest Charges
3. **The transporters may provide services for carrying**
- a. Goods
 - b. Passengers
 - c. Both a and b
 - d. None of the above
4. **The service units in case of transport service are**
- a. Passenger-Km
 - b. Tonne-Km
 - c. Quintal-Km
 - d. All of the above
5. **Example of standing cost is**
- a. Rent of Garage
 - b. Cost of Tyres
 - c. Petrol Cost
 - d. Oil Charges
6. **Log sheet provides the information on daily basis regarding**
- a. Kilometre Run
 - b. Fuel Usage
 - c. Goods Carried
 - d. All of the above
7. **Road tax is a type of which cost component in transport costing**
- a. Running Cost
 - b. Standing Cost
 - c. Maintenance Cost
 - d. Manufacturing Cost
8. **Daily log sheet is filled up by**
- a. Cost accountant
 - b. Chief financial officer

- c. Owner of business
- d. Driver

[Ans: 1(c), 2(c), 3(c), 4(d), 5(a), 6(d), 7(b), 8(d)]

Session-3: Power House and Canteen Costing

Introduction to Power House Costing

Power House Costing is another costing method under operating costing which is used for the concerns which are into producing electricity. Power house operating cost statement is prepared after collating the cost information on producing steam and thereby, generating electricity. The cost unit in case of power house costing can be per lb for steam and per kilowatt or per kilowatt-hour for electricity generation. Various costs are involved in producing steam which acts as a raw material for electricity generation. They are:

1. Coal cost
2. Water softener cost
3. Labour cost
4. Other overhead cost like maintenance and supervision

Even, the cost figures of previous period can be compared with the current period for proper analysis and control while preparing power house operating cost sheet.

Illustration 5: From the following cost information, prepare a cost sheet presenting the total cost and cost per unit of electricity generated.

Particulars	Amount (Rs.)	Quantity (lbs/Units)
Expenses for generation of steam:		
Coal cost	20,000	
Water cost	300	
Wages for coal handling	1,500	
Repair of boiler	700	
Lubricating oil	100	
Depreciation of boiler	1,700	
Supervisory labour	800	
Total steam produced		30,000 lbs
Steam used for power generation		20,000 lbs



Expenses incurred in the power house:		
Wages for operator	2,000	
Depreciation of generator	1,800	
Repairs	1,000	
Supervision charges	1,000	
Electricity generated		10,000 Units

Solution:

M/s. _____ Enterprises
Power House Operating Cost Sheet
For the year ending 20__

Steam Produced: 30,000 lbs

Steam Used for Generation of Electricity: 20,000 lbs

Electricity Generated: 10,000 Units

Steam Production Cost:	Amount (Rs.)	Cost Per Unit
Coal cost	20,000	
Water cost	200	
Wages for coal handling	1,500	
Lubricating oil	100	
Repair of boiler	700	
Depreciation of boiler	1,700	
Supervisory labour	<u>800</u>	
Total Steam Production Cost	<u>25,000</u>	0.833
Electricity Generation Cost:		
Cost of steam (0.833 X 20,000)	16,660	
Wages of operator	2,000	
Depreciation of generator	1,800	
Repairs	1,000	
Supervision charges	<u>1,000</u>	
Total Cost	<u>22,460</u>	2.246

Introduction to Canteen Costing

Another service business using operating costing is canteen service. In this method, the cost relating to various provisions, wages, consumables, and services is collected and presented in canteen operating cost sheet. The total cost is then divided by the number of service units so as to arrive at the cost per service unit. The various service units in case of canteen services are cost per meal, cost per person, cost per dish etc. Such cost per unit helps in setting the selling price and thereby, calculating the profits for the service provider. Canteen services, many-a-times, are provided at subsidised rates which can be adjusted in the operating cost sheet.

Proforma for Canteen Operating Cost Sheet

The below is the Proforma for the Canteen Operating Cost Sheet:

M/s. _____ Enterprises

Canteen Operating Cost Sheet

For the year ending 20__

Particulars	Amount (Rs.)	Cost Per Meal
Provisions		
Wheat		
Rice		
Milk		
Biscuits		
Vegetables and Fruits		
Meat, chicken, eggs etc.		
Others		
Wages		
Supervisor		
Cleaner		
Chef		
Helper		
Sweeper		
Consumables		
Crockery		
Glassware		
Towels		
Services		
Gas and electricity		
Lighting		
Water		



Miscellaneous		
Rent		
Insurance		
Total Cost		
Less: Subsidy		
Net Cost Profit / Loss		
Sales		

Illustration 6: Prepare the operating cost sheet for the Rajpal caterers handling a canteen business for a school. Following information is given for the month ending September 2014:

Particulars	Amount (Rs.)
Chef's Salary	45,000
Assistant to Chef	20,000
Cleaner	12,000
Vegetables and Fruits	16,000
Rice and Wheat	7,000
Milk	8,000
Gas Cost	3,500
Electricity	2,000
Crockery and Glassware	1,500
Rent	5,000

School has 250 students and the caterer serves them lunch for 20 days in the month. Also calculate the total cost and cost per meal.

Solution:

Rajpal Caterers
Canteen Operating Cost Sheet
For the month ending September 2014

Particulars	Amount (Rs.)	Cost Per Meal
Provisions		
Rice and Wheat	7,000	
Milk	8,000	
Vegetables and Fruits	<u>16,000</u>	

Total Provisions	<u>31,000</u>	6.2
Wages		
Assistant to Chef	20,000	
Cleaner	12,000	
Chef's Salary	<u>45,000</u>	
Total Wages	<u>77,000</u>	15.4
Consumables		
Crockery and Glassware	<u>1,500</u>	
Total Consumables	<u>1,500</u>	0.3
Services		
Gas Cost	3,500	
Electricity	<u>2,000</u>	
Total Services	<u>5,500</u>	1.1
Miscellaneous		
Rent	<u>5,000</u>	
Total Miscellaneous	<u>5,000</u>	1.0
Total Cost and Per meal	1,20,000	24

Working notes: Total cost units are

Total Meals = 250 Students X 20 Days
= 5,000 meals

Knowledge Assessment – III

Fill the blanks with the appropriate answers

1. Power House Costing is another costing method under _____ which is used for the concerns into producing electricity.
2. The cost unit in case of power house costing can be _____ for generating electricity.
3. Coal cost is a cost that is involved in producing _____.
4. The cost figures of _____ period can be compared with the current period for proper analysis and control while preparing power house operating cost sheet.
5. Costs relating to canteen costing are provisions, wages, _____ and _____.
6. The various service units in canteen services are _____.
7. Chef's cost comes under the category of _____ cost.
8. Canteen services, many-a-times, are provided at _____ rates which can be adjusted in the operating cost sheet.

[Ans: 1-Operating costing, 2-Per Kilowatt/Per Kilowatt-hour, 3-Steam, 4-Previous, 5-Consumables and services, 6-Per meal/Per person/Per dish, 7-Wages, 8-Subsidised]



Keywords

- **Services:** The intangible offering by a commercial organization is popularly known as Services.
- **Operating or Service Costing:** Operating costing is concerned with the ascertainment of operating cost for rendering a unit of service.
- **Transport Costing:** Transport costing is the operating costing method used for transport business.
- **Log Sheet:** Log sheet is a tool that provides the information regarding the cost and other data on daily basis regarding the kilometre run, petrol usage, passenger/goods carried etc.
- **Power House Costing:** Power House Costing is another costing method under operating costing which is used for the concerns into producing electricity.
- **Canteen Costing:** Canteen costing is an operating costing method used by the canteen businesses.

Summary

- Services are the intangible form of product. A service can be internal or external.
- A service undertaking has to opt for a different kind of costing method called as “Operating or Service Costing” which is concerned with the ascertainment of operating cost for rendering a service.
- The service units in case of transport services are cost per kilometre, cost per tonne-km, cost per quintal-km, cost per passenger, cost per passenger-km etc.
- The cost elements under transport costing include standing cost, maintenance cost and running cost.
- The cost unit in case of power house costing can be cost per lb for steam and cost per kilowatt or cost per kilowatt-hour for electricity generation.
- The various service units in case of canteen services are cost per meal, cost per person and cost per dish.

Exercise Questions

Short Answer Questions

1. What do you mean by operating costing?
2. Which are the businesses that use operating costing?
3. What do you mean by transport costing method?
4. Which are the service units in case of transport costing?
5. What is the use of daily log sheet?
6. What is the difference between standing charges and running charges?
7. Explain power house costing and canteen costing?

8. Which are service units in case of power house costing and canteen costing?

Long Answer Questions

1. What do you mean by cost units in operating costing? Describe, in detail, with some relevant examples from service businesses. Also, explain the two different ways of computing composite units?
2. What is operating costing? Explain its importance for fixing selling price for service undertakings?
3. What is a log book? What information is provided by the daily log sheet? Explain the use of log sheets for collation of data for transport costing?
4. What are the various cost components under the transport costing? Explain them with the help of relevant examples?
5. Explain the power house costing with the help of various costs involved in steam and electricity generation business?
6. One of your friend plans to run a canteen in an institute. How should he classify his cost for the purpose of preparing an operating cost statement?

Numerical Questions

1. The following are the details of tonnes of goods transported by M/s. Raghu Enterprises for the month of January 2015:

Dates	Tonnes	Kilometre Travelled
3 rd January 15	200	30
12 th January 15	350	80
16 th January 15	480	40
20 th January 15	100	25
29 th January 15	120	50

You are required to calculate the cost per tonne-km, if the total cost for the enterprise is Rs. 12,20,000 for the January month.

(Ans. Cost per tonne-km = Rs. 19.78)

2. A transport company is running 2 busses between town A and town B which are 100 kms apart. Seating capacity of each bus is 50 passengers. Actual passengers carried were 80% of the seating capacity. Both the busses run for all the days of the month and each bus made one round trip per day. Find out the total passenger kilometre.

(Ans. Passenger Kilometre = 4,80,000)

3. The Jamshed Transport Co. which has a lorry compiles the following data for the month of April 2014 where the vehicle carried 200 tonne for 500 kms. :



Particulars	Amount (Rs.)
Wages for April	8,000
Diesel for April	15,000
Cost of lorry	3,00,000
Depreciation on lorry	20% P.A.
Repairs for April	20,000
Garage Rent for April	5,000
Licence, insurance and taxes for the year	24,000

Prepare operating cost sheet for April showing the fixed, variable and cost per tonne-km for Jamshed Transport Co.

(Ans. Total Cost: Rs.55,000, Cost per tonne-km: Rs. 0.55)

4. Following were the expenses incurred by a company in operating 2 busses (for the conveyance of staff) and a lorry (for the carrying of raw material) during the month of October 2014:

Particulars	Bus A	Bus B	Lorry C
Driver's Salary	1,000	1,200	1,500
Coolie's Wages	500	500	800
Fuel Cost	2,000	3,000	3,000
Oil	200	400	500
Repair	1,500	1,800	2,000
Depreciation	3,400	3,200	4,400
Supervision	700	700	700
Garage overhead	1,000	1,200	800
Road and Taxes	500	500	600
Other overheads	200	100	400

The above vehicles carried the following passengers and raw material for the kilometres mentioned below:

Vehicle	Load	Kms.
Bus A	25 Passenger	3,000
Bus B	20 Passenger	4,000
Lorry C	30 tonnes	2,000

From the above cost figures and other information, you are required to prepare an operating cost sheet in summary form for three vehicles. In addition, briefly explain the “Unit of Cost” which is to be selected for the above problem.

(Ans. Total Cost: Bus A Rs. 11,000, Bus B Rs. 12,600, Lorry C Rs. 14,700, Cost per Unit: Bus A 0.146 per passenger-km, Bus B 0.157 per passenger-km, Lorry C 0.245 per passenger-km)

5. A transport service company is running five buses between two towns which are 50 kms apart. Seating capacity of each bus is 50 passengers. The following particulars were obtained from their books:

Particulars	Amount (Rs.)
Wages of driver, conductors and cleaners	24,000
Salaries of office staff	10,000
Diesel oil and other oil	35,000
Repair and maintenance	8,000
Taxation, insurance etc.	16,000
Depreciation	26,000
Interest and other expenses	20,000

Actually, passengers carried were 75% of seating capacity. All buses ran on all days of the month. Each bus made one round trip per day. Find out the cost per passenger-km.

(Ans: Cost per passenger-km = Rs. 0.2471)

6. From the data given below for the year 2014-15, prepare a cost sheet showing the cost of electricity generated per unit of kwh by the Kukreja Power Station:

Total Units Generated : 20,00,000 kwh	
Particulars	Amount (Rs.)
Operating Labour	50,000
Repairs	50,000
Spares and Stores	40,000
Plant Supervision	30,000
Administrative Cost	20,000

Coal consumed per kwh for the year is 2.5 kg @ Rs. 0.02 per kg. Charge depreciation at 5% on capital cost of Rs. 2,00,000.

(Ans: Total Cost: Rs. 3,00,000, Cost per kwh: Rs. 0.15)



7. Prepare the cost sheet for the Himasth caterers handling a canteen business for a college. Following information are given for the month ending October 2014:

Particulars	Amount (Rs.)
Chef's Salary	1,35,000
Assistant to Chef	50,000
Supervisor's Salary	15,000
Vegetables, Meat and Fruits	56,000
Wheat and Rice	27,000
Milk	28,000
Lighting and gas	23,500
Electricity	14,000
Towels and Crockery	11,500
Rent and Insurance	50,000

College has 400 students and the caterer serves them lunch and breakfast for 25 days in the month. Calculate total cost and cost per meal.

(Ans. total cost = Rs. 4,10,000, Cost per meal = Rs. 20.5)

UNIT - 6

RECONCILIATION OF COST AND FINANCIAL ACCOUNTS

Unit Code-6	UNIT TITLE: RECONCILIATION OF COST AND FINANCIAL ACCOUNTS			
Location: Class Room	Session-1: Meaning, Need and Causes of Disagreement of Cost Accounts and Financial Accounts			
	Learning Outcome	Knowledge Evaluation	Performance Evaluation	Teaching & Training Method
	1. Meaning of reconciliation of cost and financial Accounts.	1. Explain the meaning of Reconciliation of cost and financial Accounts.	1. Explain the cases, where reconciliation is necessary.	Interactive Lecture: Meaning and Need of Reconciliation of Accounts.
	2. Need of Reconciliation of Cost and Financial Accounts.	2. Mention the name of accounting system in which reconciliation is necessary.	2. Explain the cases where reconciliation of cost and financial accounts can be avoided.	
	3. Reasons of difference in two sets of books (Cost and financial).	3. Discuss the reasons of disagreement between cost and financial accounts.	3. Discuss items which are shown in cost accounts only.	
		4. Describe the relevance of preparing reconciliation account.	4. Explain the items which are shown in Financial Accounts only.	
Session-2: Methods of Reconciliation of Cost Accounts and Financial Accounts Profits				
	1. Methods of preparing reconciliation statement.	1. Discuss the treatment of over or under absorbed overheads.	1. Explain the procedure of preparing reconciliation statement and memorandum reconciliation account.	Interactive Lecture: Procedure of preparing reconciliation statement.



2. Steps required for preparing reconciliation statement.	2. Explain the treatment of the items which are shown in financial accounts only.	2. Prepare the proforma of reconciliation statement.	Activity: Collect data from the costing records and financial records of a manufacturing company for preparing reconciliation statement.
3. Procedure of preparing Memorandum Reconciliation Account.	3. Describe the treatment of items which are shown in cost accounts only.	3. Enumerate the steps required to prepare reconciliation	

Learning Objectives

After reading this unit, students will be able to:

- explain the meaning and need of reconciliation of cost accounts and financial accounts;
- identify the reasons of difference between profit disclosed as per cost accounts and financial accounts;
- understand the procedure of preparing a reconciliation statement or memorandum reconciliation account; and
- explain the meaning of certain keywords.

Session-1: Meaning, Need and causes of Disagreement between Cost Accounts and Financial Accounts

There are two systems of maintaining accounts, namely “Non-Integral System” and “Integral System”. Under Non-Integral system two sets of books are maintained, one for cost accounts and other for financial accounts. Profit or loss portrayed by both the books might be different because of dissimilar accounting principles adopted in preparation of accounts. In Non-Integral System need of reconciliation of cost and financial accounts arise while in case of Integral System it is not required. Reconciliation of cost and financial accounts helps in identifying the reasons of disagreement between two set of books.

Need of Reconciliation of Accounts

Need of reconciliation of accounts occurs due to following reasons:

1. Reconciliation of books identifies the reasons for discrepancy between profits disclosed by cost and financial accounts.
2. It helps in knowing the true profit or loss of the business and also facilitates the manager in right decision making.
3. It assists in checking the arithmetical accuracy of costing accounts. It also helps in coordination and promotion of cost accounting and financial accounting departments.

Reasons of Disagreement between Costing and Financial Profits or Losses

1. Items shown only in financial accounts

2. Items shown only in cost accounts

3. Over-absorption or under-absorption of overheads

4. Different methods of charging depreciation

5. Different methods of stock valuation

6. Abnormal gains and losses

Due to following reasons difference may arise in costing and financial profit and loss account:

1. **Items shown only in financial accounts:** Following are the items which are shown in the financial accounts only, not considered in the cost accounting. These items are categorized as under:

(a) Purely financial charges – examples

- (i) Loss on sale of capital assets
- (ii) Discount on bonds, debenture etc.
- (iii) Loss on investment
- (iv) Expenses of company's transfer office
- (v) Interest on bank loans and mortgages.
- (vi) Fines and penalties
- (vii) Provision for bad and doubtful debts
- (viii) Damages payable at law
- (ix) Amount written off, goodwill, discount on debentures, preliminary expenses
- (x) Loss due to theft, pilferage, etc.

(b) Purely financial incomes – examples

- (i) Profit arising from sale of capital assets
- (ii) Rent receivable



- (iii) Dividend and interest received on investments
- (iv) Interest received on bank deposits
- (v) Transfer fees received
- (vi) Income tax refund

(c) Appropriations of profit – examples

- (i) Dividend paid
- (ii) Transfer to reserves
- (iii) Charitable donations
- (iv) Income-tax
- (v) Any other item which appears in the profit and loss appropriations account.

2. **Items shown only in cost accounts:** Following items are only considered in cost accounts not at all considered in financial accounts.
 - (i) Notional rent, i.e, charges on owned premises.
 - (ii) Interest on capital employed.
 - (iii) Notional salaries
 - (iv) Depreciation on fully depreciated assets still in use.
3. **Overheads:** Overheads are recorded at predetermined rate in cost accounting while these are recorded at actual rate in financial accounting. This may lead to under or over recovery of overheads and resultant discrepancy in profit according to cost accounting and financial accounting. Under or over recovery of overheads may be treated by carrying it forward to next year or may be charged by a supplementary rate or transferred to costing profit and loss account.
4. **Stock Valuation:** In financial accounting, stocks are valued at cost or market price (whichever is less) while in cost accounting it is calculated on the basis of FIFO, LIFO methods. This may also lead to difference in the amount of profit according to financial accounts and cost accounts.
5. **Depreciation:** Various methods of charging depreciation are available in accounting and there is possibility of using a different method of charging depreciation in cost and financial accounts. Therefore, the amount of depreciation might be different according to the method used. For example; depreciation is charged according to straight line method in financial accounting while in cost accounting machine hour rate method might be used.
6. **Abnormal Gains and Losses:** Abnormal gains or losses might not be considered in cost accounts or it may be transferred to costing profit and loss account. But in financial accounts these will be recorded in profit and loss account. If it is not recorded in cost account then discrepancy in profit and loss according to costing and financial accounts will occur while the later case when it is transferred to costing profit and loss account; no difference will happen in the costing and financial records. Therefore, no adjustment will be required.

Knowledge Assessment-I

State with reasons whether following is True (T) or False (F):

1. Reconciliation of costing and financial accounts is not required in integral costing system.
2. Loss on sale of furniture does not make any impact on profits as per financial accounting.
3. Interest on investments is purely financial in nature and will distinguish the costing and financial profits.
4. Transfer to General Reserve is an item of cost accounts.
5. Reconciliation statement helps in knowing the true profit and loss of the business and also helps in right decision making.
6. Under Non-integrated system of accounting, both cost accounts and financial Accounts are maintained separately
7. Notional cost decreases costing profit
8. Under valuation of closing stock in costing reduces costing profit
9. Difference in the amount of Depreciation in costing and financial accounting distinguishes Costing profit from financing profit.
10. Dividend received increases financial profit.

[Ans: 1(T), 2(F), 3(T), 4(F), 5(T), 6(T), 7(T), 8(T), 9(T), 10(T)]

Session-2: Methods of Reconciliation of Costing and Financial Profit

Two methods of reconciliation of cost and financial accounts are available namely i.e., Reconciliation statement or a Memorandum Reconciliation Account. Although, profit from any set of book can be taken as base (cost or financial) for preparing reconciliation statement.

Methods of Reconciliation of Cost and Financial Accounts

Reconciliation Statement

Memorandum Reconciliation Account

Procedure of Preparing Reconciliation Statement or Memorandum Account

A reconciliation statement or a memorandum reconciliation account should be drawn up for reconciling profits shown by the two sets of books. Results shown by any sets of books may be taken as the base and necessary adjustments should be made to arrive at the results shown by the other set of books. The technique of preparing a reconciliation statement as well as a memorandum reconciliation account is discussed below:



Preparation of Reconciliation Statement

The preparation of reconciliation statement involves the following steps:

1. Profit as per any set of books (cost or financial) may be taken as the base. This is, as a matter of fact, the starting point for determining the profit as shown by the other set of books after making suitable adjustments taking into consideration the causes of difference.
2. The effect of the particular cause of difference should be studied on the profit shown by the other set of books.
3. In case the cause has resulted in an increase in the profit shown by other set of books, the amount of such increase should be added to the profit as per the former set of books which has been taken as the base.
4. In case the cause has resulted in a decrease in the profit shown by other set of books, the amount of such decrease should be subtracted from the profit as per the former set of books which has been taken as the base.

Example

Particulars	Amount (Rs.)
Profit as per cost account	10,000
Works overheads under-recovered in cost accounts	500
Interest on capital included in financial accounts	500
Dividend received	1,000
Rent for owned building charged in cost accounts	300
Profit as per financial books	10,300

There is a difference of Rs. 300 between the profit as shown by the financial books and the profit as shown by the cost books. A reconciliation statement can be prepared to reconcile, on the following basis, profits shown by the two sets of books.

1. Profit as per cost accounts may be taken as the base. In other words, the profit as shown by the financial books can be found if suitable adjustments are made in this figure of profit after taking into account the above causes of difference.
2. Works overheads have been charged more in financial accounts than those in cost accounts. This means profit as shown by the financial accounts is less than the profit as shown by the cost accounts by Rs. 500 (the amount of under recovery). Since profit as per cost accounts has been taken as the base, the amount of Rs. 500 should be subtracted from this base profit to arrive at the profit as shown by the financial accounts.
3. The inclusion of interest on capital as an expense has resulted in decrease in profits as shown by financial books. In other words, the profit as shown by the cost books is more than the profit shown the financial books by Rs. 500 (the amount of interest). The amount should, therefore, be subtracted from the base profit.
4. No charge is made in financial books for rent on owned buildings. The amount has, however, been charged in the cost books. It means the profit as shown by the financial

books is higher than the profit as shown by the cost books by this amount. The amount, therefore, should be added to the profit as shown by the cost books.

5. No charge is made in financial books for rent on owned buildings. The amount has however, been charged in the cost books. It means the profit shown by the financial books is higher than the profit as shown by the cost books by this amount. The amount, therefore, should be added to the profit as shown by the cost books.

The reconciliation statement may now be conveniently presented in the following form:

Particulars	+ (Rs.)	-(Rs.)
Profit as per cost accounts	10,000	
Less: Works overheads under-charged in cost accounts		500
Interest on capital included in financial accounts		500
Add: Dividend received	1,000	
Rent on owned buildings	300	
	11,300	1,000
Profit as per financial accounts	10,300	

In case, in the above example, the cost accounts show a loss of Rs. 10,000 instead of a profit, the amount of loss should be put in 'minus' column. The reconciliation statement should then be prepared on the same pattern as if there is a profit instead of there being a loss.

Preparation of Memorandum Reconciliation Account

Memorandum Reconciliation Account is similar to Reconciliation statement. Difference is of preparation style only. Memorandum Reconciliation Account is prepared in the accounting format using Debit (Dr.) and Credit(Cr.). All reasons of difference which are to be added should be credited while all items to be deducted should be debited. Account would be initiated with Profit as per cost accounts. The balance figure will reveal the profit as per financial accounting.

Proforma - Memorandum Reconciliation Account

To, All items which are to be deducted	_____	By, Profit as per costing	_____
To, Profit as per financial records		By, All items which are to be added	_____

Illustration 1: Rainbow manufacturing company provided the following information to mitigate the discrepancy of financial and costing profits. Prepare a reconciliation statement from the following information:



Particulars	Amount (Rs.)
Net profit as per financial records	72,760
Net profit as per costing records	76,800
Factory overheads under-recovered in costing	6,700
Administration expenses charged in excess	5,300
Depreciation charged according to financial records	5,660
Depreciation recovered according to costing records	5,950
Interest received on loan provided	720
Income tax provided in financial records	800
Dividend received credited in financial books	510
Store adjustment (Credited in financial books)	840
Depreciation of stock charged in financial accounts	1260
Dividend proposed in financial accounts	2400
Abnormal loss due to theft and pilferage provided only in financial books	540

Solution:

Particulars	Amount (Rs.)	Amount (Rs.)
Profit as per costing books		76,800
Add: Administration expenses charged in excess	5,300	
Depreciation overcharged in costing books (5,950-5,660)	290	
Interest received on loan provided	720	
Bank interest received credited in financial books	510	
Store adjustment (Credited in financial books)	840	7,660
Less: Factory overheads under-recovered in costing	6,700	84,460
Income tax provided in financial records	800	
Dividend proposed in financial accounts	2,400	
Depreciation of stock charged in financial accounts	1,260	
Abnormal loss due to theft and pilferage provided only in financial books	540	11,700
Profit as per financial records		72,760

Illustration 2: From the following figures, prepare a reconciliation statement.

Particulars	Cost Accounts Amount (Rs.)	Financial Accounts Amount (Rs.)
Net Profit	70,000	
Selling and promotion overheads	6,100	6,100
Provision for doubtful debts	-	4,000
Factory indirect expenses	8,500	7,000
Director's remuneration	-	4,000
Income-tax paid		18,500
Rent received from own building	5,500	-
Depreciation charged	9,100	11,900
Dividend received	-	1,100
Administrative overheads	4,900	7,800

Solution: **Reconciliation Statement**

Particulars	Items to be added	Items to deducted
Profit as per Costing Account	70,000	
Add: Factory indirect expenses over-absorbed (8,500-7,000)	1,500	
Rent received from own building	5,500	
Dividend received	1,100	
Less: Provision for doubtful debts		4,000
Director's remuneration		4,000
Income-tax paid		18,500
Depreciation under-charged (11,900-9100)		2,800
Administrative overheads (7,800-4900)		2,900
		32,200
Profit as per financial accounts		45,90
	78,100	78,100

Illustration 3: Rego manufacturers of machine spare parts produce two categories X and Y. The following data refer to the year ended on 31st March 2014:

Particulars	Category X	Category Y
Units produced	250	800
Units sold	240	720
	Rs.	Rs.
Wages paid per unit	38	28
Material cost per unit	12	10
Selling price per unit	130	100

All expenses other than wages and materials are analyzed under 'Work Overheads' which during the year amounted to Rs. 26, 500 and 'office overheads' which amounted to Rs. 13,500.

In fixing the selling price, it was estimated that works overhead should be taken at 50% on wages and office expenses at 25% on works cost.

Calculate the total cost per unit on the basis of the given overhead percentages. Also determine the net profit for the year shown by financial accounts. Unsold stock is to be valued at actual material and wages cost plus works overhead at 50% on wages. Prepare reconciliation statement for matching the costing and financial profits.

Solution:

Particulars	Category X (in Rs.)	Category Y (in Rs.)
Materials	12.00	10.00
Wages	38.00	28.00
Prime Cost	50.00	38.00
Works overhead (50% of Wages)	19.00	14.00
Works Cost	69.00	52.00
Office overheads (25% of works cost)	17.25	13.00
Total cost per unit	86.25	65.00

Statement of Profit as per Cost Accounts

Particulars	Category X (in Rs.)	Category Y (in Rs.)
Total cost of production		
Category X: 250 units @ Rs. 86.25 per unit	21,562.5	
Category Y: 800 units @ Rs. 65 per unit		52,000
Less: Stock Unsold		
Category X: 10 units @ Rs. 86.25 per unit	862.50	

Category Y: 800 units @ Rs. 65 per unit		5,200
Cost of Goods Sold	20,700	46,800
Profit	10,500	25,200
Selling Price: Category X: 240 units @ Rs. 130 per unit Category Y: 720 units @ Rs. 100 per unit	31,200	72,000

Profit and Loss Account for the Period.....

To Materials		By Sales	
Category X 3,000		Category X 31,200	
Category Y <u>8,000</u>	11,000	Category Y <u>72,000</u>	1,03,200
To Wages		By Stock unsold (valued at works cost)	
Category X 9,500		X: 10 units x Rs. 69 = 690	
Category Y <u>22,400</u>	31,900	Y: 80 units x Rs. 5 = 4,160	4,850
To Work Expenses	13,500		
To Office Expenses	26,500		
To Net Profit	25,150		
	1,08,050		1,08,050

Reconciliation Statement

Particulars	Items to be added	Items to be deducted
Profit as per cost account Add: Over-recovery of office overheads in cost account(14,712.50 – 13,500)	35,700.00 1212.50	
Less: Under-recovery of work overheads (Rs. 26,500 – 15,950) Over-valuation of closing stock in cost account X (862.50 -690) = 172.50 Y (5,200 – 4,160) = 1,040.50		10,550 1212.50
Profit as per Financial Records		25,150
	36,912.50	36,912.50

Illustration 4: Following is a summary of the trading and profit and loss account of a manufacturing company for the year ended on 31st March, 2014:

(Amount in Rs. '000)

To Materials	3,750	By Sales	
To Wages Paid	1,800	(1,50,000 units)	7,500
To Factory Overheads	910	By Finished Stock	
To Administrative Expenses	522	(4,000 units)	160
To Selling Expenses	550	By Work-in-progress:	
To, Preliminary Expenses (Written off)	40	Material 64	
To Goodwill (Written off)	30	Wages 36	
To Net Profit	206	Factory expenses 20	120
		By Dividend Received	28
	7,808		7,808

The following costs have been allocated in cost accounts:

1. Factory overheads are equal to 20% of prime cost.
2. Administrative overheads are charged at Rs. 3 per unit of production.
3. Selling and distribution expenses are charged at Rs. 4 per unit of sales.

You are required to prepare a costing profit and loss account of the company and also prepare the reconciliation statement for matching the profit shown by costing and financial records.

Solution:

Costing Profit and Loss Statement for the 31.03.2014 (Amount Rs. '000)

Materials	3,750
Wages	1,800
Prime Cost	5,550
Factory Overheads (20% of prime cost)	1,110
Total Works Cost Less:	6,660
Closing Work-in-Progress	
Material 64	
Wages 36	
Factory Overheads 20	120
Works cost (Completed units)	6,540
Add: Administrative Overheads	
i.e (1,50,000 sold units + 4,000 units Closing Stock) 1,54,000 @ 3 per unit	462
Cost of Production	7,002
Less: Closing Stock of Finished Goods	
$\frac{7,002}{1,54,000} \times 4,000$	182

Cost of Goods Sold	6,820
Add: Selling and Distribution Expenses (1,50,000 units @ Rs. 4 per unit)	600
Cost of Sales	7,420
Profit	80
Sales	7,500

Reconciliation Statement

Profit as per Costing Records		80
Add: Factory overheads over-absorbed (1,110 – 910)	200	
Selling expenses over recovered (600 – 550)	50	
Dividend received	28	278
		358
Less: Administrative overheads under-absorbed (522-462)	60	
Preliminary expenses (written off)	40	
Goodwill (Written off)	30	
Difference in finished stock	22	152
Profit as per Financial Records		206

Illustration 5 : A manufacturing company disclosed a net loss of Rs. 3,47,000 as per their cost accounts for the year ended March 31, 2013. The financial accounts however disclosed a net loss of Rs. 5,10,000 for the same period. The following information was revealed as a result of scrutiny of the figures of both the sets of accounts:

S.No.	Particulars	Amount (Rs.)
1	Factory overheads under-absorbed	40,000
2	Administration overheads over-absorbed	60,000
3	Depreciation charged in financial accounts	3,25,000
4	Depreciation charged in cost accounts	2,75,000
5	Interest on investments not included in cost accounts	96,000
6	Income-tax provided	54,000
7	Interest on loan funds in financial accounts	2,45,000
8	Transfer fees (credit in financial books)	24,000
9	Store adjustment (credit in financial books)	14,000
10	Dividend received	32,000

Prepare a Memorandum Reconciliation Account

Solution:

Memorandum Reconciliation Account

To Net loss as per cost accounts	3,47,000	By Administration overheads over-absorbed	60,000
To Depreciation under-charged in cost accounts	50,000	By Interest on investments in financial account only	96,000
To Factory overheads under-absorbed	40,000	By Dividend received	32,000
To Income-tax not provided in costing	54,000	By Store adjustment	14,000
		By Transfer fees	24,000
To Interest on loan funds not charged in costing	2,45,000	By Net loss as per financial accounts	5,10,000
	7,36,000		7,36,000

Illustration 6: Prepare a Memorandum Reconciliation Account from the following details:

Profit as per cost accounts were Rs. 59,700 while the profits as per financial accounts were Rs. 60,000. The values of opening and closing stocks as shown in cost accounts and financial accounts were as under:

Particulars	Financial Accounts	Cost Accounts
Raw Materials:		
Opening Stock	25,000	25,300
Closing Stock	30,000	29,600
Work-in-progress:		
Opening Stock	16,000	15,500
Closing Stock	20,000	19,900

Solution:

Memorandum Reconciliation Account

To under-valuation of opening stock of work-in-progress	500	By Profit as per cost account	59,700
		By over-valuation of opening stock of materials in cost account	300
To Profit as per financial Accounts	60,000	By under valuation of closing stock of material in cost account	400
		By under valuation of closing stock of WIP	100
	60,500		60,500

Knowledge Assessment - II**Multiple Choice Questions**

1. Which of the following subsidiary ledger is maintained in cost accounts:
 - a Debtor ledger
 - b Creditor ledger
 - c Work-in-Progress
 - d None of the above
2. The reasons for the difference in cost and financial accounts may be grouped under:
 - a Purely labour items
 - b Purely material items
 - c Purely financial items
 - d Appropriation of profit
 - e Purely balance sheet items
 - f Items appearing only in cost accounts
 - g Items treated differently in cost accounts
3. Which of the following is the method of reconciliation of costing and financial profits:
 - a Memorandum Reconciliation Account
 - b Income Statement
 - c Contribution Approach
 - d None of these
4. Premium on issue of shares is
 - a Shown in costing profit and loss A/c
 - b Shown in financial profit and loss A/c
 - c None of the above
 - d a and b both
5. Notional rent is considered in which of the following A/c
 - a Cost A/c
 - b Financial A/c
 - c Balance sheet
 - d None of the above



6. **Excess of overheads in costing as compared to financial profit and loss A/c is**
 - a Over absorption of overheads
 - b Under absorption of overheads
 - c None of the above
 - d Both (a and b)
7. **Interest received on investment will be treated as**
 - a Credited in costing P & L A/c
 - b Debited in costing P & L A/c
 - c Credited in financial P & L A/c
 - d Debited in Financial P & L A/c
8. **Dividend paid on share capital is**
 - a Debited to costing P & L A/c
 - b Credited to costing P & L A/c
 - c Debited to financial P & L A/c
 - d Credited to financial P & L A/c
9. **Under valuation of opening stock in costing**
 - a Increases costing profit
 - b Decreases costing profit
 - c Decreases financial profit
 - d None of the above
10. **Payment of donations is**
 - a Debited to costing P & L A/c
 - b Credited in costing
 - c Debited to financial P & L A/c
 - d None of the above

[Ans: 1 (c), 2(c, d, f, g), 3(a), 4(b), 5(a), 6(a), 7(c), 8(c), 9(a), 10(c)]

Keywords

- **Reconciliation Statement:** It is prepared to find out the causes of disagreement between profits shown by cost accounts and financial accounts.
- **Memorandum Reconciliation Account:** It is a reconciliation statement which is prepared in the form of an account.

Summary

- When cost accounts and financial accounts are separately maintained in two different sets of books, a need occurs for reconciliation of costing profit and financial profit.
- Reconciliation Statement discloses the causes of disagreement between profits shown by cost accounts and financial accounts.
- It also helps in checking arithmetical accuracy of costing data.
- Main reasons of difference in profit or loss cost and financial accounts are:
 - a) Items shown only in financial accounts.
 - b) Items shown only in cost accounts.
 - c) Over and under absorption of overheads.
 - d) Difference in stock valuation methods.
 - e) Difference in rates and methods of charging depreciation.
 - f) Abnormal gain or loss.
- Memorandum Reconciliation Account is a reconciliation statement which is prepared in the form of an account. It is known as 'Memorandum Reconciliation Account'.

Exercise Questions

Short Answer Questions

1. What do you mean by 'Non-Integral System' of maintaining records?
2. What is Reconciliation Statement?
3. Why costing profit differs from financial profit? Mention any three reasons.
4. What is over- absorption of overheads?
5. What is under- absorption of overheads?
6. Differentiate Memorandum of Reconciliation Account and Reconciliation Statement.
7. Explain 'Integral' System of maintaining costing records.

Long Answer Questions

1. What do you mean by Reconciliation Statement? Explain the need of preparing the same. Also highlight the reasons of difference in costing profits and profits as per financial records.
2. Why is reconciliation of cost and financial account necessary? Under what circumstances a reconciliation statement can be avoided.
3. List down the items, either debit or credit, which appear in the financial accounts only.
4. Explain the procedure of preparing Reconciliation Statement.

5. Prepare proforma of 'Reconciliation Statement'.
6. "Reconciliation of cost and financial accounts in the modern computer age is redundant".
Comment
7. There is generally divergence between 'financial profits' and 'cost profits'. Explain the statement and give reasons for such divergence.

Numerical Questions

1. Savoy manufacturing concern presented following information to prepare a Reconciliation Statement:

(Amount in Rs.)		
Particulars	Costing Records	Financial Records
Advertisement Expenses	10,000	10,000
Provision for Discount on Debtors	-	5,000
Factory Expenses	7,500	6,000
Senior Manager's Salary	-	2,000
Income tax paid	-	15,000
Rent of own premises	6,000	-
Depreciation charged	13,250	14,000
Share transfer fee (cr.)	-	1,000
Administrative overheads	4,200	7,200
Profit	50,000	-

[Ans: Profit as per financial records Rs. 32,750]

2. The financial books of a company show a net profit of Rs. 1,27,560 for the year ending 31st December, 2014. The Cost Account shows a net profit of Rs. 1,33,520 for the same corresponding period. The following facts are brought to light:

Factory overhead under recovered in cost accounts	11,400
Administration overhead over recovered in cost accounts	8,500
Depreciation charged in financial accounts	7,320
Depreciation recovered in cost accounts	7,900
Interest received but not included in cost accounts	900

Income tax debited in financial accounts	1,200
Bank interest credited financial accounts	460
Stores adjustment credited in financial accounts	840
Rent charged in financial accounts	1,720
Dividend paid recorded in financial accounts	2,400
Loss of obsolescence charged in financial accounts	520

[Ans: Profit as per financial accounts 1,27,560]

3. Vista manufacturing company has shown the profit of Rs. 1,50,000 as per the cost accounts. With the help of given information prepare a reconciliation statement to match the profit as cost and financial records.

	Costing Records (in Rs.)	Financial Records (in Rs.)
(a) Inventory (Opening):		
Materials	10,000	15,000
Finished goods	18,000	16,000
(b) Inventory (Closing):		
Materials	12,000	13,000
Finished goods	20,000	17,000
(c) Write off: legal charges for starting the business Rs. 500 ; Goodwill Rs. 1,500		
(d) Interest on deposits in bank received Rs. 1,000		
(e) Indirect expenses charged in the financial accounts Rs. 80,000 but Rs. 75,000 recovered in cost account		
(f) Commission charged but not paid Rs. 10,000.		

[Ans: Profits as per financial records Rs. 1,49,500]

4. Harish Ltd., has furnished you the following information from the financial books for the year ended 30th June, 2013:

Profit and Loss Account (ended 30th June, 2013)

Particulars	Amount (in Rs.)	Particulars	Amount (in Rs.)
To Purchases	1,26,050	By Sales (25000 units at Rs.15)	3,75,000
To Direct Wages	52,500	By Rent Received	1,300



To Factory Overheads	60,650	By Profit on sale of investment	700
To Office & Administrative Overheads	26,700	By Closing Stock	20,400
To Depreciation	5,500		
To Selling Expenses	35,500		
To Net Profit	1,01,400		
	4,08,400		4,08,400

The cost sheet shows the costing profit of Rs. 98,850 and closing stock of Rs. 21,400. The factory overheads are absorbed at 100% of direct wages and Office and Administrative overheads are charged at Rs. 1 per unit. Selling expenses are charged at 10% of Gross of sales. Depreciation in cost account absorbed was Rs. 4,000. You are required to prepare:

- (1) A statement showing as per cost account for the year ended 30th June, 2013.
- (2) Statement showing the reconciliation of profit disclosed in cost accounts with the profit shown in the financial accounts.

[Ans: Profit as per cost accounts Rs. 98,850, Profit as per financial accounts Rs. 1,01,500]

5. Impex manufacturing company disclosed following information at the end of the year 2013:

Net profit at Rs. 11,57,550 as per the financial records

Net profit of Rs. 17,24,000 as per costing records.

Additional information after going through the both sets of books accountant found the following discrepancies.

Loss due to obsolescence charged in accounts	57,000
Commission paid in financial books	2,500
Depreciation charged in financial accounts	1,12,000
Under absorption of factory expenses	31,200
Over recovery of administrative overheads	17,000
Interest on investments not included in costs	80,000
Income tax provided in financial accounts	4,03,000
Stores adjustments (credit in financial books)	4,750
Loss due to depreciation in stock value (charged in financial accounts)	

Using the above mentioned information prepare Reconciliation Statement and Memorandum Reconciliation Account.

6. In reconciliation between cost and financial accounts one of the areas of differences is different method of stock valuation. State in each of the following circumstances, whether costing profit will be higher or lower than the financial profit.

Items of Stocks	Cost Valuation (in Rs.)	Financial Valuation (in Rs.)
Raw Material (Opening)	50,000	60,000
Work-in-Progress (Closing)	60,000	50,000
Finished Goods (Closing)	50,000	60,000

[Ans: (i) Costing profit will be higher by Rs. 10,000, (ii) Costing profit will be higher by Rs. 10,000, (iii) Costing profit will be lower by Rs. 10,000]

7. In a factory, work overheads are absorbed at 60% of works cost. Prepare (i) Cost sheet, (ii) Trading and Profit and Loss Account and (iii) Reconciliation statement if total expenditure consists of Materials Rs. 2,00,000; Wages Rs. 1,50,000; Factory Expenses Rs. 1,00,000 and Office Expenses Rs. 85,000.

10% of output is closing stock and sales are Rs. 5,20,000.

[Ans: Costing Profits Rs. 44,800, Financial Profits Rs. 30,000]

8. AVS Ltd., made a Net Profit of Rs. 5,71,000 during the year 2000 as per the their financial system. Whereas their cost accounts disclosed a profit of Rs. 7,77,200. On reconciliation, the following differences were noticed :

- (1) Directors fees charged in financial account, but not in cost account Rs. 13,000.
- (2) Bank interest credited in financial account, but not in cost account Rs. 600.
- (3) Income Tax charged in financial account, but not in cost account Rs. 1,66,000.
- (4) Bad and doubtful debts written off Rs. 11,400 in financial accounts.
- (5) Overheads charged in costing books Rs. 1,70,000 but actual were Rs. 1,66,400.
- (6) 54,000 Loss on sale of old machinery Rs.20,000 charged in financial accounts.



Suggested Readings:

- Cost Accounting: Theory and Problems, Maheshwari and Mittal, 26th edition, Mahavir Publication.
- Accounting for Management, S. N. Maheshwari and CA Sharad K. Maheshwari, 3rd revised and enlarged edition, Sultan Chand & Sons.
- Cost Accounting: Principles and Practice, M. N. Arora, 12th edition, Vikas Publishing House
- Cost Accounting and Management Accounting: Text and Cases, Ravi M. Kishore, 5th edition, Taxmann's publications.
- Cost accounting for Business managers by Asish K Bhattacharya
- Cost Accounting, Khan and Jain, 2nd edition, Tata mcgraw hill

Websites:

- www.investopedia.com
- www.accountingcoach.com
- www.accountingtools.com
- www.businessdictionary.com
- www.accountingexplained.com





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