#### 17CCU401

## COST ACCOUNTING

#### SCOPE

It deals with the collection and analysis of expenses, the measurement of production of the different products at the different stages of manufacture and the linking up of production with the expenses. In fact, the varying procedures for the collection of expenses give rise to the different systems of costing as Historical or Actual Costs, Estimated Costs, Standard Costs etc.

#### **OBJECTIVES:**

To acquaint the students with basic concepts used in cost accounting, various methods involved in cost ascertainment and cost accounting book keeping systems.

#### UNIT-I

**Introduction :** Meaning, objectives and advantages of cost accounting; Difference between cost accounting and financial accounting; Cost concepts and classifications; Elements of cost; Installation of a costing system; Role of a cost accountant in an organization- Preparation of Cost Sheet

#### UNIT-II

**Elements of Cost:** Materials: Material/inventory control techniques. Accounting and control of purchases, storage and issue of materials. Methods of pricing of materials issues — FIFO, LIFO, Simple Average, Weighted Average, Replacement, Standard Cost. Treatment of Material Losses.

#### UNIT-III

**Labour:** Accounting and Control of labour cost. Time keeping and time booking. Concept and treatment of idle time, over time, labour turnover and fringe benefits. Methods of wage payment and the Incentive schemes- Halsey, Rowan, Taylor's Differential piece wage.

#### UNIT-IV

**Elements of Cost:** Classification, allocation, apportionment and absorption of overheads; Under- and over-absorption; Capacity Levels and Costs; Treatments of certain items in costing like interest on capital, packing expenses, bad debts, research and development expenses; Activity based cost allocation.

## UNIT- V

**Methods of Costing:** Unit costing, Job costing, Contract costing, Process costing (process losses, valuation of work in progress, joint and by-products), Service costing (only transport).

## **Suggested Readings:**

## **Text Books**

1. S.P. Jain and KL. Narang. (2013) Cost Accounting New Delhi, Kalyani Publishers.

## **Reference Books**

- 1. Jawahar Lal (2013). *Cost Accounting* [5<sup>th</sup> Edition]. New Delhi, Tata McGraw Hill
- **2.** Arora, M.N(2009). *Cost Accounting Principles and Practice* [10<sup>th</sup> Ed]. New Delhi, Vikas Publishing House.
- **3.** Maheshwari, S.N. and S.N. Mittal. (2013). *Cost Accounting: Theory and Problems* [27<sup>th</sup> Edition]. New Delhi, Shri Mahavir Book Depot,.,,
- 4. Iyengar, S.P.(2013) Cost Accounting. [10th edition]. New Delhi, Sultan Chand & Sons

## Scope:

Computerized Accounting using Tally for the maintenance of materials, stock is the order pf the day. Stock maintenance and stock issue procedure using computer is very helpful to students to enhance their knowledge on the part of accounting.

## **Objectives:**

- > To provide practical knowledge on accounting practices
- ➤ To know the accounting through Tally
- > In Tally we can learn how to prepare and maintaining the company's stock
- List of Programs

The following are the list of practical

1 Prepare inventory statements using (calculate inventory using all methods) FIFO

LIFO

Simple Average Method

Weighted Average Method

- 2. Prepare bank reconciliation statement
- 3. Prepare the following ratio analysis
  - Financial ratio
  - Operating ratio
  - Investment ratio
- 4. Prepare the following
  - Cash flow statement
  - Fund flow statement
- 5. Create stock and stock groups
- 6. Create stock group and stock items and enter the vouchers
- 7. Preparation of reports for the following
  - Profit & loss a/c
  - Balance sheet
  - Bank reconciliation statement
  - Ledgers

Ratio analysis

8. Back up and restore the company information

## **Suggested Readings**

## **Reference Books :**

- 1. Shraddha Singh, Navneet Mehra (2010) "Tally ERP 9: Power of Simplicity".
- 2. Nadhani. 2013. *Tally9.2*. New Delhi, PBP Publication.
- 3. Rita Bhargava. 2011. Tally 9.2. New Delhi. Cyber the Publication

## (Established Under section 3 of the UGC Act, 1956)

## **Department of Commerce**

COST ACCOUNTING (17CCU401)

## 2018 - 2019(EVEN) UNIT 1

S. No	Lecture Duration (hour)	Topics to be Covered	Support Materials
1	1	Introduction of cost accounting – Meaning and Definition of cost	T1- Pg I 2 – I 3
2	1	An overview of costing and cost accounting	T1 – Pg I 1 – I 2
3	1	Objectives of costing Advantage of cost accounting	T1 – Pg I 5 – I 7
4	1	Different between cost accounting and management accounting	T1 - Pg I 10 - I 12
5	1	Cost concepts, Classifications	TI – Pg I 38 – I 45
6	1	Elements of cost,	T1 – Pg I 26 – I 29
7	1	Installation of a costing system, Role of cost accountant	T1 – Pg I 15 – I 16, TI – Pg I 20 – I 21
8	1	Specimen of cost sheet	TI - Pg I 29 – I 30
9	1	Calculation of Prime Cost and Work – in – progress, cost of sales and profit	TI - Pg I 30 - I 38
10	1	Recapitulation and Important Question Discussion	
Total No	. of Hours <b>p</b>	olanned for Unit – I	10 Hours

## UNIT II

S.No	Lecture Duration (hour)	Topics to be Covered	Support Materials
1	1	Introduction to Materials / inventory control techniques.	T1 – Pg II 56 – II 62
2	1	Accounting and control of purchase	TI – Pg II 56 – II 62
3	1	Storage and issue of materials	TI - Pg II 49 – II 62
4	1	Methods of pricing of materials issue	TI – Pg II 62 – II 74
5	1	Methods of pricing- Problems to be worked in FIFO	TI – Pg II 63 – II 64
6	1	Problems to be worked for LIFO method	TI – Pg II 65 – II 66
7	1	Problems to be worked for Simple average method and weighted average method	TI – Pg II 64 – II 69
8	1	Replacement and standard cost and problems to be worked	TI – Pg II 71 – II 73
9	1	Treatment of Material Loss	TI – Pg II 91 – II 99
10	1	Recapitulation and Important Question Discussion	
Total No	. of Hours p	lanned for Unit – II	10 Hours

UNIT III				
S No.	LectureNo.LectureDuration (hour)Topics to be Covered		Support Materials	
1	1	Introduction to Labour Cost	TI – Pg II 106	
2	1	Accounting and control of labour cost	TI – Pg II 107 – II 141	
3	1	Time keeping and time booking	TI – Pg II 119 – II 125	
4	1	Concept and treatment of idle time and over time	TI – Pg II 127 – II 130	
5	1	Labour turnover and fridge benefits	TI – Pg II 133 – II 136	
б	1	Methods of wage payment and incentive schemes	TI – Pg II 133	
7	1	Problems to be worked out in Halsey Plan, Rowan Plan and Taylor's differentiate piece rate system	TI – Pg II 156, Pg II 161 – II 162	
8	1	Problems to be worked out in Halsey Plan, Rowan Plan and Taylor's differentiate piece rate system	TI – Pg II 156, Pg II 161 – II 162	
9	1	Recapitulation and Important Question Discussion		
Fotal No	. of Hours p	blanned for Unit – III	9 Hours	

	UNIT IV				
S.No	Lecture Duration (hour)	Topics to be Covered	Support Materials		
1	1	Overhead: Meaning and Definition	TI – Pg II 192 – II 194		
2	1	Classification of overheads	TI – Pg II 194 – II 204		
3	1	Apportionment, Allocation and Absorption overheads	TI – Pg II 210 – II 219		
4	1	Under absorption and over absorption	TI – Pg II 213 – II 233		
5	1	Capacity Levels and cost	TI – Pg II 213 – II 233		
6	1	Treatment of certain items in costing like interest on capital and packing expenses	TI – Pg II 285 – II 298		
7	1	Treatment of certain items in costing like bad debts, research and development expenses	TI – Pg II 285 – II 298		
8	1	Activity cost costing and allocation	TI – Pg II 285 – II 298		
9	1	Recapitulation and Important Question Discussion			
Total	No. of Hou	ırs planned for Unit – IV	9 Hours		

#### UNIT V

S.No	Lecture Duration (hour)	Topics to be Covered	Support Materials
1	1	Meaning and procedure of unit costing, problems to be worked out in unit costing	T1 – Pg IV 63 – IV 89
2	1	Meaning and procedure of job costing, problems to be worked out in job costing.	TI - Pg IV 3 – IV 62
3	1	Meaning and procedure of contract costing, problems to be worked out in contract costing.	
4	1	Meaning and procedure of service costing (only transport)	TI – Pg IV 90 – IV 129
5	1	Joint and by product	TI – Pg IV 188 – IV 221
6	1	Process costing	TI – Pg IV 130 – IV 187
7	1	process losses	
8	1	valuation of work in process	
9	1	Recapitulation and Important Question Discussion	
	Total	No. of Hours planned for Unit – V	9 Hours
10	1	<b>Revision:</b> Discussion of Previous Year ESE Question Papers	
11	1	Discussion of Previous Year ESE Question Papers	
12	1	Discussion of Previous Year ESE Question Papers	
Total N discuss	No. of Hours	s planned for Unit – V & ESE Question paper	12 Hrs.

## **TEXT BOOK:**

T1: S. P. Jain and K.L. Narang (2013) Cost accounting New Delhi, Kalyani publishers.

#### **REFERNECES:**

R1: Jawahar Lal (2013). Cost Accounting (5<sup>th</sup> Edition). New Delhi, Tata McGraw Hill.

R2 : Arora, M.N(2009). Cost Accounting Principles and Practice (10<sup>th</sup> Ed). New Delhi, Vikas Publishing House.

R3 : Maheshwari , S.N and S.N. Mittal (2013). Cost Accounting : Theory and Problems (27<sup>th</sup> Edition). New Delhi, Sri Mahavir Book Depot,...

R4 : Iyengar, S.P. (2013) Cost Accounting. (10<sup>th</sup> Edition). New Delhi, Sultan Chand & Sons. **WEB ADDRESS** 

W1: http:// en-wikipedia.org/wiki/cost-benefit-analysis

W2: www.yourarticllibrary.com/cost.../labour-turnover-formula

W3: accounting.com/accounting>cost aaccounting>overhead

W4: www.yourarticle.com/cost/process-costing/process-costing-principle

W5:www.investopedia.com/terms/0/operating.cost.asp

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

UNIT – I : Introduction: Meaning, Objectives and advantages of cost accounting. Difference between cost and financial accounting. Cost concept and classification; Elements of cost; Installation of a cost system ; Role of cost accountant in an organization; preparation of cost

#### Introduction:

Cost accounting is the process of recording, classifying, analyzing, summarizing, and allocating costs associated with a process, and then developing various courses of action to control the costs. Its goal is to advise the management on how to optimize business practices and processes based on cost efficiency and capability. Cost accounting provides the detailed cost information that management needs to control current operations and plan for the future

#### **Cost Accounting – Definition:**

Cost accounting examines the cost structure of a business. It does so by collecting information about the costs incurred by a company's activities, assigning selected costs to products and services and other cost objects, and evaluating the efficiency of cost usage. Cost accounting is mostly concerned with developing an understanding of where a company earns and loses money, and providing input into decisions to generate profits in the future. Key activities include:

• Defining costs as direct materials, direct labor, fixed overhead, variable overhead, and period costs

• Assisting the engineering and procurement departments in generating standard costs, if a company uses a standard costing system

• Using an allocation methodology to assign all costs except period costs to products and services and other cost objects

• Defining the transfer prices at which components and parts are sold from one subsidiary of a parent company to another subsidiary

• Examining costs incurred in relation to activities conducted, to see if the company is using its resources effectively

- Highlighting any changes in the trend of various costs incurred
- Analyzing costs that will change as the result of a business decision
- Evaluating the need for capital expenditures
- Building a budget model that forecasts changes in costs based on expected activity

Class : II B.Com CA B		(	Course Name	: Cost Accounting
Course Code : 17CCU401	LINIT - I	E	Batch	: 2017 - 2019

levels

- can Determining whether costs can be reduced
- Providing cost reports to management, so they better operate the business
- Participating in the calculation of costs that will be required to manufacture a new product design

• Analyzing the system of production to understand where bottlenecks are positioned, and how they impact the throughput generated by the entire manufacturing system.

## **Objective of Cost Accounting:**

- To ascertain cost: The basic objective of cost accounting is to ascertain cost of cost center. Cost ascertainment is the process of determining costs after they have been incurred. Basically there are two methods of cost ascertainment - Job costing and Process costing. Different industries follow different methods of costing because of the difference in the nature of their activity.
- 2. **To control cost:** Cost accounting aims at controlling costs by using various techniques such as Budgetary control, Standard costing, Inventory control etc.
- 3. **To provide information for decision making:** Cost accounting aims at providing information for various managerial decisions
  - 1. Whether to make or buy component
  - 2. Whether to retain or replace an existing machine
  - 3. Whether to process further or not
  - 4. Whether to shut down or continue operations
- 4. **To determine selling price:** Cost accounting provides cost information to determine the selling price of products or services. During the period of depression, it guides the management to decide, "How much reduction in selling price may be made to meet the situation? "
- 5. **To ascertain costing profit:** Cost accounting aims at ascertaining the costing profit or loss of any activity on an objective basis by matching cost with the revenue of that activity.

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

#### Advantage of cost accounting:

Cost accounting is the process of collecting and interpreting information to determine how an organization

earns and uses funds. There are multiple advantages to using cost accounting, since it provides vastly more actionable information than the financial statements produced through financial accounting. Here are the key advantages of cost accounting to consider:

• Cost object analysis. Revenues and expenses can be clustered by cost object, such as by product, product line, and distribution channel, to determine which ones are profitable or require further support.

• Discovers causes. An effective cost accountant not only locates problems within a company, but also drills down through the data to determine the exact cause of the issue, and also recommends solutions to management.

• Trend analysis. Costs can be tracked on a trend line to discover expense surges that may be indicative of long-term trends.

• Modeling. Costs can be modeled at different activity levels. For example, if management is contemplating the addition of a second shift, cost accounting can be used to derive the additional costs associated with that shift.

• Acquisitions. The cost structures of possible acquisition candidates can be examined to see if costs can be pruned in some areas, thereby justifying the cost of the acquisition.

• Project billings. If a company is billing a customer based on costs incurred, cost accounting can be used to accumulate costs by project and roll this information into customer billings.

• Budget compliance. Actual costs incurred can be compared to budgeted or standard costs, to see if any part of a business is spending more than expected.

• Capacity. The ability of a business to support increased sales levels can be examined by exploring the amount of its excess capacity. Conversely, equipment that is idle can be sold off, thereby reducing the asset base of the organization.

• Inventory valuation. The cost accountant is usually tasked with accumulating the cost of inventory for financial reporting purposes. This includes charging direct labor to inventory, as well as allocating factory overhead to inventory.

Class : II B.Com CA B Course Name : Cost Accounting Course Code : 17CCU401 : 2017 - 2019 Batch UNIT - I Difference between cost accounting and financial accounting BASIS FOR **FINANCIAL** COST ACCOUNTING **COMPARISON** ACCOUNTING Meaning Cost Accounting is an Financial Accounting is an accounting system, through accounting system that which an organization captures the records of keeps the track of various financial information about incurred the business to show the costs in the production correct financial position of business in activities. the company at a particular date. Information type Records the information Records the information related to material, labor which are in monetary terms. and overhead, which are used in the production process. Which type of cost Both historical and pre- Only historical cost. used for determined cost is recording? Users Information provided by Users of information the cost accounting is used provided by the financial only by the internal accounting are internal and management of external parties like creditors, the organization like shareholders, customers etc. employees, directors. managers, supervisors etc. Valuation of Stock At cost Cost or Net Realizable Value.

whichever is less.

	KARPAGAM ACADEMY OF HIGHER EDUCATION						
	Class : II B.Com CA B Course Code : 17CCU401	UNIT - I	Course Name : Cost A Batch : 2017	Accounting - 2019			
B C	ASIS FOR OMPARISON	COST ACCOUNTING	FINANCIAL ACCOUNTING				
M	Iandatory	No, except for manufacturing firms it is mandatory.	Yes for all firms.				
Т	ime of Reporting	Details provided by cost accounting are frequently prepared and reported to the management.	Financial statements are reported at the end of the accounting period, which is normally 1 year.				
P	rofit Analysis	Generally, the profit is analyzed for a particular product, job, batch or process.	Income, expenditure and profit are analyzed together for a particular period of the whole entity.				
P	urpose	Reducing and controlling costs.	Keeping complete record of the financial transactions.				
F	orecasting	Forecasting is possible through budgeting techniques.	Forecasting is not at all possible.				

## **Concept of Cost:**

According to the Chartered Institute of Management Accountants, cost is "the amount of expenditure (actual or notional) incurred on or attributable to a specified thing or activity." Similarly, according to Anthony and Wilsch "cost is a measurement in monetary terms of the amount of resources used for some purposes."

Cost has been defined by the Committee on Cost Terminology of the American Accounting Association as "the foregoing, in monetary terms, incurred or potentially to be incurred in the realisation of the objective of management which may be manufacturing of a product or rendering of a service."

Class : II B.Com CA B		Course Name : Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch : 2017 - 2019

#### **Classification of Cost:**

Classification of costs implies the process of grouping costs according to their common characteristics. A proper classification of costs is absolutely necessary to mention the costs with cost centres. Usually, costs are classified according to their nature, viz., material, labour, over-head, among others. An identical cost figure may be classified in various ways according to the needs of the firms.

## The above classification may be outlined as:



Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

## However, the classification of cost may be depicted as given:

## (a) According to Elements:

Under the circumstances, costs are classified into three broad categories Material, Labour and Overhead. Now, further subdivision may also be made for each of them. For example, Material may be subdivided into raw materials, packing materials, consumable stores etc. This classification is very useful in order to ascertain the total cost and its components. Same classification may also be made for labour and overhead.

## (b) According to Functions:

The total costs are divided into different segments according to the purpose of the firm. That is why costs are grouped as per the requirements of the firm in order to evaluate its functions properly. In short, the total costs include all costs starting from cost of materials to the cost of packing the product.

It takes the cost of direct material, direct labour and chargeable expenses and all indirect expenses under the head Manufacturing/Production cost.

At the same time, administration cost (i.e. relating to office and administration) and Selling and Distribution expenses (i.e. relating to sales) are to be classified separately and to be added in order to find out the total cost of the product. If these functional classifications are not made properly, true cost of the product cannot accurately be ascertained.

#### (c) According to Variability:

Practically, costs are classified according to their behaviour relating to the change (increase or decrease) in their volume of activity.

#### These costs as per volume may be subdivided into:

(i) Fixed Cost;

- (ii) Variable Cost;
- (iii) Semi-variable Cost.

Fixed Costs are those which do not vary with the change in output, i.e., irrespective of the quantity of output produced, it remains fixed (e.g., Salaries, Rent etc.) up to a certain limit. It is interesting to note that if more units are product, fixed cost per unit will be reduced, and, if less units are produced, obviously, fixed cost per unit will be increased.

Class : II B.Com CA B		Course Name	: Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch	: 2017 - 2019

Variable Costs, on the other hand, are those which vary proportionately with the volume of output. So the cost per unit will remain fixed irrespective of the quantity produced. That is, there is no direct effect on the cost per unit if there is a change in the volume of output (e.g. price of raw material, labour etc.,).

On the contrary, semi-variable costs are those which are partly fixed and partly variable (e.g. Repairs of building).

## (d) According to Controllability:

Costs may, again, be subdivided into two broad categories according to the performance done by any member of the firm.

## They are:

(i) Controllable Costs; and

(ii) Uncontrollable Costs.

Controllable Costs are those costs which may be influenced by the decision taken by a specified member of the administration of the firm or, it may be stated, that the costs which at least partly depend on the management and is controllable by them, e.g. all direct costs, direct material, direct labour and chargeable expenses (components of Prime Cost) are controllable by lower management level and is done accordingly.

Uncontrollable Costs are those which are not influenced by the actions taken by any specific member of the management. For example, fixed costs, viz., rent of building, payment for salaries etc.

## (e) According to Normality:

Under this condition, costs are classified according to the normal needs for a given level of output for a normal level of activity produced for such output.

## They are divided into:

(i) Normal Costs; and

## (ii) Abnormal Costs.

Normal Costs are those costs which are normally required for a normal production at a given level of output and which is a part of production.

Class : II B.Com CA B Course Code : 17CCU401

Course Name : Cost Accounting Batch : 2017 - 2019

Abnormal Costs, on the other hand, are those costs which are not normally required for a given level of output to be produced normally, or which is not a part of cost of production.

UNIT - I

## (f) According to Time:

Costs may also be classified according to the time element in it. Accordingly, costs are classified into:

(i) Historical Costs; and

(ii) Predetermined Costs.

Historical Costs are those costs which are taken into consideration after they have been incurred. This is possible particularly when the production of a particular unit of output has already been made. They have only historical value and cannot assist in controlling costs.

Predetermined Costs, on the other hand, are the estimated costs. Such costs are computed in advanced on the basis of past experience and records. Needless to say here that it becomes standard cost if it is determined on scientific basis. When such standard costs are compared with the actual costs, the reasons of variance will come out which will help the management to take proper steps for reconciliation.

## (g) According to Traceability:

# Costs can be identified with a particular product, process, department etc. They are divided into:

(i) Direct (Traceable) Costs; and

(ii) Indirect (Non-Traceable) Costs.

Direct/Traceable Costs are those costs which can directly be traced or allocated to a product, i.e. it includes all traceable costs, viz., all expenses relating to cost of raw materials, labour and other service utilised which can be traced easily.

Indirect/Non-Traceable Costs are those costs which cannot directly be traced or allocated to a product, i.e. it includes all non-traceable costs, e.g. salary of store-keepers, general administrative expenses, i.e. which cannot properly be allocated directly to a product.

(*h*) According to Planning and Control: Costs may also be classified into:(i) Budgeted Costs; and

Class : II B.Com CA B		Course Name	: Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch	: 2017 - 2019

(ii) Standard Costs.

Budgeted Costs refer to the expected cost of manufacture computed on the basis of information available in advance of actual production or purchase. Practically, budgeted costs include standard costs, both are predetermined costs and their amount may coincide but their objectives are different.

Standard Costs, on the other hand, is a predetermination of what actual costs should be under projected conditions serving as a basis of cost control and, as a measure of product efficiency, when ultimately aligned actual cost. It supplies a medium by which the effectiveness of current results can be measured and the responsibility for derivations can be placed.

Standard Costs are predetermined for each element, viz., material, labour and overhead.

## **Standard Costs include:**

## (i) The cost per unit is determined to make an estimated total output for the future period for:

(a) Material;

(b) Labour; and

(c) Overhead.

(ii) The cost must depend on the past experience and experiments and specification of the technical staff.

(iii) The cost must be expressed in terms of rupees.

## (i) According to Management Decisions: Under this, costs may also be classified as: (a) Marginal Cost:

# Marginal Cost is the cost for producing additional unit or units by segregation of fixed costs (i.e., cost of capacity) from variable cost (i.e. cost of production) which helps to know the profitability. Moreover, we know, in order to increase the production, certain expenses (fixed) may not increase at all, only some expenses relating to materials, labour and variable expenses are increased. Thus, the total cost so increased by the production of one unit or more is the cost of marginal unit and the cost is known as marginal cost or incremental cost.

Class : II B.Com CA B		Course Name	: Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch	: 2017 - 2019

## (b) Differential Cost:

Differential Cost is that portion of the cost of a function attributable to and identifiable with an added feature, i.e. the change in costs as a result of change in the level of activity or method of production.

## (c) **Opportunity Cost:**

It is the prospective change in cost following the adoption of an alternative machine, process, raw materials, specification or operation. In other words, it is the maximum possible alternative earnings which might have been earned if the existing capacity had been changed to some other alternative way.

#### (d) Replacement Cost:

It is the cost, at current prices, in a particular locality or market area, of replacing an item of property or a group of assets.

## (e) Implied Cost:

It is the cost used to indicate the presence of arbitrary or subjective elements of product cost having more than usual significance. It is also called notional cost, e.g., interest on capital — although no interest is paid. This is particularly useful while decisions are taken regarding alternative capital investment projects.

#### (f) Sunk Cost:

It is the past cost arising out of a decision which cannot be revised now, and associated with specialised equipment's or other facilities not readily adaptable to present or future purposes. Such cost is often regarded as constituting a minor factor in decisions affecting the future.

#### **Elements of Cost in Cost Accounting**

Again, these elements of cost are divided into two categories such as Direct Material and Indirect Material, Direct Labour and Indirect Labour, Direct Expenses and Indirect Expenses. All direct material, direct labour and direct expenses are added to get prime cost. Likewise all indirect material, indirect labour and indirect expenses are added to get overhead. Again, overhead is divided into four categories. They are factory overhead, administration overhead, selling overhead and distribution overhead.

1. **Direct Material**: It refers to material out of which a product is to be produced or manufactured. The cost of direct material is varying according to the level of output. For example: Milk is the direct material of butter.

2. **Indirect Material**: It refers to material required to produce a product but not directly and does not form a

Class : II B.Com CA B	Course Name	: Cost Accounting	
Course Code : 17CCU401	LINIT - I	Batch	: 2017 - 2019

part of a finished product. For example: Nails are used in furniture. The cost of indirect material is not varying in direct proportion of product.

3. **Direct Labour**: It refers to the amount paid to the workers who are directly engaged in the production of goods. It varies directly with the output.

4. **Indirect Labour**: It refers to the amount paid to the workers who are indirectly engaged in the production of goods. It does not vary directly with the output.

5. **Direct Expenses**: It refers to the expenses that are specifically incurred by the company to produce a product. A product cannot be produced without incurring such expenses. It varies directly with the level of output.

6. **Indirect Expenses**: It refers to the expenses that are incurred by the organization to produce a product. But, these expenses cannot be easily found out accurately. For example: Power used for production.

7. **Overhead**: It is the combination of all indirect materials, indirect labour and indirect expenses.

8. **Factory Overhead**: It is otherwise called Production Overhead or Works Overhead. It refers to the expenses that are incurred in the production place or within factory premises. For example: Indirect material, rent, rates and taxes of factory, canteen expenses etc.

9. Administration Overhead: It is otherwise called Office Overhead. It refers to the expenses that are incurred in connection with the general administration of the company. For example: Salary of administrative staff, postage, telegram and telephone, stationery etc.

10. **Selling Overhead**: It refers to all expenses incurred in connection with sales. For example: Salary of sales department staff, travelers' commission, advertisement etc.

11. **Distribution Overhead**: It refers to all expenses incurred in connection with the delivery or distribution of goods and services from the producer to the consumer. For example: Delivery van expenses. loading and unloading, customs duty, salary of deliverymen etc.

## Installation of a Costing System: Step # 1.

## **Objectives to be Achieved:**

The objective to be achieved should be very clear so that a thrust is given to that aspect. If the main objective is to expand production then the costing system should give more attention to production aspect, if the emphasis is to improve marketing of products then that area should be cared well.

## *Installation of a Costing System: Step # 2.* ADVERTISEMENTS:

## **Study the Product:**

Class : II B.Com CA B		Course Name	: Cost Accounting
Course Code : 17CCU401	LINIT - I	Batch	: 2017 - 2019

The study of the product is very essential. The nature of the product determines the type of costing system to be used. A product requiring high costs on materials will need a costing system giving main emphasis on pricing, storing, issuing and controlling of material cost.

On the other hand, if the product requires high labour cost then efficient system of timerecording and wage payment will be essential and the same will be true of overhead cost too.

## Installation of a Costing System: Step # 3. Study the Organisation: ADVERTISEMENTS:

An effort should be there to introduce the costing system in the existing organisational set up. As for as possible, the organisation should be least disturbed.

It becomes, therefore, necessary to see the nature of the business and of the operations, the extent of authority and responsibility, the methods of dealing with wastages of materials, the system of wage' payment, the sources from which the cost accountant has to derive information etc.

## *Installation of a Costing System: Step # 4.* Deciding the Structure of Cost Accounts:

A decision about the structure of cost accounts is the next step in the process of installing a costing system. The details of a suitable costing system should be worked out. The type of manufacturing process will determine the structure of cost accounts.

The sequence of production line should be followed by the costing system. The system should be so designed that there is a gradual build-up of the cost at each significant stage of production.

## Installation of a Costing System: Step # 5.

## **Selecting the Cost Rates:**

A decision is required for the allocation of various expenses among different products. What expenses are direct and what expenses are indirect? From indirect expenses an allocation is made among factory, office and selling and distribution overheads. This division of expenses will help in determining the cost rates.

## *Installation of a Costing System: Step # 6.* Introduction of the System:

The success of the costing system will depend upon its proper implementation. Its implementation will be possible with the full co-operation of employees in the organisation. There is a general human tendency to oppose new things. This can be tackled by properly

Class : II B.Com CA B		Course Name	e : Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch	: 2017 - 2019

explaining the system to the employees and the benefits accruing from its implementation in the future.

If required, the system should be gradually introduced instead of implementing it in full. At one stage the system may cover labour costs, at another time it may include materials cost and so on. As far as possible the existing routine should not be disturbed. The whole-hearted support of all employees will be helpful in making the costing system a success.

## Installation of a Costing System: Step # 7.

## A Follow-up:

A follow-up of the system is essential to make it practicable and useful. When a system is put into actual practice then its weaknesses and deficiencies may be realised. While collecting cost information from various sources there may be some difficulties in compilation of information, the data may not be sufficient; there may be delays in supplying information.

Once a problem is faced then efforts should be made to rectify it. The system should be readjusted to make it more useful and efficient.

## Role of cost accountant in an organization

- repare, analyze and report weekly, monthly, quarterly gross margin analysis by brand by customer type
- Assist in month-end closing, prepare journal entries as necessary, analyze inventory evaluation, inventory roll forward
- Prepare collateral reporting
- Coordinate with IT department for system issues, maintenance and development such as production, purchasing, import/export, accounts payable, accounts receivable, import/export IT, receiving, shipping, and other
- Assist in compliance with Sarbanes-Oxley Section 404 implementation
- Analyze cost accounting data and assist with cycle count/physical inventories
- Maintain internal control documentation and test internal controls
- Prepare detailed account analysis and reconcile sales, cost and inventory, liability accounts by customer type by division
- Review and analyze inventory and margin reports, conduct research and perform analytical studies in regards to cost analyses and profitability
- Work in special projects as required
- Support and assist internal department reporting requirements such as audit schedules, tax schedules and others

Class : II B.Com CA B		Course Nan	ne : Cost Accounting
Course Code : 17CCU401	UNIT - I	Batch	: 2017 - 2019

• Ensure timely submission, accuracy and validity of inventory, gross margin schedules to management

## Cost Sheet

A cost sheet is a report on which is accumulated all of the costs associated with a product or production job. A cost sheet is used to compile the margin earned on a product or job, and can form the basis for the setting of prices on similar products in the future. It can also be used as the basis for a variety of cost control measures. Despite the name, a cost sheet can be compiled and viewed on a computer screen, as well as being manually developed on paper. The costs listed on the report are usually aggregated into the following categories:

- Direct materials
- Direct labor
- Allocated factory overhead

In some situations, a cost sheet may also include a line item for allocated administrative overhead.

In addition, the following costs may also appear on a cost sheet in varying degrees of detail:

- Shipping and handling
- Supplies
- Outsourced costs

The costs listed on a cost sheet usually include charges for actual material and labor costs incurred. However, it is also possible that these costs are only listed at their standard costs, which are obtained by backflushing; this is the process of multiplying the number of units produced by bills of material and labor routings to arrive at the costs that *should have* been associated with a product or job.

The development of a cost sheet can be a major production, especially if it is compiled by hand. Even if it is drawn from a database of compiled costs, a cost accountant must still review it for duplicate, missing, or incorrect entries before issuing it. A cost sheet is normally issued along with an explanatory page that points out any unusual costs incurred or variances that management should be aware of.

Class : II B.Com CA B Course Name : Cost Accounting Batch : 2017 - 2019

The format of a cost sheet is usually a standard one that is either manually rolled forward from earlier reports, or else set up within the accounting system for automatic display when a report is printed.

An alternative purpose for the cost sheet concept is to use it as the basis for a quote to a customer, usually for the manufacture of a custom product. In this case, the cost sheet includes the best estimates of the company's estimators for the requested product, with details for each of the previously indicated expense line items.

## **Method of Preparation of Cost Sheet:**

Step I = Prime Cost = Direct Material + Direct Labour +

Direct Expenses. Step II = Works Cost = Prime Cost +

Factory/Indirect Expenses.

Step III = Cost of Production = Works Cost + Office and Administration Expenses.

Step IV = Total Cost = Cost of Production + Selling and Distribution Expenses. Profit = Sales - Total Cost.

Cost sheet proforma

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

#### Specimen 1 : Cost Sheet (Simple)

For the month ending ... 20 ......

(Output in Tons)		(Unit = one ton)
Particulars	Cost Per ton ₹.	Total Cost ₹.
Direct Materials	_	
Direct Wages or Direct Labour	_	1 20020
Direct or Chargeable Expenses	_	-
(A) Prime Cost	-	
Works on cost or Factory on cost or		
Works overheads (may be a percentage	-	
of Direct Labour)		
(B) Works Cost	-	
Office on cost or office overheads (may be a	_	
percentage of works cost or work on cost)	-	· · · · · · · · · · · · · · · · · · ·
(C) Cost of Production or Office Cost		2 <u>-</u> 2
Selling and distribution expenses	-	· · · · ·
(D) Total Cost	-	( <del></del>
Profit : Profit (may be a percentage on total cost or selling price		
(E) Selling Price		

## **Specimen 2 : Comparative Cost Sheet**

			-	51-0-20
0 (	utput Units)	Particulars		Output ( Units)
Total	Cost per Unit		Total	Cost per Unit
₹.	₹.	Raw Materials Direct Wages Direct Charges (A) Prime Cost Works on Cost or Works Expenses : Fuel Electric power Repairs Depreciation ec. (B) Works Cost Office on Cost or Office Expenses Office Rent etc. (C) Total Cost or Production Profit (% on Cost Price or Selling Price)	₹.	₹.
		(D) Selling Price		

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

Class : II B.Com CA B	Course Nam	e : Cost Accounting
Course Code : 17CCU401	Batch	: 2017 - 2019

#### Problem 1

The following particulars have been extracted from the costing records of a manufacturing co., for the year ended 30<sup>th</sup> June, 1991.

	Rs.
Raw material purchase	1,00,000
Wages :	
Direct	60,000
Indirect	10,000
Office Salaries	22,000
Finished Goods stock	10,000
Advertising	6,000
Agent's Commission	10,000
Rent, rates & taxes etc (9/10 for works, 1/10 for office)	2,000
Works	4,000
Building-repairs	2,000
Salaries-plant	4,000
Depreciation	Rs.
Plant Machinery	4,000
Building	2,000
Carriage inward	2,000
Carriage Outward	6,000
Sales	4,00,000
Opening Stock-	
Raw material	40,000
Travelling expenses	2,000
Power	2,000
Plant Maintenance	8,000
Miscellaneous expenses	
Plant	2,000
Office	2,000
Closing Stock	
Raw Materials	40,000
Finished goods	6,000

Building is occupied 9/10 by factory and 1/10 by office. Production 20,000 (Units) You are required to prepare a detailed cost statement showing

Class : II I Course Co	B.Com CA B ode : 17CCU401	UNIT - I	Course Name Batch	: Cost Accounting : 2017 - 2019
i)	Materials consumed			
ii)	Prime cost			
iii)	Works on cost.			
iv)	Cost of production			

- v) Cost of sales and
- vi) Profit earned

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

#### Solution 1

Cost statement of the year ended 30 <sup>th</sup> June, 1991.					
Particular		Total Cost		Cost per unit	
Opening Stock of raw	40,000				
material					
Add Purchases	1,00,000				
Add Carriage inward	2,000				
	1,42,000				
Less Closing stock or raw	40,000	]			
materials					
i) Materials consumed		1,02,000		5.10	
Direct labour		60,000		3.00	
		,		,	
ii) Prime Cost		1,62,000		8.10	
Add: Factory overheads					
Indirect Wages	10,000		0.50		
Power	2,000		0.10		
Plant Maintenance	8,000		0.40		
Rent, rates and taxes (9/10)	1,800		0.09		
Misc. Expenses	2,000		0.10		
Repairs – Building (9/10)0.20	1,800		0.20		
Salaries – Plant	4000		0.20		
Depreciation – Plant	4,000		0.09		
-Building (9/10)	1,800	34,000		1.77	
iii) Works cost		1,97,400		9.87	
Add: Office Overheads					
Office Salaries	22,000		1.10		
Rents, Rates and Taxes (1/10)	200		0.01		
Misc. expenses	4,000		0.20		
Repairs – Building (1/10)	200		0.01		
Depreciation- Building (1/10)	200	26,600	0.01	1.33	
iv) Cost of Production		2,24,000		11.20	

Class : II B.Com CA B			Course	Name : Cost Accounting
Course Code : 17CCU401	LINIT - I	)	Batch	: 2017 - 2019
Add: Opening Stock of		10,000		
finished product				
		2 2 4 0 0 0		
		2,34,000		
Less: Closing stock of		6,000		
finished goods				
Cost of goods sold		2,28,000		
Add: Selling and distribution overheads				
Carriage outwards	6,000			
Travelling expenses	2,000			
Advertising	6,000			
Agent's Commission	10,000	24,000		
Cost of Sales		2,52,000		
Add Profit margin		1,48,000		
v) Sales value		4,00,000		

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

#### Problem 2

The cost of Sale of Product A is made up as follows:

Materials used in	55000	Direct Expenses	5000
Manufacturing			
Materials used in Primary	10000	Indirect Expenses (factory)	1000
packing			
Materials used in selling	1500	Administration expenses	1250
product			
Materials used in Factory	750	Depreciation of office building	750
		& equipments	
Materials used in office	1250	Dep. On factory buildings	1750
Labour required in Producting	10000	Selling expenses	3500
Labour required for factory	2000	Freight on material purchased	5000
supervision			
		Advertising	1250

Assuming that all products are manufactured are sold, what should be the selling price to be obtained as a profit of 20% on selling price?

#### Solution

## COST SHEET

#### STATEMENT OF COST AND PROFIT

Direct material	Rs.	Rs.
Materials used in manufacturing	55000	100000
Materials used in primary packing	10000	
Freight on material purchased	5000	70000
Direct labour		10000
Direct expenses-factory		5000
Direct expenses-factory		85000
PRIME COST		
Factory overheads	750	
Labour required for factory supervision	2000	
Indirect expenses – factory	1000	
Dept. on factory building	1750	5500
WORKS COST		90500
Administration O-H		
Materials used in OH10	1250	
Administration expenses	1250	
Dept. on office building equipment	750	3250
COST OF PRODUCTION		93750

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

Class : II B.Com CA B Course Code : 17CCU401

UNIT - I

Course Name : Cost Accounting Batch : 2017 - 2019

#### Problem 3

From the following data prepare a cost & profit statement of Vijay stoves manufacturing company for the year 1990.

Stock of materials as on	35000	Establishment expense	10000
1.1.1990			
Stock of materials as on	49000	Completed stock in hand	-
31.12.1990		1.1.90	
Purchase of materials	52500	Completed stock in hand	35000
		31.12.90	
Direct wages	95000		
Factory expenses	17500	Sales	189000

The number of stoves manufacturing during the year 1990 was 1000. The company wants to quote for the contract for the stoves to be quoted are of uniform quality and make similar to those manufacturing in the previous year. But cost of materials has increased 15% and cost of factory labour by 10%. Prepare a statement of net profit to be quoted to give the same percentage of net profit of turnover as was realized during the year 1990 assuming that the cost per unit of O.H. charges will be the same as the previous year.

#### Solution

COST AND PROFIT STATEMENT OF STOVES 1990				
		Amount	Amount Rs.	
		Rs.		
Opening Stock of Materials	35000			
Purchase of Materials	52500			
	87500			
Closing stock of Materials	4900			
VOLUME OF MATERIAL CO	ONSUMED	82600	20.65	
Direct wages		95000	23.75	
PRIME COST		177600	44.40	
Factory expenses		17500	4.37	
WORK COST		195100	48.77	
Establishment expenses		10000	2.50	
COST OF PRODUCTION		205100	51.27	
Opening completed stock		-		
Cost of production during the p	ord	205100		
Closing completed stock		35000		
COST OF SALES		170100		

Class : II B.Com CA B		Course N	ame : Cost Accounting			
Course Code : 1/CCU401	UNIT - I	Batch	: 2017 - 2019			
PROFIT	18900					
SELLING PRICE	189000					
STATEMENT SHOWING QUOTATION PRICE FOR 1000 STOVES						
Materials consumed	20650					
15% increase	3098					
		23748				
Factory wages	23750					
10% a increase	2375					
PRIME COST		26125				
Factory expenses		49873				
		4370				
WORK COST		54243				
Establishment expenses		2500				
TOTAL COST		56743				
(profit 10% of selling price of 1/9 of co	st)	6305				
SELLING PRICE		63058				



## Karpagam Academy of Higher Education

Pollachi Main Road, Eachanari Post, Coimbatore -641021, Tamilnadu, India. Department of Commerce (Computer Application)

## Subject Code:17CCU401 Subject Name: Cost Accounting

	UNIT - I					
1	Cost accounting has become an essential tool of	Accounts	Management	Purchase	Sales	Management
2	Cost accounting facilitates cost Reduction and	Cost	Control	Cost Control	Overheads	Cost Control
3	Direct Cost are known as	Work Cost	Prime Cost	Cost of Production	Cost of Sales	Prime Cost
4	Factory Cost=	Direct Material	Factory cost+ administrative Over head	Cost of production+ selling and distributive over head	prime cost+ factory over head	Factory cost+ administrative Over head
5	Cost which can be minimized by the executive action are known ascost	Controllable	Un controllable	Fixed Cost	Variable Cost	Controllable
6	Cost which cannot be minimized by the executive action are known ascost	Controllable	Un controllable	Fixed Cost	Variable Cost	Un controllable
7	cost are those cost which are incurred to maintain the earning capacity of the business	Capital Cost	Revenue Cost	Fixed Cost	Variable Cost	Capital Cost
8	Cost which are ascertained after they have been incurred are known ascost	Predetermined Cost	Historical Cost	Marginal Cost	Differential Cost	Historical Cost
	cost are those cost which					
----	--	--------------------	--------------------	------------------	-------------------	-------------------
9	can be allowed by discontinuation of a product	Unavoidable cost	Avoidable Cost	Capital Cost	Revenue Cost	Avoidable Cost
	Cost which continue to occur even					
10	if there is temporary stoppage of production	<b>TT 111</b>		0.10.		
10	activities	Unavoidable cost	Avoidable Cost	Capital Cost	Revenue Cost	Unavoidable cost
	is also called as specific order					
11	costing	job costing	process costing	unit costing	contract costing	job costing
	is also known as terminal					
12	costing	iob costing	process costing	unit costing	contract costing	contract costing
		<u> </u>	8	8		
12	is also called as continuous	ish sections				
13	cosung	job cosung	process costing	unit costing	contract costing	process costing
	is refered as single or output					
14	costing	job costing	process costing	unit costing	contract costing	unit costing
	are those cost which are not directly					
15	associated with the product	capital cost	product cost	period cost	revenue cost	capital cost
			•			•
16	are those cost which are incurred in	apprital agent	maduat agat	namiad aget	novembe east	agnital aget
10	purchasing some asset	capital cost	product cost	period cost	Tevenue cost	capital cost
	cost refers to converting of row material					
17	into partly finished books	conversion cost	product cost	period cost	revenue cost	conversion cost
	cost which is incurred a given level of					
18	output	normal	abnormal	fixed	variable	normal
10	cost are those cost which are incurred to	apprital agent	maduat agat	namiad aget	novembe east	agnital aget
19	maintain the earning capacity of business	capital cost	product cost	period cost	Tevenue cost	
	is followed by industries which render					
20	services	batch costing	process costing	unit costing	operating costing	operating costing
	costing refers to same costing principles					
21	and methods	historcial costing	direct costing	indirect costing	uniform costing	uniform costing
		8				
22	is also known as composite costing	historial agating	direct costing	indiract costing	multiple costing	multiple costing
22	Is also known as composite costing	instorcial costing	unect costing		multiple costing	multiple costing
		predetermined				predetermined
23	is referred as estimated cost	cost	historcial costing	direct costing	indirect costing	cost

24	cost accounting involves of cost data to the managemenr	summarising	analysing	reporting	recording	reporting
25	The costing system should provide for periodic of cost accounts and financial accounts	summarising	analysing	reconciliation	recording	reconciliation
26	operating costing is adopted by industries like transport	profit making	service industry	public	private	service industry
27	A cost centre in which is carried on as production cost centre	service	sales	production	marketing	production
28	Expenses may be	direct	indirect	both	only in direct	both
29	Expenses incurred for running the adminstrative office	adminstrative	selling	work overhead	direct overhead	adminstrative
30	Expenses incurred with the packing and delivery of goods	adminstrative	selling	work overhead	direct overhead	selling
31	Cost is partly fixed and partly variable	fixed	variable	semivariable	Keep on changing	semivariable
32	varies with the volume of output	fixed	variable	semivariable	avarge	variable
33	remains fixed irrespective of the level of output	fixed	variable	semivariable	partly fixed	semivariable
34	cost are those cost which can be avoided by discontinuation of a product department	avoidable	unavoidable	variable	fixed	avoidable
35	Extension of job costing is known as	contract	batch	process	unit	process
36	Direct costing is the of direct cost in respect of a product	ascertainment	analysing	reporting	recording	ascertainment
37	cost is a predetermined cost	direct cost	standard cost	uniform cost	marginal cost	standard cost

38	are those cost which are not directly associated with the product	capital cost	product cost	period cost	revenue cost	capital cost
39	are those cost which are incurred in purchasing some asset	capital cost	product cost	period cost	revenue cost	capital cost
40	cost refers to converting of row material into partly finished books	conversion cost	product cost	period cost	revenue cost	conversion cost
41	cost which is incurred a given level of output	normal	abnormal	fixed	variable	normal
42	cost are those cost which are incurred to maintain the earning capacity of business	capital cost	product cost	period cost	revenue cost	capital cost
43	is followed by industries which render services	batch costing	process costing	unit costing	operating costing	operating costing
44	costing refers to same costing principles and methods	historcial costing	direct costing	indirect costing	uniform costing	uniform costing
45	is also known as composite costing	historcial costing	direct costing	indirect costing	multiple costing	multiple costing
46	The costing system should provide for periodic of cost accounts and financial accounts	summarising	analysing	reconciliation	recording	reconciliation
47	operating costing is adopted by industries like transport	profit making	service industry	public	private	service industry
48	A cost centre in which is carried on as production cost centre	service	sales	production	marketing	production
49	Expenses may be	direct	indirect	both	only in direct	both
50	Expenses incurred for running the adminstrative office	adminstrative	selling	work overhead	direct overhead	adminstrative
51	Expenses incurred with the packing and delivery of goods	adminstrative	selling	work overhead	direct overhead	selling

52	Cost is partly fixed and partly variable	fixed	variable	semivariable	Keep on changing	semivariable
53	varies with the volume of output	fixed	variable	semivariable	avarge	variable
54	is all labour expended in altering the construction, composition, confirmation or condition of the project.	Direct Labour	Indirect Labour	Skilled labour	Labour	Direct Labour
55	is a statement designed to show the output of a particular accounting period alongwith break-up of costs.	Cost sheet	statement	cost accounting	Accounting	Cost Sheet
56	Cost sheet discloses the and the per cost of the units produced during the given period.	Cost	Sheet	units	rates	cost
57	The costing system should provide for periodic	Take up	Fixing up	follow up	using	Fixing Up
58	A is the smallest segment of activity or are or responsibility for which costs are accumulated.	Cost	Expenses	Loss	Cost Centre	Cost Centre
59	A is that segment of activity of a business which is responsible for both revenue and expenses and discloses the profit of a particular segment of activity.	Cost Centre	Profit Centre	Centre	Computer Centre	Profit Centre
60	The cost of training workers, apprentics and staff generally comprises of their wages, and salaries, pay and allowances of the training staff, payment of fees etc is called	Added value	Postponable cost	Research Cost	Training Cost	Training Cost

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

Elements of cost: materials / inventory control technique. Accounting and control of purchase, storage and issue of materials. Methods of pricing of material issues - FIFO, LIFO, Simple average, weighted average, replacement, standard cost. Treatment of material losses.

## Introduction

Material costs form probably the highest proportion of the total costs. Among all the three elements material cost is the most significant element. The percentages may differ from industry to industry, but for the manufacturing sector material costs are of greatest significance.

In service organization also material cost may be significant. Consider an accounting or a legal firm, where use of computer stationery could be in very high volumes, thus must be controlled properly. Analysis and control of material cost therefore become important in the quest of measuring and improving profitability. Even a small saving in the costs either by negotiating better rates or by reducing wastage could dramatically improve profit margins.

The term material is a very broad term and could include

a) Direct material such as raw material which is converted into finished product. A product may be made out of single raw material item or multiple material items may be processed or blended together. It will also include the basic packing material without which a product cannot be stored or sold. E.g. fruit juice has to be offered either in a glass or plastic bottle or a sachet or tetra pack. Such packing material will be included as direct material as it can be easily identified with each liter of juice produced.

b) Indirect material such as oil, grease, cleaning material, screws and nuts, secondary packing. This material does not form part of the final product. Technically even items like office supplies and stationery may be included as indirect material. The categorization of material into direct and indirect may be difficult at times. For example, an item of material may be called as indirect material even if it forms part of (i.e. it is physically present in) the final product. Consider polishing material used to polish wooden furniture. Although polished furniture does contain the polish, the cost of it is too insignificant to be identified with the cost unit. Same is the case with nails used in footwear manufacturing or glue used in book binding. What may be a direct material

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

## UNIT - II

item for one industry may be an indirect item for another industry. We know normally oil and grease are considered as indirect material in a manufacturing industry, but for an automobile service station it becomes a direct cost. At times the material is classified as direct even if it is physically not present in the final product. Consider a beer manufacturing process where yeast or enzyme is added in the process. It acts merely as a catalyst and is not present in the final product, but cost of it is significant. Hence it's included as direct material cost.

The classification of material cost into direct and indirect is important as the control mechanisms for both are different. Whereas efforts to control direct material costs will be directed to minimize the cost per unit, the indirect material costs may be controlled through other control measure. In different industries also material costs may be controlled in different ways e.g. in a chemical or pharmaceutical company the production is based on a fixed formula of mixing material, the costs are controlled through reduction in wastage and material rate negotiations. Of late, there is an increased importance given to not only the control over physical being of a material item but also on the entire logistics of material movement. From the stage of planning till final usage of material, there are costs attached to each activity which need to be controlled. Inventory controls measures like EOQ, ABC analysis, Pareto analysis also help keeping material costs to minimum levels.

## **Material Control and its Requirements**

"Material Control' may be defined as the regulation of the procedures for requisitioning, buying, receiving, storing, handling and usage of materials".

The main requirements of a system of material control are:

- Planning and fixation of definite responsibility for each function of material.
- Co-ordination between departments responsible for requisitioning, purchasing, receiving, inspecting, storing and utilizing the materials,
- Centralization on purchases.
- Use of material purchase budget and material requirement budget.
- Use of standard and uniform forms, and
- Proper system of stock control.

For proper application of the material control the following steps are necessary.

1. Purchasing of materials

Class : II B.Com CA Course

Code : 17CCu401

### UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

- 2. Receiving and inspecting of materials
- 3. Storing of materials
- 4. Pricing material Issues
- 5. Accounting materials losses.
- 6. Keeping physical and perpetual inventory

#### **Purchasing of Materials**

- In a large manufacturing concern, a separate purchase department is set up with the object of affecting all purchases.
- The top management lays down the purchase department.
- It is the function of the purchaser department to decide:
  - i) What to purchaser;
  - ii) When to purchase;
  - iii) form where to purchase;
  - iv) how much to purchase, and
  - v) finally at what price the material should be purchased.

#### **Maintenance of Stock Levels**

- The next important point after determination of EOQ is to decide as to when the order for purchase should be placed.
- The answer is simple. The order for purchase should be placed when the stock is reduced by usage to the Order Point.
- The Order Point is one where the order should be placed for the economic order quantity. For deciding Order Point, two things, viz.,
  - (1) Lead time and
  - (2) Usage during Lead time, are the determining factors.
- Lead time is the supply time, or to be more specific, Lead Time is "the time interval between placing an order and having materials on the factory floor ready for production..."
- Usage means the sue of materials by consumptions for productions, or the stock of finished goods sold.
- Sometimes purchase are made in large bulk in a season if the goods are seasonal, i.e.,

UNIT - II

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

available in one season only, or at a time when it is feared that the goods may not be found available in the near future due to some reason.

- Special items for which no limit or order-points are fixed may be purchased as and when needed.
- To avoid over-stocking and under stocking each items of the inventory has the Maximum Level. Minimum Level and an Order point.

## **Order Point**

It is also known; 'Ordering Level'; or 'Reorder Point', or 'Reordering Level or 'Ordering Limit', it has been stated earlier that Order Point is at which order for supply of materials or goods is placed. To decide the Order Point, three factors are considered, viz.,

(1) Lead time

- (2) Usage during Lead time, and
- (3) Minimum Limit, or the Safety stock.

In order to ensure that the optimum quantity of material is purchased and stocked, neither less nor more, the storekeeper applies scientific techniques of materials management. Fixing of certain levels for each item of materials is one of such techniques. The following levels are generally fixed.

1. Maximum level	2. Minimum level
3. Order level	4. Danger level

## 1. Maximum level

- The maximum stock level indicates the maximum quantity of an item of material which can be held in stock at any time.
- The maximum stock can be calculated by applying the following formula.
- Maximum level Re-order level + re-order quantity (minimum consumption X minimum re-order period)

## 2. Minimum level

- Minimum level represents the quantity below which the inventory of any items should not allowed to fall;
- In other words, an enterprise must maintain minimum quantity of stock so that

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

the production is not hampered due to non-availability of materials.

• If some buffer inventory is acting as a cushion against reasonable expected maximum usage.

#### Formula:

Minimum level = Re-order level – (Normal consumption x normal re-order period)

## 3. **Re-ordering Level Point**

- Re-ordering stock level in relation to an items of stock is the point at which it becomes essential to initiate purchase orders for its fresh supplies.
- Normally, re-ordering level is a point between the maximum and the minimum levels.
- Fresh orders must be placed before the actual stocks touch the minimum level.

### Formula:

Reorder level = maximum re-order period x maximum usage.

## 4. Danger level

- The danger level is below the minimum level and represents a stage where immediate steps are taken for getting stock replenished.
- When the stock reaches danger level it is indicative that if no emergency steps are taken to restock the material, the stores will be completely exhausted and normal production stopped.
- Generally the danger level of stock is fixed above the minimum level but below the re-ordering level.

## **Need for Inventory Control**

The term 'Inventory' is used to denote

- (i) goods awaiting sale (the stock items of a trading concern and the finished stocks of a manufacturer);
- (ii) the goods in course of manufacture, known as work-in-progress, and
- (iii) goods to be used directly or indirectly in production, i.e., raw materials and supplies.

UNIT - II

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

## **Objectives of Inventory Control**

- 1. To exercise proper control on the purchases and issues of inventories; proper storing; elimination of wastage; and regulating the proper supplies to works and to customers;
- 2. Pricing of the inventories on suitable basis;
- 3. Proper recording, and scientific inventory management
- 4. To have proper assessment of income through the process of matching appropriate costs against revenues.
- 5. To maintain inventory of sufficient size for the operations to go on uninterruptedly but the size should match with the optimum financial involvement.

#### **Techniques of Inventory Control**

- 1. Budgetary techniques for inventory planning;
- 2. A-B-C. System of inventory control;
- 3. Economic Order Quantity (E.O.Q.) i.e., how much to purchase at one time economically;
- 4. Maintenance of Stock levels to decide when to purchase;
- 5. Perpetual inventory system and the system of store verification;
- 6. Reduction of surplus stocks and review of slow-moving or stagnant items.
- 7. Control Ratios.

#### 1. Budgetary Techniques

For the purchase of raw materials and stocks, what we required is a purchase Budged to be prepared in terms of quantities and values involved. The sales stipulated as per sales Budget of the corresponding period generally works out to be the key factor to decide the production quantum during the budget period, which ultimately decides the purchases to be made and the inventories to be planned.

#### 2. A-B-C Analysis

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

To exercise proper control on stores, it is essential that the store items should be classified according to values so that the most valuable items may be paid greater and due a attention regarding their safety and care, as compared to others. The stores are divided into three categories generally, viz., A, B, and C.

In the ABC system, greatest care and control is to be exercised on the items of 'A' list as any loss or breakage or wastage of any items of this list may prove to be very costly; proper care need be exercised on 'B' list items and comparatively less control is needed for 'C' list items. The rules relating to receipt maintenance issue and writing off stores items should be formed in accordance with the utility and value of the items based on the above categorization.

## Advantages:

- 1) A Strict Control is exercised on the items which represent a high percentage of the material costs.
- 2) Investment in inventory is reduced to the minimum possible level.
- 3) Storage cost is reduced as a reasonable quantity of materials, which account for high percentage of value of consumption, will be maintained in the stores.

## 3. Economic Order Quantity

- This represents the normal quantity to be placed on order when the stock has reached its re-order level.
- Re-ordering quantity is to be fixed taking into account the maximum and minimum stock levels. The quantity ordered must be that which, when added to the minimum stock, will not exceed the maximum stock to be carried at any point of time.

The following factors govern the re-ordering quantity.

- 1. Average consumption
- 2. Cost of pacing order
- 3. Cost of storage
- 4. Interest on capital etc.,

Carrying cost of inventory consists of

- i) The costs of physical storage, such as cost of space, handling and upkeep expenses, insurance, cost of obsolescence etc.
- ii) Interest on capital invested (the opportunity cost of the capital blocked up) and
- iii) Cost of placing the order each time.

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

**Economic order quantity** or economic lot size (if it relates to production) refers to the number ordered in a single purchase or number of units should be manufactured in a single run so that the total costs-ordering or set up costs and inventory carrying costs are at the minimum level.

In other words, it is the quantity that should be ordered at one time so as to minimize the total of

- i) Cost of placing orders and receiving the goods, and
- ii) Cost of storing the goods as well as interest on the capital invested. The economic order quantity can be determined by the following simple formula.

E.O.Q. = 
$$\sqrt{\frac{2AS}{I}}$$
; where

EOQ

I

=

Economic order quantity or number of units in one lot.

А	=	Annual usage in units
S	=	Ordering costs for one order (or set-up costs for one set-up)
=	Inver	ntory carrying costs per unit per year.

## This formula is based in three assumptions:

- i) Price will remain constant throughout the year and quantity discount is not involved.
- ii) Pattern of consumption, variable ordering costs per order and variable inventory carrying charge per unit per annum will remain the same throughout, and

EOQ will be delivered each time the stock balance, excluding safety stock, is just reduced to nil.

4. Maintenance of Stock levels to decide when to purchase;

The following levels are generally fixed.

- 1. Maximum level2. Minimum level
- 3. Order level 4. Danger level

## 1. Maximum level

• The maximum stock level indicates the maximum quantity of an item of material which can be held in stock at any time.

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

- UNIT II
- The maximum stock can be calculated by applying the following formula.
- Maximum level Re-order level + re-order quantity (minimum consumption X minimum re-order period)

## 2. Minimum level

- Minimum level represents the quantity below which the inventory of any items should not allowed to fall;
- In other words, an enterprise must maintain minimum quantity of stock so that the production is not hampered due to non-availability of materials.
- If some buffer inventory is acting as a cushion against reasonable expected maximum usage.

## Formula:

Minimum level = Re-order level – (Normal consumption x normal re-order period)

## 3. Re-ordering Level Point

- Re-ordering stock level in relation to an items of stock is the point at which it becomes essential to initiate purchase orders for its fresh supplies.
- Normally, re-ordering level is a point between the maximum and the minimum levels.
- Fresh orders must be placed before the actual stocks touch the minimum level.

## Formula:

Reorder level = maximum re-order period x maximum usage.

## 4. Danger level

UNIT - II

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

- The danger level is below the minimum level and represents a stage where immediate steps are taken for getting stock replenished.
- When the stock reaches danger level it is indicative that if no emergency steps are taken to restock the material, the stores will be completely exhausted and normal production stopped.
- Generally the danger level of stock is fixed above the minimum level but below the re-ordering level.

## 5. Perpetual Inventory System

Perpetual Inventory is a system of records maintained by the controlling department, which reflects the physical movement of stocks and their current balance. It aims at devising the system of records by which the receipts and issues of stores may be recorded immediately at the time of each transaction and the balance may be brought out so as to show the up-to-date position.

The records used for perpetual inventory are:

- (1) Bin Cards;
- (2) Store Ledger Accounts or Stores Record cards;
- (3) The forms and documents used for receipt, issue and transfer of materials.

## Advantages of Perpetual Inventory system

- 1. It keeps the record of stocks up to date.
- 2. The materials are kept within the Minimum and Maximum Limits. Non-observance of the limits fixed is detected.
- 3. The materials going out of stock are easily detected and purchased at the appropriate time to avoid the risk of closing down.
- 4. It acts as a moral check on the staff of the stores Department and so the possibilities of loss or theft of materials are minimized.
- 5. The recording of stocks in Bin cards as well as Store Record cards minimizes the error in entering the receipts and issues of stocks.
- 6. The discrepancies noted after physical counting are detected and corrective action is taken promptly to avoid future occurrence.

UNIT - II

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

- 7. The materials getting state or being wasted are detected and placed in right atmosphere.
- 8. The prompt balancing of closing stocks enables quick preparation of final accounts.
- The slow moving inventories, obsolete or dormant stocks are brought to the notice of the Purchase Department so that such stocks may purchased future in lesser quantities as required.
- 10. The availability of correct figures of stocks helps in the insurance of the stocks.

## 6. Control Ratios

The control ratios are mainly two –

- (1) Inventory Turnover Ratio which we have studied and
- (2) Input-output Ratio.

## (1) Inventory Turnover

- Inventory Turnover is a ratio of the value of the materials consumed during a period to the average value of inventory held during that period.
- Certain materials are slow moving. It means their consumption rate quite show and so capital remains locked up and storing costs continue to be incurred in such materials if these materials are stored in excess of the requirement the rate of consumptions in terms of value or in terms of days is indicated by Inventory Turnover ratio. The number of days in which the average inventory is consumed can be ascertained by dividing the period by the Inventory turnover ratio.
- If the inventory turnover rate in terms of value of materials is high, or if the length of the inventory turnover period is short, the material is said to be fast moving. So if the rate of consumption is fast, or if the inventory turnover rate is good, it is a healthy measure of efficiency of materials control, as the capital employed is properly utilized.

## 2. Input-output Ratio

- The Input-output Ratio is the ratio of the raw material put into manufacture and the standard raw materials content of the actual output.
- This ratio enables one to find out whether the usage of the materials is favourable or not. A standard ratio of input of materials and output of material should be

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

determined and the actual ratio should be compared with the standard ratio.

## **Pricing of Material Issues**

The pricing of issue of materials is not as simple as the pricing of receipts. As the issue are made out of the various lots purchased at different prices, the questions arises as how to price the issues, there are several methods used for pricing the issues and the selection of a proper method depends upon the following factors:

- 1. The type of work-job or process;
- 2. Range of price fluctuations and market trends;
- 3. The Inventory turnover period and the carrying or the non-carrying cost i.e., the frequency of purchases and E.O.Q.
- 4. The need for maintenance of uniformity is costs of the products within the industry.
- 5. The nature and durability of the material whether it evaporates or shrinks, or absorbs moisture, etc

## Methods of pricing

There are different methods of pricing materials issue. The various methods used fall under the following main categories:

## **I.** Cost Price Methods

- (a) First in First out (FIFO)
- (b) Last in First out (LIFO)
- (c) Base Stock

## **II.** Average Price Methods

- (a) Simple Average.
- (b) Weighted Average

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

### **III. Notional Price Method**

(a) Standard Price.

(b) Inflated Price.

(c) Replacement price.

#### First in First out Method (FIFO)

Under this method materials are used in the order in which they are received. In other words, materials received first are issued first. This process is repeated throughout.

The price of the earliest consignment is taken first and when that is exhausted, the price of the next consignment is adopted and so on. This method is most suitable for use where the material is slow moving and has comparatively high unit cost This method is also useful in times of falling prices because the issue price of material to the job will be high while the replacement cost of material will be below.

### Illustration

Show the Stores Ledger entries for the month of Jan, 2008 as they would appear when using FIFO method:

Jan.1 Purchased 300 units @ Rs.3 per unit

Jan.4 Purchased 600 units @ Rs.4 per unit

Jan.6 Issued 500 units.

Jan. 10 Purchased 700 units @ Rs.4 per unit.

Jan. 15 Issued 800 units.

Jan.20 Purchased 300 units @ Rs.5 per unit.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

Jan.23 Issued 100 units.

Ascertain the quantity and value of closing stock as on 31st Jan under FIFO method. Solution:

#### **Stores ledger Account (FIFO Method)**

200 units @ Rs.4 = 800 300 units @ Rs.5 = 1,500 Rs. 2,300

#### Advantages of FIFO method:

(i) It is simple to understand and easy to calculate.

(ii) FIFO method is based on sound principle that materials are issued in order of purchase. Thus materials received first are issued first.

(iii) The value of closing stock will reflect current market price.

(iv) This method is suitable when prices are falling.

(v) This method is also useful if transactions are few and prices of material remain stable.

(vi) Unrealized profit or loss does not arise as materials are issued at actual cost but not on estimate.

(vii) Deterioration and obsolescence can be avoided by exhausting oldest materials at the time of issue.

#### Disadvantages

This method suffers from the following disadvantages:

(i) The calculation becomes difficult and cumbersome when purchases are made very frequently at different prices.

(ii) Issue price does not reflect current market price and so does cost of production.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

(iii) For pricing one requisition, more than one price has often to be taken.

(iv) Cost of production tends to be high during the period of falling prices.

(v) Two similar jobs cannot be compared as the issue price of one lot differs from that of other.

#### Last in First Out Method: (LIFO)

This method is exactly the opposite of FIFO method. Under this me materials received last are issued first. The price of the material to be issued would the cost price of the last lot of materials purchased.

This method is useful during t period of rising prices because materials will be issued from the latest consignment a price which is closely related to the current price levels. Under this method product' cost is calculated on a basis which approximates to replacement cost.

#### **Advantages of LIFO Method:**

The following are the advantages of LIFO method:

(i) This method is very simple to operate and quite useful where transactions are not too many and prices are fairly steady.

(ii) Production is charged at the most recent prices so that it is based on the principle that costing should be related to current price levels.

(iii) During the period of rising prices there is no windfall profit as in case of FIFO method.

(iv) Closing stock will be valued at earlier price and will not, therefore, show unrealized profit.

(v) This method reduces burden of income tax during the period of price rise Disadvantages

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

#### **Disadvantages:**

This method suffers from the following disadvantages:

(i) Like FIFO system, calculations become complicated and cumbersome when transactions are many with frequent price fluctuations.

(ii) Two similar jobs cannot be compared because of charging different rates of materials to different jobs.

(iii) Under this system, closing stocks are not shown at current market price.

(iv) Sometimes more than one price has to be adopted for pricing a single requisition.

(v) When prices are falling it will lead to low charge to production, whereas materials in the stock purchased at higher rate need adjustment for valuation of closing stock.

(vi) This system of material issue is not accepted by Income Tax Authorities.

#### **Base Stock Price**

This is not a distinct method of pricing materials issue. This method is based o<sup>^</sup> the principle that a certain minimum quantity of material is always maintained in to ensure continuous production.

This minimum stock is treated as fixed asset and is called as base stock. Since minimum stock is created out of first lot of material purchased, it is always valued at cost price of first lot of materials. The quantity in excess of this base stock is issued at a price similar to FIFO or LIFO method.

This bad stock method operates in conjunction with some other methods like FIFO or LIFO and is called Base Stock - FIFO method or Base Stock - LIFO method. The advantages of FIFO and LIFO are applicable in this method.

#### Simple Average Price Method

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

Under this method, materials issued are valued at average price. This is calculated by dividing the total of the price of the materials on the stock from which the material to be priced could be drawn by the number of prices used in that total.

Unit pieces of material in stock Issue Price - Number of purchases.

A new simple average price is to be determined when a fresh receipt is made. The rate is also revised when an earlier consignment is exhausted.

The following example will illustrate this. Suppose, following are three different lots of materials in stock when materials is to be priced:

100 units purchased @ Rs.4.00 200 units purchased @ Rs.5.00 300 units purchased @ Rs.6.00

The simple average price will be = Rs.5.00

## **Advantages of Simple Average Price Method**

The following are the advantages of simple average method:

- (1) It is easy to calculate and simple to operate.
- (2) A particular purchase at higher or lower rate cannot disturb the price to a great extent.
- (3) Issue rate remains the same until a fresh purchase is made.

## **Disadvantages:**

- (1) It is not a logical method as it takes into account purchase price but not quantity.
- (2) The value of closing stock becomes absurd.
- (3) The issue price does not relate to the current market price.

## Weighted Average Method

## Merits

Class : II B.Com CA Course

Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

- 1. This method irons out the wide fluctuations in the prices.
- 2. With every new issue, a new rate is not calculated.
- 3. The total value of the material issued does not behave up and down to the total value of the material received, as is the case with Simple Average Method.

## Demerits

- 1. Calculations are tedious. Prices are worked out in decimals to get correct results.
- 2. A lot of materials purchased at a very high price at one time continues to reflect its effect in the average, for a considerable time after it is exhausted.

## What is a Replacement Cost

A replacement cost is the cost to replace an asset of a company at the same or equal value, where the asset to be replaced could be a building, <u>investment securities</u>, <u>accounts receivable</u> or <u>liens</u>. The replacement cost can change, depending on changes in market value of the asset and any other costs required to prepare the asset for use. Accountants use depreciation to expense the cost of the asset over its useful life.

Replacing an asset can be an expensive decision, and companies analyze the <u>net present value (NPV)</u> of the future cash inflows and outflows to make purchasing decisions. Once an asset is purchased, the company determines a useful life for the asset and depreciates the asset's cost over the useful life.

## **Standard Costing Overview**

Standard costing is the practice of substituting an expected cost for an actual cost in the accounting records, and then periodically recording variances showing the difference between the expected and actual costs. This approach represents a simplified alternative to cost layering systems, such as the FIFO and LIFO methods, where large amounts of historical cost information must be maintained for items held in stock.

Standard costing involves the creation of estimated (i.e., standard) costs for some or all activities within a company. The core reason for using standard costs is that there are a

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

number of applications where it is too time-consuming to collect actual costs, so standard costs are used as a close approximation to actual costs.

Since standard costs are usually slightly different from actual costs, the cost accountant periodically calculates variances that break out differences caused by such factors as labor rate changes and the cost of materials. The cost accountant may also periodically change the standard costs to bring them into closer alignment with actual costs.

## **Advantages of Standard Costing**

Though most companies do not use standard costing in its original application of calculating the cost of ending inventory, it is still useful for a number of other applications. In most cases, users are probably not even aware that they are using standard costing, only that they are using an approximation of actual costs. Here are some potential uses:

*Budgeting*. A budget is always composed of standard costs, since it would be impossible to include in it the exact actual cost of an item on the day the budget is finalized. Also, since a key application of the budget is to compare it to actual results in subsequent periods, the standards used within it continue to appear in financial reports through the budget period.

*Inventory costing*. It is extremely easy to print a report showing the period-end inventory balances (if you are using a perpetual inventorysystem), multiply it by the standard cost of each item, and instantly generate an ending inventory valuation. The result does not exactly match the actual cost of inventory, but it is close. However, it may be necessary to update standard costs frequently, if actual costs are continually changing. It is easiest to update costs for the highest-dollar components of inventory on a frequent basis, and leave lower-value items for occasional cost reviews.

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

## UNIT - II

- *Overhead application*. If it takes too long to aggregate actual costs into cost pools for allocation to inventory, then you may use a standard overhead application rate instead, and adjust this rate every few months to keep it close to actual costs.
- Price formulation. If a company deals with custom products, then it uses
  standard costs to compile the projected cost of a customer's requirements, after which it
  adds on a margin. This may be quite a complex system, where the sales department uses
  a database of component costs that change depending upon the unit quantity that the
  customer wants to order. This system may also account for changes in the company's
  production costs at different volume levels, since this may call for the use of longer
  production runs that are less expensive.

Nearly all companies have budgets and many use standard cost calculations to derive product prices, so it is apparent that standard costing will find some uses for the foreseeable future. In particular, standard costing provides a benchmark against which management can compare actual performance.

## **Problems with Standard Costing**

Despite the advantages just noted for some applications of standard costing, there are substantially more situations where it is not a viable costing system. Here are some problem areas:

*Cost-plus contracts*. If you have a contract with a customer under which the customer pays you for your costs incurred, plus a profit (known as a cost-plus contract), then you must use actual costs, as per the terms of the contract. Standard costing is not allowed.

• Drives inappropriate activities. A number of the variances reported under a standard costing system will drive management to take incorrect actions to create favorable variances. For example, they may buy raw materials in larger quantities in order to improve the purchase price variance, even though this increases the investment in inventory. Similarly, management may schedule longer production runs in order to

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

improve the labor efficiency variance, even though it is better to produce in smaller quantities and accept less labor efficiency in exchange.

- *Fast-paced environment*. A standard costing system assumes that costs do not change much in the near term, so that you can rely on standards for a number of months or even a year, before updating the costs. However, in an environment where product lives are short or continuous improvement is driving down costs, a standard cost may become out-of-date within a month or two.
- *Slow feedback.* A complex system of variance calculations is an integral part of a standard costing system, which the accounting staff completes at the end of each reporting period. If the production department is focused on immediate feedback of problems for instant correction, the reporting of these variances is much too late to be useful.
- Unit-level information. The variance calculations that typically accompany a standard costing report are accumulated in aggregate for a company's entire production department, and so are unable to provide information about discrepancies at a lower level, such as the individual work cell, batch, or unit.

The preceding list shows that there are many situations where standard costing is not useful, and may even result in incorrect management actions. Nonetheless, as long as you are aware of these issues, it is usually possible to profitably adapt standard costing into some aspects of a company's operations.

## What are Material Losses in Cost Accounting?

Losses of material during handling, storage or manufacturing are called as material losses in **cost accounting**. We could classified material losses into two parts i.e. normal losses and abnormal losses.

**Normal Losses**: Losses which are unavoidable are called Normal losses. Normal losses of material can not be completely avoided but may be controlled to a limited extent .These losses are transferred to factory overheads .**Examples** of material losses are as follows:

• Losses by evaporation

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

- Loss due to loading and unloading
- Losses due to breaking the bulk etc.

**Abnormal Losses:** Losses that arises due to inefficiency in operations, carelessness etc. is called as abnormal losses. These losses are charged to coasting profit and loss account. **Examples** of abnormal losses are as follows:

- Breakage
- Fire, accident, flood etc.
- Improper storage
- Theft

## Forms of Material Losses:

Material losses could arise in the form of waste, scrape, spoilage and defectives.

**Waste**: It comprise of all visible, invisible losses that can not be collected and also unsalable portion of the collected loss. Examples of waste are dust, smoke, gases etc.

**Scrap:** It represents the unusable loss which can be sold. It is measurable and has a minor value .Scrap may arise in the form of turning's, filing etc. from metal; off-cuts and cut pieces in leather & cloth industry .

**Spoilage:** Spoilage is those materials or components which are so damaged in the manufacturing and operation process that they can not be repaired or reconditioned. Spoiled units do not attain the quality required and it is not economic to correct them.

**Defectives:** A good in which there is a manufacturing fault or defect is called Defective goods, this fault could be removed by applying additional cost called rectification cost.

# **Material Losses:**

Material losses may take the form of waste, scrap, defectives and spoilage. Problems of spoilage, waste, defective units and scrap are bound to arise in almost all manufacturing concerns, so there is usually a difference between the quantity of the output and the input.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

Usually the quantity of the output is less than that of the input because of waste, scrap or spoilage. Efforts should be made to reduce the difference between the quantities of the output and the input so that cost of production may be reduced.

Methods of treatment of spoilage, waste etc. and the interpretations given to these terms vary considerably from one industrial concern to another because of different situations arising in different concerns. The terms are also loosely used; for example, waste and scrap may be taken to have the same meaning.

# 1. Waste:

Waste is defined as discarded substances having no values. In many industries, some waste is inevitable. Such waste may arise due to the inherent nature of materials, chemical reaction, evaporation, drying, sublimation of goods etc. Waste can also be in the form of smoke, gas, slag or dust which arises in the course of a manufacturing process.

Waste may be invisible or visible. The former type of waste (i.e., waste due to drying, evaporation etc.) is invisible whereas the latter type of waste (i.e., gas, smoke, slag etc.) is visible. Waste has practically no measureable value. Rather in some industries, the waste instead of realising any value creates a problem for its disposal incurring further costs. The waste may be normal and abnormal from the point of view of treatment in costing.

## Normal Waste:

It is the loss which is unavoidable on account of inherent nature of material. Some materials such as liquid materials lose their weight due to evaporation. Similarly, there are some materials (i.e. coal) which are wasted due to loading and unloading. Materials may be wasted due to breaking the bulk into smaller parts.

Normal waste is unavoidable and as such may be reduced to some extent if there is strict control but cannot be totally eliminated. Such loss can be estimated in advance on the basis of past experience or chemical data. As waste has practically no value, its treatment in costing is relatively simple. The normal process loss is recorded only in terms of quantity.

## Abnormal Waste:

Any loss caused by unexpected or abnormal conditions such as sub-standard materials, carelessness, accident etc. or loss in excess of the margin anticipated for normal process loss should be regarded as abnormal waste.

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

All cases of abnormal waste should be thoroughly investigated and steps taken to prevent their recurrence in future. Responsibility for abnormal wastage should be fixed on purchasing, storage, production and inspection staff to maintain standards. Abnormal waste should not be allowed to affect the cost of production as it is caused by abnormal or unexpected conditions.

Such loss representing the cost of materials, labour and overhead incurred on the wastage should he transferred to Profit and Loss Account (Costing Profit and Loss Account where no integral system of accounting is maintained) and not added to the cost of production so as to make meaningful comparison of costs of production of different periods.

# 2. Scrap:

Scrap is discarded material having some values. It represents fragments or remnants of material that are left from certain type of manufacture. It is a material loss but has small value without further processing. Examples of scrap are available in operations like turning, boring, punching, sawing, shavings, moulding, etc. from metals on which machine operations are carried out; saw dust and trimmings in the timber industry; dead heads and bottom ends in foundries; and cuttings, pieces and splits in leather industry.

Such scrap can be solid because it can be used by other industries by melting in furnaces. Scrap is always physically available unlike waste which may or may not be physically present in the form of a residue. Thus scrap is always visible whereas waste may or may not be visible. Further, waste may not have any value whereas scrap must necessarily have a value.

## There are three types of scrap, namely:

(a) Legitimate scrap,

- (b) Administrative scrap,
- (c) Defective scrap.

Legitimate scrap arises due to the nature of operation like turning, boring, punching etc. as discussed above. This type of scrap can be pre-determined and efforts should be made that it should not be more than the pre-determined quantity. Administrative scrap arises due to administrative action, such as, a change in the method of production.

Defective scrap arises because of use of inferior quality of material or bad workmanship or defective machines. Such type of scrap is abnormal because it arises due to abnormal reasons.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

## **Treatment of Scrap:**

## The useful methods for the treatment of scrap are as follows:

1. If realisable value of normal scrap is insignificant (i.e., legitimate scrap and administrative scrap) it may be credited to Profit and Loss Account like other income. This method of treatment of scrap is suitable when the scrap is of very little value and when the market for it is uncertain. This method is known as treatment by neglect.

This method is not suitable for effective control over scrap because detailed records of scrap are not kept and scrap cost is not shown as an element of cost in the cost sheet. Scrap which is not sold and is in stock is valued at nil for balance sheet purposes and thus vitiates the valuation of closing stock.

Accounting of scrap by this method is also inaccurate as there is a time lag between the sales and the production. There is also a possibility that scrap may arise in one period but may be accounted (i.e., sold) in another period and thus distorts the profits of two periods.

2. The sale value of scrap may be deducted from the cost of materials consumed or factory overhead. This method is suitable when several production orders are commenced at a time and it is not possible to find scrap for each other. This method is, however, not effective in controlling scrap arising in different processes, jobs or orders.

When overheads are absorbed on the basis of pre-determined rates, it is more appropriate to credit an estimated allowance for the scrap instead of the amount of actual scrap.

## The journal entries for recording the scrap are:

(i) Dr. Scrap Account (with an estimated allowance) Cr. Factory Overhead Control Account

(ii) Dr. Cash/Debtors (Amount realised on sale) Cr. Scrap Account.

Profit or loss on sale of scrap may be transferred to the Profit and Loss Account at the end of the year. When scrap is sold on a day-to-day basis and no stock is maintained, the journal entry is: Dr. Cash/Debtors Account (with realisable value) Cr. Factory Overhead Control Account

3. The scrap may be assigned a cost if it can be related to the job which yielded the scrap. It will help in giving reasonable credit to the jobs which yielded scraps. This method of treatment is suitable when scraps from the various jobs widely differ in nature.

Class : II B.Com CA Course Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

4. It is possible that scrap arising in one job may be used in another job. In such a case material transfer note for transfer of scrap from one job to another job should be prepared and credit should be given to the job where scrap arises and debit should be given to the job for the amount of scrap transferred to it.

Sometimes, scrap may be returned to stores when some further processing has to be done before that can be utilised for other jobs. Job returning the scrap is credited with the value of the scrap returned to stores.

5. When the actual scrap is in excess of the pre-determined quantity (i.e., normal quantity), the cost of the excess scrap is transferred to Costing Profit and Loss Account after deducting there-from the sale proceeds of such excess scrap. The valuation of excess scrap is done in the same way as the valuation of abnormal waste is done.

6. The cost of defective scraps after deduction there-from the sale a proceeds of such scrap is transferred to Costing Profit and Loss Account because it is an abnormal loss.

# 3. Defectives:

Defective products or units are those which do not meet with dimensional or quality standards and are reworked for rectification of defects by application of material, labour and/or processing and salvaged to the point of either standard product or substandard product to be sold as seconds. Therefore, defectives are that portion which can be rectified at some extra cost of re-operation.

## Defectives may arise due to the following reasons:

1. Sub-standard materials.

- 2. Poor workmanship.
- 3. Poor maintenance of machines.
- 4. Wrong tool setting.
- 5. Faulty design of products.
- 6. Bad supervision.
- 7. Careless inspection.

8. Poor working conditions.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

9. Lack of control, such as humidity, furnace temperature etc.

10. Excessive short runs.

Defectives are bad products which are not totally spoiled and can be rectified or restored to original or near-original condition at some extra cost of re-operation. The additional cost of rectifying the defectives is added to the total cost and the quantity of defectives rectified is added to the quantity of good output because defective units rectified can be sold as "seconds". Rectification of defective units is advisable only when the cost of rectification is low and more profitable than to sell as spoil 3d units.

## **Treatment of Cost of Rectification of Defectives:**

## Following methods may be adopted for the treatment of this cost:

1. If the defective production is identified with a specific job or department, the cost of rectification is charged to that specific job or department.

2. If the defective production is not identified with a particular job or department, the cost of rectification is added to general factory overhead.

3. If the defective production is due to abnormal reasons, the rectification cost is transferred to Costing Profit and Loss Account.

Every possible effort should be made to reduce the number of defectives because they increase the cost of production. Control of defectives is an operational correction, so steps should be taken to eliminate the reasons responsible for defectives. Right from the design stage to the output of the final product stage, each one should be looked into carefully for avoiding defectives.

Standardisation of products and operations, comparison of actual performance with standards laid down in regard to defectives, feedback and reporting and incentive scheme for minimising defectives will go a long way in reducing the quantity of defectives.

## **Illustration 1:**

The parts of a machinery are produced to rigorous standards of accuracy. Each batch of 1,000 units is tested to discover whether the units are defective at a cost off 12.50 per unit. The defective units are then rectified and put in good order at a cost of Rs 50 per unit.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

If the units are not tested, any defect would become apparent later when they are fitted in the machine. At that state it would cost Rs 100 per unit to put the parts in good working order.

Find out by calculation the minimum percentage of defective units in a batch such that it would be cheaper to test all the units in the batch instead of none of them.

## Solution:

Suppose the number of defective units in a batch is X

If testing is done, cost comes to  $50X+1,000 \times \text{Rs} \ 12.50 = 50X + \text{Rs} \ 12,500$ 

If testing is not done, cost comes to 100X

Thus  $100X = 50X + Rs \ 12,500$ 

Or  $50X = Rs \ 12,500$ 

Or X = 250 units

If the number of defective units is only 250 (i.e. 25%) in a batch of 1,000 units; the total cost will be the same whether testing is done or not. Hence, it would be cheaper to test all units in the batch, if the minimum percentage of defective units in a batch is more than 25%.

# 4. Spoilage:

Spoilage refers to production that does not meet with dimensional or quality standards in such a way that it cannot be rectified economically and is junked and sold for a disposal value. So it occurs when goods are so damaged in course of manufacturing process as to become not rectifiable with some additional cost.

Material used in spoiled units can be used again as material by the same or another process or product. Spoilage cost is the difference between the cost incurred upto the point of rejection less salvage value or cost of material used.

Spoilage arises due to sub-standard materials, poor workmanship, faulty tool setting, poor maintenance of machines, bad supervision and careless inspection.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

Spoilage should not be confused with scrap. Scrap arises at the initial stages of production operations whereas spoilage takes place more towards the finishing production stages with larger loss of added value to the cost of material used.

## Spoilage can be of two types:

(1) Normal spoilage and

(2) Abnormal spoilage.

According to Charles T. Horngren, "Normal spoilage is what arises under efficient operating conditions; it is an inherent result of the particular process and is thus uncontrollable in the short run.

Abnormal spoilage is spoilage that is not expected to arise under efficient operating conditions; it is not an inherent part of the selected production process". Abnormal spoilage can be controlled because it arises as a result of inefficient operating conditions.

Normal spoilage is planned spoilage that management is willing to accept and is controllable by higher level of management which determines the nature of products and processes. On the other hand, abnormal spoilage can be controlled by first-line supervision which can exert influence over inefficiency.

## **Treatment of Cost of Spoilage:**

The treatment of cost of spoilage depends upon the nature of spoilage. If the spoilage is normal, the cost is borne by good units of output. In case of abnormal spoilage, cost of spoilage is transferred to Costing Profit and Loss Account. When, however, the normal spoiled units are used again as raw material in the same manufacturing process, no separate treatment becomes necessary.

If they are used for another process, job or order, a proper credit should be given to the process job or order giving rise to the spoilage keeping in view the utility value of the spoilage to the process, job or order for which the same is used.

# Control of Wastage, Scrap, Defectives and Spoilage:

Every effort should be made to reduce the cost of production by exercising control on wastage, scrap, defectives and spoilage.

## Following steps may be taken in this direction:

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

1. Reports relating to the wastage, scrap, defectives and spoilage should be prepared in time to locate the reason responsible for the wastage etc. An immediate corrective action should be taken on the basis of the reasons responsible for the loss.

CODIDDEDODT

## Reports may be prepared as given below:

Actual Scrap Normal Scrap Abnormal Scrap									ap Reasons		easons for			
Type of Scrap	inp Un	ut C its J U	out- out nits	Units	% of Input	Units	% of Input	% o Inpu	% of Uni Input		Units % of Input		18	Abnormal Scrap and Corrective Action Suggested
Departr	nent		De	RE	PORT	ON SPOIL	AGES	AND DE	FECTIV	/ES pilage	Perio	od	Research	
Out- put Units	A	Actual Normal		Abnormal		Actual Normal		Abnormal		for Abnormal Spoilages				
	Units	% of Output	Units	% of Output	Units	% of Output	Units	% of Output	Units	% of Output	Units	% of Output	and Defectives and Corrective Measures Suggested	

Class : II B.Com CA Course

Code : 17CCu401

Course Name : Cost Accounting

UNIT - II

Batch : 2017 - 2020

REPORT ON WASTE Week endi								Week ending	
		Actual	Waste	Norma	Normal Waste Abi			stø	Reasons for
Input Units	Out- put Units	Units	% of Input	Units	. % of Input	Units	% of Input	Value	Abnormal Waste and Action Suggested
- 8									

2. Wastage, scrap, defectives and spoilage should be standardised by following standard costing system. It should be seen that actual wastage, scrap, etc. should be within normal limits allowed.

3. Good quality of materials should be used. Better the quality of materials less is the wastage, scrap and spoilage.

4. Control of wastage, scrap, defectives and spoilage should start with the designing of the products. The type of materials that will result in the minimum wastage, scrap, defectives and spoilage are decided at the designing stage. Better quality of equipment should be used to get better return, so type and shape of equipments to be used for manufacturing process should be decided at the designing stage.

5. Properly trained personnel should be employed to reduce the quantum of wastage, scrap, defectives and spoilage.

Class : II B.Com CA	Course				Course Name : Cost Accounting
Code : 17CCu401			UNIT	Г - ІІ	Batch : 2017 - 2020
Probl	em 1				
1)	Show	the Store Ledg	ger entries as they	y would appear whe	en using
	i)	FIFO			
	ii)	LIFO			
	iii)	Weighted av	erage method		
	iv)	Simple avera	age method		
A	1	Delenee	200	<b>D</b> <sub>2</sub> (00/	
April	1.	Balance	300 units	KS. 600/-	
	2.	Purchase	200 units	Rs. 440/-	
	4.	Issued	150 units		
	6.	Purchase	200 units	Rs. 460/-	
	11	Issued	150 units		

11.	Issueu	150 units	
19.	Issued	200 units	
22.	Purchase	200 units	Rs. 480/-
27.	Issued	250 units	

## Problem 2

The following is the record of receipts and issues a certain material in the factory during a week.

April 1997

1. Opening Balance 50 tonnes @ Rs. 10 per tone.

Issued 30 tonnes @ Rs. 10 per tones

- 2. Received 60 tonnes @ Rs. 10.20 per tone.
- 3. Issued 25 tonnes @ Rs. 10.20 per tone (stock verification reveals loss of tone)
- 4. Received back from orders 10 tonnes @ Rs. 10.20 per tone
  - (Previously issued at Rs. 9.15 per tone)
- 5. Issued 40 tonnes @ Rs. 10.20 per tone.
- 6. Received 22 tonnes @ Rs. 10.30 per tone.
- 7. Issued 38 tonnes @ Rs. 10.30 per tone.
Class : II B.Com CA Course

Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

UNIT - II

#### Solution 1

#### 1) Stores Ledger Account as per FIFO METHOD

Date	Details	Receipt	Issued	Balan	ce					
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
April	Balance	300	2/-	600	-	-	-	300	2/-	600
1										
2	Purchase	200	2.20	440	-	-	-	300	2.00	600
								200	2.20	440
4	Issue				150	2.00	300	150	2.00	300
								200	2.20	440
6	Purchase	200	2.30	460				150	2.00	300
								200	2.20	440
								200	2.30	460
11	Issue				150	2.00	300	200	2.20	440
								200	2.30	460
19	Issue				200	2.20	440	200	2.30	460
22	Purchase	200	2.40	480				200	2.30	460
								200	2.40	480
27	Issue				200	2.30	460	150	2.40	360
					50	2.40	120			

Value of Closing Stock : 150 units at the rate of Rs. 2.40 value Rs. 360/-

#### 2) LIFO METHOD

Date	Details	Receipt	Issued	Balan	Balance					
		Unit	Rate	Amt	Unit	Rate	Amt	Unit	Rate	Amt
April	Balance	300	2.00	600	-	-	-	300	2.00	600
1										
2	Purchase	200	2.20	440	-	-	-	300	2.00	600
								200	2.20	440

Class : II B.Com CA Course

Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

			U	NIT - II	J			Bate	ch : 2017	- 2020
4	Issue				150	2.20	330	300	2.00	600
								50	2.20	110
6	Purchase	200	2.30	460				300	2.00	600
								50	2.20	110
								200	2.30	460
11	Issue				150	2.30	345	300	2.00	600
								50	2.20	600
								50	2.30	115
19	Issue				50	2.30	115	200	2.00	400
					50	2.20	110			
					100	2.00	200			
22	Purchase	200	2.40	480	-	-	-	200	2.00	400
								200	2.40	480
27	Issue				200	2.40	480	150	2.00	300
					50	2.00	100			

Value of Closing Stock : 150 units @ Rs. 2.00 value is Rs. 300/-

#### 3) WEIGHTED AVERAGE METHOD

Date	Details	Receipt	Issued	Balance						
		Unit	Rate	Amt	Unit	Rate	Amt	Unit	Rate	Amt
April	Balance	300	2.00	600	-	-	-	300	2.00	600
1										
2	Purchase	200	2.20	440	-	-	-	500	2.08	1040
4	Issue	-	-	-	150	2.08	312	350	2.08	728
6	Purchase	200	2.30	460	-		-	550	2.16	1118
11	Issue	-	-	-	150	2.16	324	400	2.16	864
19	Issue	-	-	-	200	2.16	432	200	2.16	432
22	Purchase	200	2.40	480	-	-	-	400	2.28	912
27	Issue	-	-	-	250	2.28	570	150	2.28	342

Value of Closing Stock : 150 units at the rate of Rs. 2.28 value Rs. 342.00/

Class : II B.Com CA Course

Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

### 4) SIMPLE AVERAGE METHOD

Date	Details	Receipt	Issued	Balan	Balance					
		Unit	Rate	Amt	Unit	Rate	Amt	Unit	Rate	Amt
April	Balance	300	2.00	600	-	-	-	300	2.00	600
1										
2	Purchase	200	2.20	440	-	-	-	500	2.10	1050
4	Issue	-	-	-	150	2.10	315	350	2.10	35
6	Purchase	200	2.30	460	-		-	550	2.17	119350
11	Issue	-	-	-	150	2.17	325.50	400	2.17	868
19	Issue	-	-	-	200	2.17	434	200	2.17	434
22	Purchase	200	2.40	480	-	-	-	400	2.23	892
27	Issue	-	-	-	250	2.23	557.50	150	2.23	334.50

Value of Closing Stock : 150 units at the rate of Rs. 2.23 value Rs. 334.50

### Solution 2

### Stores Ledger Account Under LIFO

Date	Receipts	Issues	Balanc	Balance							
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt		
1				30			50	10	500		
1				30	10	300	20	10	200		
2	60	10.20	612	-	-	-	20	10	200		
							60	10.20	612		
3	-	-	-	25	10.20	255	20	10	200		
				1	10.20	10.20	35	10.20	357		

Class : II B.Com CA Course

Code : 17CCu401

#### Course Name : Cost Accounting Batch : 2017 - 2020

		UNIT - II Batch : 2017 - 2020							
					,		20	10	200
4	10	9.15	91.5				34	10.20	346.80
				-	-	-	20	10	200
							34	10.20	346.80
							10	9.15	91.50
5	-	-	-	10	9.15	31.50	20	10	200
				3	10.20	306.0	4	10.20	40.80
6	22	10.30	) 226.6	5			20	10	200
							4	10.20	40.80
7	-	-	-	22	10.30	226.6			
				4	10.20	40.80	8	10.00	80.00
				12	10.00	120.0			
Store	es Ledger U	J <b>nder FI</b>	FO						
Store	es Ledger U	Jnder FI	FO						
Store Date	Receipts	J <b>nder FI</b> Issues	FO Balanc	e	Rate	Amt	Otv	Rate	Amt
Store Date 1	Receipts	J <b>nder FI</b> Issues Rate	FO Balanc Amt	e Qty 30	Rate	Amt	Qty	Rate	Amt 500
Store Date 1	Receipts	J <b>nder FI</b> Issues Rate	FO Balanc Amt	e Qty 30 30	Rate	Amt	Qty 50	Rate 10	Amt 500 200
Store Date 1 1 2	es Ledger U Receipts Qty 60	J <b>nder FI</b> Issues Rate	FO Balanc Amt 612	e Qty 30 30	Rate 10	Amt 300	Qty 50 20	Rate 10 10 10	Amt 500 200 200
Store Date 1 1 2	es Ledger U Receipts Qty 60	J <b>nder FI</b> Issues Rate 10.20	FO Balanc Amt 612	e Qty 30 30 -	Rate 10 -	Amt 300 -	Qty 50 20 20 60	Rate 10 10 10 10 10.20	Amt 500 200 200 612
Store Date 1 1 2 3	es Ledger U Receipts Qty 60	Jnder FI Issues Rate 10.20	FO Balanc Amt 612	e Qty 30 30 - 20	Rate 10 -	Amt 300 - 200	Qty 50 20 20 60	Rate 10 10 10 10.20	Amt 500 200 200 612
Store Date 1 2 3	es Ledger U Receipts Qty 60 -	Jnder FI Issues Rate 10.20	FO Balanc Amt 612 -	e Qty 30 30 - 20 5	Rate 10 - 10 10.20	Amt 300 - 200 51	Qty 50 20 20 60 55	Rate 10 10 10 10.20	Amt 500 200 200 612 561
Store Date 1 1 2 3	es Ledger U Receipts Qty 60 -	Jnder FI Issues Rate 10.20	FO Balanc Amt 612 -	e Qty 30 30 - 20 5 1(loss)	Rate 10 - 10 10.20 10.20	Amt 300 - 200 51 10.20	Qty 50 20 20 60 55 54	Rate 10 10 10 10.20 10.20	Amt 500 200 612 561 550.80
Store           Date           1           2           3           4	es Ledger U Receipts Qty 60 -	J <b>nder FI</b> Issues Rate 10.20 - 9.15	FO Balanc Amt 612 - 91.5	e Qty 30 30 - 20 5 1(loss) -	Rate 10 - 10 10.20 10.20	Amt 300 - 200 51 10.20	Qty 50 20 20 60 55 54 54	Rate 10 10 10 10.20 10.20 10.20	Amt 500 200 612 561 550.80 550.80
Store           Date           1           2           3           4	es Ledger U Receipts Qty 60 -	Jnder FI Issues Rate 10.20 - 9.15	FO Balanc Amt 612 - 91.5	e Qty 30 30 - 20 5 1(loss) -	Rate 10 - 10 10.20 10.20 -	Amt 300 - 200 51 10.20 -	Qty 50 20 20 60 55 54 54 54 10	Rate 10 10 10 10.20 10.20 10.20 9.15	Amt 500 200 612 561 550.80 91.50
Store           Date           1           2           3           4           5	es Ledger U Receipts Qty 60 - 10 -	Jnder FI Issues Rate 10.20 - 9.15 -	FO Balanc Amt 612 - 91.5	e Qty 30 30 - 20 5 1(loss) - 40	Rate 10 - 10.20 10.20 - 10.20	Amt 300 - 200 51 10.20 - 408	Qty 50 20 60 55 54 54 10 14	Rate 10 10 10 10.20 10.20 10.20 9.15 10.20	Amt 500 200 612 561 550.80 91.50 142.80
Store           Date           1           2           3           4           5	es Ledger U Receipts Qty 60 - 10 -	Jnder FI Issues Rate 10.20 - 9.15 -	FO Balanc Amt 612 - 91.5 -	e Qty 30 30 - 20 5 1(loss) - 40	Rate 10 - 10 10.20 10.20 - 10.20	Amt 300 - 200 51 10.20 - 408	Qty 50 20 60 55 54 54 10 14 10	Rate 10 10 10 10.20 10.20 10.20 9.15 10.20 9.15	Amt 500 200 612 561 550.80 91.50 142.80 91.50
Store           Date           1           2           3           4           5           6	State       Ledger U         Receipts       Qty         60       -         10       -         22       22	Jnder FI Issues Rate 10.20 - 9.15 - 10.30	FO Balanc Amt 612 - 91.5 - 226.6	e Qty 30 30 - 20 5 1(loss) - 40 -	Rate 10 10 10.20 10.20 - 10.20	Amt 300 - 200 51 10.20 - 408	Qty 50 20 20 60 55 54 54 10 14 10 14	Rate 10 10 10 10.20 10.20 10.20 9.15 10.20 9.15 10.20	Amt 500 200 612 561 550.80 91.50 142.80 91.50

1

Class : II B.Com CA Course

Code : 17CCu401

Course Name : Cost Accounting Batch : 2017 - 2020

			L I	UNIT - II	J			Batch . 2	017 - 2020		
							22	10.30	226.60		
7	-	-	-	14	10.20	142.80					
				10	9.15	91.50	8	10.3	82.40		
				22	10.30	226.60					
Closi	losing stock 8 tonnes @ Rs. 10.30 = 82.40										

3. If the minimum stock level and average stock level of raw material A are 20,000 and 40,000 units respectively, find out its re-order quantity.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

#### Solution:

Average Stock Level = Minimum Stock Level + <sup>1</sup>/<sub>2</sub> Re-order Quantity

or <sup>1</sup>/<sub>2</sub> Re-order Quantity = Average Stock Level – Minimum Stock Level

or  $\frac{1}{2}$  Re-order Quantity = 40,000 units – 20,000 units.

Re-order Quantity = 20,000 units x 2 = 40,000 units.

4. In a company weekly minimum and maximum consumption of material A are 25 and 75 units respectively. The re-order quantity as fixed by the company is 300 units. The material is received within 4 to 6 weeks from issue of supply order. Calculate minimum level and maximum level of material A.

### Solution:

Minimum Level= Re-order Level — (Normal Consumption x Normal Re-order Period)

= 450 units - (50 units x 5 weeks)

= 450 units - 250 units = 200 units

(Re-order Level = Maximum Consumption x Maximum Re-order Period)

= 75 units x 6 weeks = 450 units

Normal i.e., Average Consumption = 25 units + 75 units/2 = 50 units

Normal i.e., Average Period = 4 weeks + 6 weeks/2 = 5 weeks

Maximum Level = Re-order Level + Re-order Quantity – (Minimum Consumption x Minimum Re-order Period)

= 450 units + 300 units - (25 units x 4 weeks) = 650 units.

5. Two components A & B are used as follows:

Class : II B.Com CA Course		Course Name : Cost Accounting
Code : 17CCu401	UNIT - II	Batch : 2017 - 2020
Normal Usage	120 per week each	
Minimum Usage	60 per week each	
Maximum Usage	180 per week each	
Re-ordering quantity	A- 2000; B-3200	
Re-ordered period	B- 6 to 10 weeks; B-4 to 8	weeks

For each component, calculate:

1. Re-ordering level; (b) Minimum level; (c) Maximum level; (d) Average stock level

Also on the difference in the levels for the two components, comment briefly.

**Solution:** (a) Re-ordering level = Maximum usage\* maximum re-order period

A = 180\*10 = 1800 units

B = 180 \* 8 = 1440 units

Re-order level of B is lower because against 10 weeks of re-order period for A, re-order period for B is 8 weeks.

(b) Minimum level = Re-ordering level-(Normal usage\*Normal re-order period)

Normal Re-order period is to be taken as the average re-order period

A = 1800 - (120 + 8) = 840 units

B = 1440 - (120\*6) = 720 units.

Because of its lower re-ordering level, minimum level for B is lower.

(c) Maximum level = Re-ordering level +Re-ordering quantity-(Minimum usage\*minimum re-order period)

A = 1800 + 2000 - (60\*6) = 3440 units

B = 1440 + 3200 - (60\*4) = 4400 units.

Class : II B.Com CA Course Code : 17CCu401

UNIT - II

Course Name : Cost Accounting Batch : 2017 - 2020

Because of its higher re-order quantity, maximum level for B is higher.

(d) Average stock level= (Minimum level+ Maximum level)/2

A = (840+3440)/2 = 2140 units

B = (720+4400)/2 = 2560 units.



## Karpagam Academy of Higher Education

Pollachi Main Road, Eachanari Post, Coimbatore -641021, Tamilnadu, India. Department of Commerce (Computer Application)

## Subject Code:17CCU401 Subject Name: Cost Accounting

	UNIT - II					
1	cost is one of the most important elements of the cost of production	Labour	material	Selling Overhaead	Adminstrative Overhead	Material
2	Inventory means	Stock	Material	Stores	Sales	Stock
3	BIN card is maintained by	Storekeeper	Accountant	Auditor	Supervisor	Store keeper
4	EOQ =	√AO/C	√AC/O	√2AO/C	√2CA/C	√2AO/C
5	level below which stock level should not be allowed to fall at any time	Minimum	Maximum	Re- Order level	Average	Minimum
6	Market price method is also called as method	Standard price Method	Replcement method	Average Method	Base stock Method	Base stock Method
7	scarp is arises due to bad workmanship	legimate scrap	Administrati ve scarp	Defective Scarp	Average Stock	legimate scrap
8	Spoilage is uncontrollable or unavoidable	Normal	Abnormal	Defective	Average	Normal

1						
9	card is attached to each bin	Material control	material transfer note	BIN card	Stores ledger	BIN Card
10	Document which records transfer of surplus from one job to another	Material control	material transfer note	BIN card	Stores ledger	material transfer note
11	ensures effective utilisation of material	control	usage	material control	wastage	material control
12	avoids over investment in inventories	control	usage	material control	wastage	material control
13	ensures upto date maintance of stock records	control	usage	material control	wastege	material control
14	taking is an essential future of the prepetual inventory system	bin card	stores ledger	continuous stock taking	Material transfer note	continuou s stock taking
15	storce ledger is kept in the department	production	sales	stores	costing	costing
16	ABC means	always better control	always best cost	analysis of best cost	always best cost	always better control
17	under method a standard are fixed price is used for pricing issues	actual	fixed	standard	costing	actual
18	scrap refers to	damage	wastage	reused	valueless	damage
19	refers to a units of output which failed to reach the require standard of quality or specification	scrap	spoilage	wastage	damage	spoilage
20	is the portion of raw material lost in processing having no recovery value	scrap	spoilage	wastage	damage	spoilage

21	gives the complete list of materials required for a particular job or work order	job costing	process costing	unit costing	contract costing	job costing
22	is attached to each bin to show the position of stock in the bin	bin card	stores ledger	bill of material	stock transfer note	bin card
23	is known as atomatic inventory system	perputal inventory	stores ledger	bill of material	stock transfer note	perputal inventory
24	An system of material control will lead to a significant reduction in total cost of production	Poor	Better	Efficient	good	Efficient
25	helps to prevent over stocking of materials	Material control	material transfer note	BIN card	Stores ledger	Material Control
26	prevents loss during storage of raw materials	Material control	material transfer note	BIN card	Stores ledger	Material Control
27	Inventory means	Stock	Material	Cost	Sales	Stock
28	card helps the store keeper to control the stock	Material control	material transfer note	BIN card	Stores ledger	BIN Card
29	By seeing the the storekeeper can send the material requstion for purchase of material in time	Material control	material transfer note	BIN card	Stores ledger	BIN Card
30	contains the accounts for each class of material	Material control	material transfer note	BIN card	Stores ledger	Stores Ledger
31	is maintained in loose leaf form	Material control	material transfer note	BIN card	Stores ledger	Stores Ledger
32	A gives a complete list of materials required for a particular job or work order	Material control	material transfer note	BIN card	Bill of material	Bill of material

33	serve as a purchase regusition to the purchase department	Material	material transfer note	BIN card	Bill of material	Bill of material
34	Method in which materials are issued inorderin which they are received in the store	FIFO	LIFO	FFFO	LFIO	FIFO
35	metiod materials received last are issued first	FIFO	LIFO	FFFO	LFIO	LIFO
36	The minimum quanity is known as	Base stock method	Simple Avarage Method	weighted avearge method	Market price method	Base stock method
37	method is determined by adding different prices of materials in stock	Base stock method	Simple Avarage Method	weighted avearge method	Market price method	Simple Avarage Method
38	method takes into account both quanity and price for arriving at the average price	Base stock method	Simple Avarage Method	weighted avearge method	Market price method	weighted avearge method
39	method is also called replacement method	Base stock method	Simple Avarage Method	weighted avearge method	Market price method	Market price method
40	method a standard or a fixed price is used for pricingf the issues	Standard price Method	Simple Avarage Method	weighted avearge method	Market price method	Standard price Method
41	Anything which has no value is considered to be	wastage	Scarp	Spoliage	materials	wastage
42	may be normal or abnormal	wastage	Scarp	Spoliage	materials	wastage
43	is sold without further treatement are used as raw material for another process	wastage	Scarp	Spoliage	materials	Scarp
44	is a document which authorises and records the issues of materials for use	Material Requstion Note	material transfer note	BIN card	Bill of material	Material Requstio n Note

45	Goods received note is prepared by the department receiving the goods from the	Supplier	Customer	Producer	Distributor	Supplier
46	purchasing is the purchase of material or goods in such a way that delivery of purchases items is asured before their use or demand.	Just in time	level setting	VED analysis	ABC Analysis	Just in time
47	level below which stock level should not be allowed to fall at any time	Minimum	maximum	reorder level	zero level	minimum
48	means a level at which normal issues of the material are stopped and issues are made only under specific instructions.	Re-order level	Minimum Level	Maximum level	Danger Level	Danger Level
49	Mimumum Level is otherwise known as	Re-order level	Safety stock	Maximum level	Sales	Safety stock
50	Spoilage is uncontrollable or unavoidable	Normal	Abnormal	Defective	Average	Normal
51	represents the minimum quantity of the material which must be maintained in hand at all times	Re-order level	Minimum Level	Maximum level	Danger Level	Minimum Level
52	Document which records transfer of surplus from one job to another	Material control	material transfer note	BIN card	Stores ledger	material transfer note
53	ensures effective utilisation of material	control	usage	material control	wastage	material control
54	avoids over investment in inventories	control	usage	material control	wastage	material control

55	ensures upto date maintance of stock records	control	usage	material control	wastege	material control
56	represents the maximum quantity of an item of material which can be held in stock at any time	Re-order level	Minimum Level	Maximum level	Danger Level	Maximum level
57	storce ledger is kept in the department	production	sales	stores	costing	costing
58	ABC means	always better control	always best cost	analysis of best cost	always best cost	always better control
59	under method a standard are fixed price is used for pricing issues	actual	fixed	standard	costing	actual
60	is the point at which if stock of a particular material in store approaches, the storekeeper should initiate the purchase requisition for fresh supplies of that materials.	Re-order level	Minimum Level	Maximum level	Danger Level	Re-order Level

Class : II B.Com CA Course Code : 17CCU401

I INIT - III

Course Name : Cost Accounting Batch : 2017 - 2020

### UNIT III

**Labour:** Accounting and Control of labour cost. Time keeping and time booking. Concept and treatment of idle time, over time, labour turnover and fringe benefits. Methods of wage payment and the Incentive schemes- Halsey, Rowan, Taylor's Differential piece wage.

#### Meaning

"Labour Cost, representing the human contribution to production, is an important cost factor which requires constant control, measurement and analysis."

A rational approach to the problems of labor, fair maintenance of wage records for wage ascertainment, fair wage policy, and the incentives for earning more wages go a long way in providing a sense of security and stability to the workmen, in minimizing the labour turnover, and in exercising effective labour cost control.

Labour cost control aims at the control of the labour cost per unit of production and not at the reduction of the wage rates of the workmen. Efficiency of labour (a concept meaningless to material) has an important impact on the successful working of a business.

Labour cost is second major element of cost. Proper control and accounting for labour cost is one of the most important problems of a business enterprise. But control of labour cost presents certain practical difficulties unlike the control of material cost.

Labour costs represent the various items of expenditure Such as:

#### **Monetary Benefits:**

- i) Basic Wages;
- ii) Dearness Allowance;
- iii) Employer's Contribution to Provident Fund;
- iv) Employer's Contribution to Employee's State Insurance (ESI) Scheme;
- v) Production Bonus;

Class : II B.Com CA Course Code : 17CCU401

I INIT - III

Course Name : Cost Accounting Batch : 2017 - 2020

- vi) Profit Bonus;
- vii) Old age Pension;
- viii) Retirement Gratuity;

## **Fringe Benefits:**

- i) Subsidized Food;
- ii) Subsidized Housing;
- iii) Subsidized Education to the children of the workers;
- iv) Medical facilities;
- v) Holidays pay;
- vi) Recreational facilities.

**Control of labour costs** is an important objective of management and the realization of this objectives depends upon the cooperation of every member of the supervisory force from the top executive to foreman.

From functional point of view, control of labour cost is effected in large industrial concern by the coordinated efforts of the following six departments-

- 1) Personnel Department,
- 2) Engineering Department,
- 3) Rate or time and Motion Study department
- 4) Time-Keeper Department
- 5) Cost Accounting Department
- 6) Pay-roll Department

## Factors Governing a Satisfactory system of Wage Payment

The system should depend upon the nature of the worked and the efforts involved.

- a) It should guarantee a minimum living wage to ensure a satisfactory standard of living.
- b) It should be based upon a scientific time and motion study.
- c) It should be capable of being understood by al the employees.
- d) It should be flexible and capable of being adapted to changed circumstances.
- e) Its incidence on the cost per unit should be such that it does not form a considerable proportion of the total cost per unit to deprive the employer of a fair margin of profit,

Class : II B.Com CA Course Code : 17CCU401

I INIT - III

Course Name : Cost Accounting Batch : 2017 - 2020

given the market price of the commodity produced by concern.

- f) It should reduce the labour turnover.
- g) The cost of working the system should be the least.
- h) It should boost employee morale.
- i) It should be acceptable to trade unions.
- j) It should be correlated to the capacity of the concern to pay.

### **Characteristics of Good Wage System**

### 1. Fair to both the Parties:

The system should be such as may be acceptable gladly to the employer and the employees. for this purpose, the employer should decide the system in consultation with the workers.

### 2. Easy to Calculate

The workers should be in a position to calculate their wages correctly and feel sure that they have been correctly paid. Easy calculation will help the employer also in maintaining simple records.

### 3. Related to Efficiency

'Fair remunerations for fair output', should be the idea and remuneration should be related to the individual efficiency of the workers.

### 4. Minimum wage guaranteed

There should be a guarantee of minimum wages to the workers to enable them to maintain their basic standards of life, and to do away with uncertainty-concept.

#### 5. Incentive-oriented

The wage system should be such that the workers may feel encouraged to product more and earn more wages.

### 6. Quality Improvement-oriented

In the race to earn more wages with an increase in production, the chances are that the quality of the output may deteriorate. The system should, therefore, ensure 'better wages for better quality'.

### Labour Turnover

Class : II B.Com CA		Course Name	: Cost Accounting
Course Code : 17CCU401	I I NIT - III	Batch	: 2017 - 2020

Labour turnover is an index denoting change in the labour force for an organisatoin during a specified period. In every industry, works leave their job a new workers have to be appointed to replace them. The ratio of the replaced workers to the number of works is the Labour Turnover Ratio. If more workers leave the factory, the turnover would be high, and vice versa. A high turnover is a costly affair and must be avoided.

### **Causes of Labour Turnover**

The workers leave the factory either by

- i) Resignation, or by
- ii) Discharge by the employer, or
- iii) Due to a cause not within one's control.

### **Measurement of Labour Turnover**

Labour Turnover is measured by applying any one of the following three Methods:

1. Separation Method

 $\frac{\text{Number of employees left during a period}}{\text{Average number of employees during the period}} \times 100$ 

Average Number = 
$$\frac{\text{No. at the beginning} + \text{No. at the end}}{2}$$

Multiplication of the formula by 100 indicated Ratio of the turnover in percentage.

## 2. Replacement Method

$$= \frac{\text{Number of replacement in the period}}{\text{Average number of employees during the period}} \times 100$$

In this method, only the actual replacement are counted irrespective of the number of workers left. If new workers are appointed for expansion programme, they are excluded from the number or replacements.

## 3. Flux Method

LINIT - III

Class : II B.Com CA Course Code : 17CCU401

Batch

Course Name : Cost Accounting : 2017 - 2020

Number of Separations + Number of replacement

#### × 100 Average number of employees during the period

This method is the combination of Method 1 and Method 2.

## **Effect of Labour Turnover on Cost**

A high turnover has an adverse effect on the cost of production due to the following reasons:

- 1. Change in workers interrupts production and the production goes down.
- 2. New comers take time in learning the factory procedure and the work procedure.
- 3. The tools and machines cannot be handled as efficiently by the new workers as hither to done by the old staff. There are chances of more break-downs and of greater cost of repairs of machines.
- 4. What is true of machines is also true of material handling and usage by the new workers.
- 5. The rate of accidents may increase, the rate of defectives in the finished output may increase, and there may be increased wastage of time.
- 6. The cost of making selections and cost of imparting training to the new entrants would further increase the cost and reduce the profits.

## **Cost of Labour Turnover**

There are two types of costs

- i) Preventive cost and
- ii) Replacement costs

And amenities to the workers that they may be tempted to continue at their job in the factory and not to leave it for example:

- Personnel Administration: Only that portion of the cost of this department which is i) related to the maintenance of good relationship between labour and management.
- Medical Services-Preventive as well as curative. ii)
- iii) Welfare activities and services.
- Miscellaneous schemes and benefits, e.g., Provident fund scheme, Pension scheme, iv) Bonus incentives schemes, etc.

Class : II B.Com CA		Course Name	: Cost Accounting
Course Code : 17CCU401	I INIT - III	Batch	: 2017 - 2020

The replacement costs are those incurred to recruit new workers and also the costs consequent or incidental to replacement, for example:

- i. Cost in selection and appointment
- ii. Training cost
- iii. Loss of output due to delay in recruitment workers
- iv. Cost of inefficiency of new workers
- v. Cost of breakage of tools and machinery
- vi. Cost of increased spoilage and defectives
- vii. Cost of frequent accidents

### **IDLE TIME**

The time when the worker does no work and remains idle, is the idle time. So the idle time cost represents the wages paid for the time lost. The following are its causes:

### 1. Lack of proper planning:

That the production work should go on smoothly depends upon proper planning. If the workers do not have material at the right time, or the machines are not kept fir for working, the time goes waste. Sometimes, delay in the proceeding process delays the operations of the succeeding progress. Here also the workers have to wait due to faulty planning or bad management.

### 2. Careless in Supervision:

If the foreman of a department does not take his duty seriously, the labour working under him also becomes careless and spoils time in the idle way.

### 3. Confrontation between labour management:

The confrontation between labour and management arising form any cause, does waste time in discussions, dialogues, strikes etc., and the wages paid, if any, for this period form the idle time cost.

### 4. Economic Factors:

Trade depression, or serve competition lowers the production, and so labour remains effectively unutilized.

### 5. Others reasons:

Class : II B.Com CA	 Course Name	: Cost Accounting
Course Code : 17CCU401	Batch	: 2017 - 2020

The electricity may fail or the machine may break down for some or more time. They make labour to remain idle for the time being.

## **OVER-TIME**

The time worked over and above the normal hours is overtime. The remuneration usually paid for the overtime work is at double the normal rate. The need for over time work arises due to:

- 1. Increase in demand for the products where the production during the normal hours falls short to meet it;
- 2. Shortage of workers due to absence or non-availability and so it is decided to give overtime work to the existing staff;
- 3. Utilization of perishable raw materials by working overtime;
- 4. Execution of urgent orders, or to complete the work o9n the same day;
- 5. Shortage of equipments, machines, or space for the completion of jobs;
- 6. Lack of administrative control on workers, on account of which the production during normal hours remains less the standard output and overtime work has to be done by the workers.

## Disadvantages of overtime working

The following are the disadvantages:

- 1. Worker's health is adversely affected;
- 2. The quality of the output is at a discount; and
- 3. The cost of production rises due to increased labour cost.

### System of Wage Payment

Strictly speaking, there are only two basic methods of wage payment, viz., wages based on the time spent in the factory, and wages based on the quantum of work turned out. These are thus known respectively as the 'time wage' and the 'piece wage' methods of remuneration. Since each of these has its own advantages and disadvantages, attempts are made to combine the two, mainly with a view to overcoming their disadvantages. We have therefore, the premium bonus or the incentive schemes which may either be considered to be merely variations of the two, or as another of wage payment. These three methods may also be re-classified into only two groups, viz., the time wage system and the payment by results.

Class : II B.Com CA Course Code : 17CCU401 Course Code : 17CCU401 Course Code : 17CCU401

#### **Methods of Remuneration**

The methods of remuneration can be classified into:

- 1. Time Rate System
- 2. Pieced Rate System
- 3. Incentive Schemes

#### 1. Time Rate System

In this system, a worker is paid on the basis of attendance for the day or according to the hours of the day, regardless of the output. This system is also known as time work, day work, day age rate or day rate. The wage rate of the day worker may be fixed on hourly, daily, weekly, fortnightly, or monthly basis depending on the practice followed in the concern.

The basic feature of this system is that the worker is paid so much per unit of time regardless of the output he produces. The unit of time may be an hour, a day, a week or a month. Under this method, wages depend entirely upon the time clocked, but not on the efficiency of the worker. There are three variants of this system, each differing only in so far as the fixation of the time rate is concerned. They are:

a) Flat Time or Time Rate at Ordinary level;

b) High Day Rate or Time Rate at high level;

c) Measured Day work or Graduated Time Rate.

### **Graduated Time Rate**

Under this method wages are paid at time rates which vary according to

- a. Merit-rating of the workers, or
- b. Changes in the cost of living index.

It the cost of living goes up, the wages also go up proportionately, and vice versa. Thus the works get the real wages. Similarly, the workers having higher merit rating get higher wages, and the workers with lower rating get lower wages.

#### **Differential Time Rate**

Workers are paid rate accounting to their individual efficiency. They are paid normal rate upto a certain percentage of efficiency and the rate increases in steps for efficiency slabs beyond

Class : II B.Com CA	 Course Nan	ne : Cost Accounting
Course Code : 17CCU401	Batch	: 2017 - 2020

the standard. As the efficiency is measured in terms of output, this method does not fall strictly under the area of time rate system.

### 2. Payment by Results-Piece-work Rate

The payment of wages under this system is based upon the out turn of the worker. The rate is fixed per piece of work and the worker is paid according to the pieces of work completed or the volume of work done by him, irrespective of the time taken by him in completing that work. A workman is free to earn as much as his ability, energy, or skill would allow to him to produce.

The various schemes falling under 'Payment by results' make speed as the basis of payment, instead of time. Accordingly, these schemes are just the opposite of the time wage system. They are so called because of the fact that wages are linked to the volume of work done regardless of the time taken by workers. Efficiency is recognized in all these schemes and workers get wages according to their avility, efficiency, and speed. The following schemes fall under the payment by results method of wage payment.

- a. Straight Piece Rate.
- b. Differential Piece Rate.

## **Stability of the System**

This system is suitable in the following cases:

- 1. Where the production can be measured in standard units.
- 2. Where strict supervision is not possible.
- 3. Where quality and precision are not of primary importance.

## Advantages

- 1. It provides initiative and incentive to the workers to product more.
- 2. The productivity increases and cost of production per unit goes down.
- 3. As there is little wastage of time on the part of the workers, the fixed overheads and resources like plant, machinery and space are well utilized.
- 4. Workers feel free to work, complete with fellow workers, exhibit their efficiency, and earn more of wages.

Class : II B.Com CA Course Code : 17CCU401 Course Name : Cost Accounting Batch : 2017 - 2020

5. Less supervision is required over the workers, and happy relations are maintained with

them.

6. It is easy to calculate the labor of products.

### Disadvantages

- 1. In the race to earn more wages by producing more, the quality of products is likely to deteriorate. So it requires strict inspection and quality control.
- 2. Continuous and increased working for some days may cause fatigue and ill health to the workers.
- 3. To speed up production, the machines, tools, and equipments are sometimes not handled with the care that they require, and so the workers expose themselves to accidents, besides causing loss of breakdown to the machines, equipments etc.,
- 4. The inefficient workers earning less of wages start feeling jealous of other workers who earn more. This creates unhealthy atmosphere.
- 5. The workers feel insecure of earning during the days of ill health, holidays, etc.
- 6. This system is not useful for quality products.

The piece rate System can be classified into:

## **Straight Piece Rates**

It is a simple method of making payment at a fixed rate per unit for the units manufactured.

Earnings = Number of units X Rate per unit

The rate is fixed taking into consideration

- a. Time rate for the same class of workers, and
- b. Standard output during a given time.

## **Differential Piece Rates**

Under this system, efficient workers are paid wages at a lower rate. A definite standard of efficiency is set for each job and for efficiency below or above the standard different piece rates are paid according to different levels of efficiency. The following two methods of wage payment are studied under this system:

LINIT - III

Class : II B.Com CA Course Code : 17CCU401

Course Name : Cost Accounting Batch : 2017 - 2020

a. Taylor Differential Piece-rate Method, and

b. Merrick Differential Piece rate Method

### **Taylor Differential Piece-Rate**

F.W. Taylor thought to improve the efficiency of workers by suggesting two rates of payment of wages:

- (I) A higher rate to the workers who product equal to or more than the standard fixed for production during the day, and
- (II) A lower rate to the workers who do not achieve the standard.

### Merrick Differential Piece-rate

In the Taylor Method, the effect on the wages is quite sharp in the marginal cases. To remove this defect Merrick suggested three piece rates for a job as follows:

Percentage of Standard Output	Payment under Merrick Method
Upto 83%	Normal piece rate
Above 83% and upto 100%	110% of normal piece rate
Above 100%	120% of normal piece rate

### **3.Incentive Schemes**

### **Factors for Selecting Incentive Scheme**

The following factors should be considered for selecting an incentive scheme:

## 1. Productivity

The object of the incentive scheme is to increase productivity. Therefore, this factor is very important. The increased productivity lowers the cost to the benefit of the employers.

### 2. Simplicity

The scheme should be simple in operations and well understood by the workers. The scheme should be amenable to the setting up of standards and the comparison of the results with the actual.

Class : II B.Com CA Course Code : 17CCU401 IINIT - III Batch : 2017 - 2020

#### 3. Cost Reduction

The scheme, when introduced, is bound to increase the pay-bill of the workers, and thus \*increase the cost. But the simultaneous increase in production would reduce the cost per unit or production. The fixed overheads remain constant up to a certain limit of plant capacity. As such, the increased productivity reduces the cost of fixed overheads per unit.

#### 4. Better Labour Psychology

The scheme should not affect worker's health adversely, should reduce labour turnover and help to improve the standard of living of the workers.

Under this heading, we study the following methods:

- (I) Halsey Premium Scheme;
- (II) Halsey Weir Scheme;
- (III) Rowan Premium Scheme;

#### 1. Halsey Premium Scheme

Under this plan,

- (i) Time rate is guaranteed;
- (ii) Standard time is fixed for the job or operation;
- (iii) The workers producing more than the standard, or the workers completing the work in less than the standard time fixed, get bonus in addition to the ordinary time wage;
- (iv) The bonus of the premium, by whatever name called, is 30 to 70 percent of the wages of time saved, the usual percentage being 50%,
- (v) The remaining of the bonus percentage is shared by the employer.

### Merits of Halsey Plan

- Day wage or the time rate is guaranteed. Even if output is less than the standard, one gets the time wage;
- (ii) Workers get premium for the output above the standard. It provides incentive to the workers to produce more;
- (iii) As the premium is not 100% but only 50% or so, the employers feel happy about it is a they share the remaining 50%;

Class : II B.Com CA Course Code : 17CCU401

Course Name : Cost Accounting Batch : 2017 - 2020

(iv) The scheme is very simple and understood easily by the workers.

#### Demerits

- A significant share of the bonus goes to the employers. So the workers object to it;
- (ii) Incentive is not so attractive as it is with the piece work;
- (iii) Where the workers start saving more than 50% of the time, they earn premium in huge amounts, which the employers do not relish.

### 2. Halsey – Weir Scheme

This schedule is similar to Halsey scheme except that in this scheme the workers and employers share the premium in 1:2 ratio.

### 3. Rowan Premium Scheme (variable sharing plan)

Mr. James Rowan introduced this scheme in Glasgow in 1898. It is similar to Halsey scheme but the premium concept here is different. Here the premium is in the ratio of Time saved to Standard time, calculated on the ordinary wages.

Premium = Wages of time worked x Time saved / Standard Time

## Or; (AT x R) TS / ST

This scheme also guarantees day wage as is done by Halsey Plan.

### Problem 1

Calculate the earnings of a worker from the following information as under.

a) Time Rate Method: Standard time 30 hours Time taken 20 hours. Hourly rate of wages of Re.

1 per hour plus dearness allowance 50 paise per hour worked.

## Problem 2

On the basis of the following information calculate the earnings of A and B on the straight price Rate basis and Taylor's differential piece rate system.

Standard Production 8 units per hour

Normal time rate Rs. 0.40 per hour

## Differential to be applied:-

80% of piece rate below standard

Class : II B.Com CA		Course Name	: Cost Accounting
Course Code : 17CCU401		Batch	: 2017 - 2020

120% of piece rate at or above standard. In a 9 hour day, A produces 54 units and B products 75 units.

## Problem 3

Calculate the earning of workers A,B and C under Merrick's multiple piece system from the following particulars.

Normal rate per Hour Rs. 1.80

Standard time per unit 1 minute

Output per day as follows:-

Worker A: 384 units Worker B: 450 units

Worker C: 552 units

Working rows per day are 8

## Problem 4

Calculate the earnings of workers A and B under straight piece rate system and Taylor's differential piece rate system from the following particulars.

Normal Rate per hour Rs. 2.40

Standard time per unit 30 seconds

## Differentials to be applied:-

80% of piece rate below standard

120% of piece rate at above standard

Worker A produces 800 units per day and

## Worker B produces 1000 units per day.

## Problem 5

From the following data, total monthly remuneration of three workers A, B and C under the Gant's Task and Bonus Scheme:-

i) Standard Production per month per worker is 1000 units.

ii) Actual Production during the month A = 850 units,

B = 1000 units

Class : II B.Com CA Course Code : 17CCU401

I INIT - III

Course Name : Cost Accounting Batch : 2017 - 2020

C = 1100 units

### iii) Piece works rate 50 paise per unit

### Problem 6

The existing incentives system of a certain factory is

Normal working week – 5 days of 9 hours plus 3 rate shifts of 3 hrs each.

Rate Payment - Daywork = Re. 1 per hour

- Late shift = Rs. 1.50 per hour

Additional bonus payable – Rs. 2.50 per day shift

Rs. 1.50 per Late shift

Average output per operative for 54 hour week - 120 articles i.e. including 3 Late shifts

In order to increase output and eliminated overtime it was decided to with on to a system of

payment by results the following information is obtained.

Time rate Re. 1 per hour

Basic time allowed for 15 articles 5 hours

Piece work rate - Add 20% to piece

Premium – Add 50% to time

You are required to show

- i) Hours worked
- ii) Weekly earnings
- iii) Number of articles produce and
- iv) Labor cost per article for one operative under the following sysem
- a) Existing time rte
- b) Straight piece work
- c) Rowan system
- d) Halsey weir system

Assume that 135 articles produces in a 45 hours work under (b) (c) and (d) and that the worker earns half time saved under the Halsey system. The additional bonus under the existing system will be discontinued on the proposed incentive scheme.

### Problem 7

Class : II B.Com CA	 Course Name : Cost Accounting
Course Code : 17CCU401	Batch : 2017 - 2020

The Worker earns Rs. 2 as bonus @ 50%. So total bonus at 100% should be Rs. 4. The hourly rate of wages being Re. 1. The time saves should be 4 hours.

Standard time allowed	-	10 hours
Less: time saved	-	4 hours
Time taken	-	6 hours

A worker completes a job in a certain number of hours. The standard time allowed for the job is 10 hrs, and the hourly rate of wages (i.e. Re. 1 the worker earns at the 50% rate of bonus Rs. Under Halsey plan.

Ascertain the total wages under the Rowan premium plan:-

### Problem 8

For a certain work order the Standard time is 20 hours, wages Rs. 5 per hour the actual time taken is 13 hours and factory overhead charges are 80% of standard time.

So out a comparative statement showing the effect on paying wages Halsey plan.

## Problem 9

A Workman whose basic rate of pay is Re. 1 per hour of working under the 'Rowan' system of premium bonus. In addition he gets dearness allowance of Rs. 20 per week of 48 hours. During one week he does the following jobs.

i) Job 101 for which 25 hours are allowed. He takes 20 hours.

ii) Job 102 for which 30 hours are allowed he takes 24 hours.

During the week, his waiting time amounts to 4 hours. Find the worker's earning and the amounts to be charged to each job and to overhead.

## Problem 10

The guaranteed time table is Re. 1 per how high piece rate is Re. 0.20 per unit and standard output is 10 units per hour. In a day of 8 hours, A produces 70 units and B produces 80 units and C produces 90 units. Calculate the earning of A,B and C under Gantt task plan.

## Problem 11

Class : II B.Com CA		Course Name	: Cost Accounting
Course Code : 17CCU401		Batch	: 2017 - 2020

Standard output is 10 units per hour and basic wage rate is Re. 1.50 per hour. In a day of 8 hours. A produces 40 units. B 75 units and C produces 90 units. Calculate the wages of A,B and C under Merrick's differential piece rate.

### Solution 1:

### **Time Rate Method:-**

Time Put in by workers x Rate per hour =  $30 \times 1 = Rs. 30$ 

### Solution 2

Standard production per hour 8 units

Normal time rate per hour Rs. 0.40

Piece Rate Rs. 0.40/8 = Rs. 0.05

Earnings under the straight piece rate system:-

A: 54 units @ Rs. 0.05 = Rs. 2.70

B: 75 units @ Rs. 0.05 = Rs. 3.75

### **Differential Piece Rate:-**

Low Piece rate: 80% of piece rate  $(0.05 \times 80 / 100) = \text{Rs.} 0.04$ 

High Piece rate: 120% of piece rate =  $(0.05 \times 120 / 100) = Rs. 0.06$ 

Standard output per hour is 8 units, So Standard Output for a 9 hour day is 72 units. A produces only 54 units which is less than the standard output of 72 units. So he is entitled to get a lower price rate of Rs. 0.04 per unit. On the other hand, B's output of 75 units is more than the standard output of 72 units. So SA is to get higher piece rate of Re. 0.06 per unit.

A's earning: 54 units @ Re. 0.04 = Rs. 2.16

B's earning: 75 units @ Re. 0.06 = Rs. 4.50

### Solution 3

Standard output per minute	= 1 units		
Standard Production per hour	= 60 units		
Standard Production per day of 8 hour	= 480 units		
i.e. (60 x 8)			
Normal rate per hour	= Rs. 1.80		
Normal output per hour	= 60 units		

Class : II B.Com CA		Course Na	me : Cost Accounting
Course Code : 17CCU401	JIT - III	Batch	: 2017 - 2020
Therefore Normal piece rate	= (1080	0/60) x 5 paise	
Calculation of level of Performance:-			
Standard output per day	= 480	units	
Worker A's Output per day	= 384 units		
Worker A's level of performance	= (384/480) x	100 = 80%	
Worker B's Output per day	= 450 units		
Worker B's level of performance	= (450/480) x	100 = 43%	
Worker C's Output per day	= 550 units		
Worker A's level of performance	= (550/480) x	100 = 1150%	
Earnings of workers A:-			
Merrick's multiple piece rate syste	m:-		
For 384 units @ 3 paise per unit =	(384  x 3)/100 = 3	11.50	
Normal piece rate has been appli	ed because work	er A's level of	performance is 807
Which is below 83%.			
Earning of Worker B:-			
For 450 units @ 3.3 Paise per unit	= 450 x 3.3/100 =	Rs. 14.85	
Worker B's level of Performance	is 93.75% which	is between 83%	6 and 100%. So he i
entitled to get 110% of normal piece rate.			
Earning of Worker C:-			
For 552 units @ 3.6 paise per unit	= (552 x 3.6)/100		
Rs. 19.87			
Worker C's level of performance is 115%	which is more t	han 100% of sta	andard output. So it i
entitled to get 120% of normal Piece rate.			
Solution 4			
3600			
1000			
Hourly Production = = 12	0 units		
120			
2.2	210		

	Class : II B.Com CA Course Code : 17CCU401			- III )	Course Name Batch	: Cost Accounting : 2017 - 2020
P	iece rate	=	= 0.003	5		
L	ow piece rate:-					
	LPR	=	80% of norma	l piece rate		
		=	80% x 0.005			
		=	0.004			
H	igh piece rate:					
	HPR	=	120 of 0.005			
		=	0.006			
S	tandard Production	per day	=	120 units x 8		
			=	960 units		

## Computation of earnings of A and B:-

А	В
0.005	0.005
800	1000
960 units	960 units
800 x 0.005	1000 x 0.005
Rs. 4.80	Rs. 5
0.004 x 800	0.006 x 1000
Rs. 3.2	Rs. 6.00
	A 0.005 800 960 units 800 x 0.005 Rs. 4.80 0.004 x 800 Rs. 3.2

### Solution 5

Standard Production per month is 1000 units and piece rate is 50 paise per unit so guaranteed monthly payment is Rs. 500 (i.e. 1000 units @ 50 paise)

Level of Performance:-

Standard output per month	1000 units
Worker A's Output	850 units

Class : II B.Com CA Course Code : 17CCU401	Course Name : Cost Accounting Batch : 2017 - 2020	
1000		
1000		
Worker A's level of Performance =	x 100 = 85%	
Workers B's Output:-		
Worker B's level of Performance	x 100 = 100%	
Workers C's Output:-		
Worker C's level of Performance	x 100 = 110%	
Earning of Worker A:-		
Worker A's level of Performance is 85%	b which is below the standard performance so it	
will get Rs. 500 the guaranteed monthly payment	t.	
Earning of Worker B:-		
Worker B's level of performance is 100%	% so he will get piece wages for 1000 units plus	
20% bonus		
Piece Wages for 1000 units @ 50 paise per unit	Rs. 500	
Add: 20% bonus i.e. (500 x 20 )/100	Rs. 100	
Total earning	Rs. 600	
Earning or Worker C:-		
Worker C's level of Performance is 1109	% which is more than the standard Performance	
so he will get piece wage prices 20% bonus.		
Thus dis earnings are as follows:-		
Price wages for 1,100 units @ 50 paise per unit	Rs. 550	
Add: 20% bonus (550 x 20)/100	Rs. 110	
Total earning	Rs. 660	
Solution 6		
a) Existing time Rate:-	Rs.	
Weekly wages 45 hrs. @ Re. 1 per hour	4500	
9 hrs @ Re. 1.50 per hour	13.50	
Day shift bonus 5 x 2.50	12.50	

Class : II B.Com CA Course Code : 17CCU401	I INIT - III	Course Name : Cost Accounting Batch : 2017 - 2020		
Late shift bonus 3 x 1.50	4.50			
Total Earning	75.5	0		
b) Piece rate system:-				
Basic time: 5 hours for 15 articles				
Therefore cost of 15 articles	5.00			
Add: 20%	1.00			
Total Earning	6.00			
Therefore Rate per article Rs. 6.00	/ 15 = Rs. 0.40			
Articles products in a week = $45 \text{ x}$	15/5 = 135			
Hence Earning = $135 \times 0.40 = Rs$ .	54.00			
c) <u>Rowan Premium System:-</u>				
Basic time $=$ 5 hrs for	15 articles			
Adding 50% = $7\frac{1}{2}$ has t	or 15 articles			
Therefore time for producing of	ne articles			
$= 7\frac{1}{2}$ hrs / 15 = 30 minutes				
Therefore time allowed for 135 articles = $67 \frac{1}{2}$ hrs				
Actual time taken for 135 artic	es 45 hrs			
Therefore time saved = $22\frac{1}{2}$ hr	Therefore time saved = $22\frac{1}{2}$ hrs			
Earning = Time wages x (% of time saved / Standard Time) x Time wage				
$= 45 \text{ x } 1 + (22\frac{1}{2} / 67\frac{1}{2}) \text{ x } 45 = 45 + 15 = 60$				
d) Halsey-Weir Premium System				
Earning = Time wage +	50% (Time saved >	x Time rate)		
=45  x  1+50%	(67½ - 45) x 1			
= 45 + 11.25 = F	s. 56.25			
The other requirements of the	broblems have beer	1 shown in the following table		
Methods				

a b c d	
---------	--

Class : II I Course Co	B.Com CA ode : 17CCU401	I INIT - III		Course Na Batch	me : Cost Account : 2017 - 2020	ting
	i) Hours worked	45	54	45	45	
	ii) Weekly earning Rs.	75.50	54.00	60.00	56.25	
	iii) Articles produces	120	135	135	135	
	iv) Labour cost per article	0.629	0.400	0.444	0.417	

## Solution 7

The worker earns Rs. 2 as bonus at 50% so total bonus at 100% should be Rs. 4. The hourly rate of wages being Re. 1 the time saved should be 4 hrs.

Standard time allowed10 hoursLess: Time saved4 hoursTime taken6 hours

Earning under the roman Premium Plan:-

Earning	=	$T \ge R + (S - T / S) \ge T \ge R$
Where T	=	Time taken i.e., 6 hours
S	=	Standard time i.e. 10 hours
R	=	Rate per hour i.e. Re. 1
Therefore Earning	=	6 x 1 + (10-6/10) x 6 x 1
	=	Rs. 6 + Rs. 2.40
	=	Rs. 8.40
Solution 8		
Earning	=	A.T x T.R + 50% (T.S. x T.R)
	=	13 x 5 + 50% (7 x 5)
	=	65 + 17.5
	=	Rs. 82.50
Solution 9		

Workers earning form Job 101 :-

Standard time 25 hours

Time taken 20 hours
#### KARPAGAM ACADEMY OF HIGHER EDUCATION Class : II B.Com CA Course Name : Cost Accounting Course Code : 17CCU401 Batch : 2017 - 2020 LINIT - III Rate per hour Re. 1 Wages for actual time = 20 hrs @ 1 Re.Premium according to Roman System = Time taken x Rate per hr. + (Time saved / Standard time) x Actual time x Rate per hr = 20 x 1 + (5/25) x 20= Rs. 24 Rs. 24.00 Proportion of dearness allowances:-= 20 x (25/55)Earning from job 101 Rs. 9.09 Total Rs. 33.09 The workers earning from job 102:-Standard time 30 hours =Time taken 24 hours =Rate per hour 1 Re. = Earning $T \times R + (T.S / Std) \times A.T \times R$ = 24 x 1 + (6/30) x 24 = = 24 + 4.8Rs. 28.80 = Proportion of Dearness allowance:-20 x (30 / 55) =Rs. 10.91 =Earning from job 102 Rs. 39.71 Total earning of the worker:-Job 101 Rs. 33.09 =Job 102 Rs. 39.71 =Read Rs. 4.00 = Total Rs. 76.80 =

Class : II B.Com CA Course Code : 17CCU401 Course Code : 17CCU401 Course Name : Cost Accounting Batch : 2017 - 2020

#### Solution 10

Standard Output at 10 units per hour is 80 units.

A's output is below the Standard

B's output is at the standard and C's output is above the standard.

Accordingly A gets time wages, B gets a bonus of 20% of the time rate and C gets high piece rate.

Earnings:	А	=	8 hours x Re. 1	= Rs. 8
	В	=	8 hours x Re. 1.20	= Rs. 9.60
	С	=	90 hours x Re. 0.20	= Rs. 18

### Solution 11

Standard output	=	10 units per hour
Basic wage Rate	=	Rs. 1.50 per hour
Piece rate	=	1.50 / 10 = Rs. 0.15

### Percentage efficiency:-

=(Actual output / Standard output) x 100

For A	=	(40  x  100/80) =	50%
For B	=	(75 x (100/80) =	93.75%
For C	=	(90  x  100/90) =	112.5%

A's efficiency being less than 83% he is paid the ordinary piece rate. B's efficiency being 83% to 100%. He is paid at 110% of ordinary piece rate. C's efficiency being more than 100% he is paid at 120%.

Thus:	A gets 40 x Re. 0.15	=	Rs. 6.00
	B gets 75 x 0.165	=	Rs. 12.37
	C gets 90 x Re. 0.18		

Class : II B.Com CA Course Code : 17CCU401

I INIT - III

Course Name : Cost Accounting Batch : 2017 - 2020

### **POSSIBLE QUESTIONS**

#### PART A (ONE MARK – ONLINE EXAMINATION)

#### PART B (2 MARKS)

- 1.Write a Short note on Direct Labour
- 2. Write a short note on fringe benefits.
- 3. What is labour turnover?
- 4.Define labour
- 5. Write a short note on Indirect Labour
- 6. What are the different departments.
- 7.Explain halsey premium plan
- 8. Write a short note on Rowan plan.
- 9. Write a short note on replacement Method

#### PART C (6 MARKS)

- 1.Difference between Cost Allocation and Apportionment
- 2. Calculate the normal and over time wages payable to a workman from the following data:

Days	Hours Worked
Monday	8
Tuesday	10
Wednesday	9
Thursday	11
Friday	9

Class : II B.Com CA Course Code : 17CCU401		I INIT - III	)	Course Name Batch	: Cost Accounting : 2017 - 2020
	Saturday		4		
	Total		51		
				_	

Normal Working hours	8hrs per day
Normal Rate	Rs.1 per Hour
Overtime Rate	upto 9 hours in a day and 48 hrs in a week at single

rate and 9 hours and over 48 hours in a week in a day at double rate

3 From the following data provided to you find out the Labour Turnover Rate by Applying

- a) Flux Method
- b) Replacement Method and Separation Method
- Number of Workers on the pay roll
- At the beginning of the month 500
- At the end of the month 600

During the month 5 workers left, 20 persons were discharged and 75 workers were recruited. Of these, 10 workers were recruited in the vacancies of those leaving, while rest were engaged for an expansion Scheme.

4 A factory has three production departments and two service departments. The

Following figures have been extracted from the financial books:

Particulars	Rs
Supervision	10,000
Repairs of Plant and Machinery	5,000
Rent	10,000
Light	3,000
Power	4,000
Employer's contribution to ESI	600
Canteen Expenses	2,000

The following further details have been extracted from the books of the respective departments:

Class : II B.Com CA Course Code : 17CCU401		IT - III		Course Name : C Batch :	Cost Accounting 2017 - 2020
Particulars	Р	Q	R	S	Τ
Direct Wages (Rs.)	3,000	3,000	2,000	2,000	1,000
Area of Square feet	2,000	1,000	500	500	100
No. of Employees	50	40	20	20	10
Value of Machinery	10,000	5,000	3,000	3,000	1,000
Light Points	80	60	30	30	20
H.P. of Machines	200	100	50	50	20

6 From the following information -

Standard Time 20 hours

Hourly Rate of wages Rs. 4

Time Taken by A - 16 hours, B- 10 hours and C - 8 hours.

Calculate the Total Earnings and the Rate Earned Per Hour of three workers under

the Halsey and Rowan Plans; the hours under Halsey Plan is 50 % of the time saved.

7 Standard time allotted for a job is 20 hours and the rate per hour is Rs. 2 plus a dearness

allowance @ 50 paise per hour worked.

The actual time taken by a worker is 15 hours.

Calculate the earnings per hour under

(i) Time Wage System

(ii) Piece Wage System

(iii) Rowan Scheme



Karpagam Academy of Higher Education Pollachi Main Road, Eachanari Post, Coimbatore -641021, Tamilnadu, India. Department of Commerce (Computer Application)

#### Subject Code:17CCU401 Subject Name: Cost Accounting

	UNIT - III							
			Direct	Work	Fcatory			
1	Overhead means	Indirect expenses	expenses	expenses	expenses	Indirect Expenses		
	classification of overhead is important							
	inorder to identify cost with							
2	centre	Process	sales	Cost	production	Cost		
	materials are those							
	materials which do not form a part of the			Raw	cost of			
3	finished goods	direct	indirect	material	material	Indirect material		
	of indirect materials							
	cannot be identified with and allocated but							
	can be apportioned to apportioned to a							
4	particular product	cost	expenses	labour	sales	Cost		
	labours which is not		_					
	directly engaged in production of goods or			semi-				
5	services	Direct	indirect	skilled	Skilled	Indirect		
	the wages paid for indirect labour is							
6	known as	direct	indirect	bonus	penalty	Indirect		
	labours helps the direct							
7	labour engaged in production	direct	indirect	bonus	penalty	Indirect		
	expenses tht are not directly		Direct	overhead	selling			
8	charged to production	Indirect expenses	expenses	expenses	expenses	indirect expenses		
		-	-			•		
		production	manufacturi	selling	distribution	manufacturing		
9	factory expenses is also known as	overhead	ng overhead	overhead	overhead	overhead		
	overhead covers all							
	expenses incurred from stage to raw	production	factory	selling	distribution			
10	materials to finished goods	overhead	overhead	overhead	overhead	factory overhead		
	expenses incurred for	adminstaration	factory	selling	distribution	Adminstration		
11	running the adminstrative office	overhead	overhead	overhead	overhead	overhead		
	expenses incurred for actual	administration	factory	selling	distribution			
12	sales and promotion of sales	overhead	overhead	overhead	overhead	Selling overhead		
	expenses incurred for with							
	packing and delivery of goods to	administration	factory	selling	distribution			
13	customers	overhead	overhead	overhead	overhead	distribution overhead		
	don not vary with the		variable	selling	semivariable			
14	volume of products	Fixed overhead	overhead	overhead	overhead	fixed overhead		
	are partly fixed and partly		variable	selling	semivariable	semivariable		
15	variable	Fixed overhead	overhead	overhead	overhead	overheads		
	oveheads refers to such							
	overhead which are expected to be			Controllab	Un			
16	incurred in attaining a given output	Normal	Abnormal	le	controllable	Normal		
	oveheads refers to such							
	overhead which are not expected to be			Controllab	Un			
17	incurred in attaining a given output	Normal	Abnormal	le	controllable	abnormal		
	cost are variable cost			Controllab	Un			
18	which can be controlled	Normal	Abnormal	le	controllable	controllable		
	cost are fixed cost			Controllab	Un			
19	which cannot be controlled	Normal	Abnormal	le	controllable	un controllable		
	materials are those							
	materials which do not form a part of the			Raw	cost of			
20	finished goods	direct	indirect	material	material	Indirect material		

	is the process of grouping			Cost		
	of cost according to their common	Cost	Cost	Apportion	Cost	
21	characterstics	Classification	Allocation	ment	absorption	Cost classification
	is defined as the allotment			Cost		
	of whole amount of cost centre or cost	Cost	Cost	Apportion	Cost	
22	units	Classification	Allocation	ment	absorption	Cost allocation
	is defined as the alloment			Cost		
	proportions of cost to cost centre or cost	Cost	Cost	Apportion	Cost	
23	units	Classification	Allocation	ment	absorption	Cost apportionment
				Cost		
	means allotment of	Cost	Cost	Apportion	Cost	
24	overheads to jobs	Classification	Allocation	ment	absorption	cost absorption
	Expenses which can be directly identified			Cost		
	with a particular department or cost centre	Cost	Cost	Apportion	Cost	
25	is called	Classification	Allocation	ment	absorption	Cost Allocation
	allocation and apportionment of overheads			Cost		
	expenses to various production and service	Departmentalisat	Cost	Apportion	Cost	
26	department is known as	ion	Allocation	ment	absorption	Departmentalisation
	department are those					
	department which enable other department					
27	tp work	Service	Production	Sales	Purchase	Service
				Cost		
	ensures accuracy in cost	Departmentalisat	Cost	Apportion	Cost	
28	ascertainment	ion	Allocation	ment	absorption	Departmentalisation
				Cost	· · ·	
	facilitates work and	Departmentalisat	Cost	Apportion	Cost	
29	supervision	ion	Allocation	ment	absorption	Departmentalisation
				Cost	· · ·	
	esssential for budgetary	Departmentalisat	Cost	Apportion	Cost	
30	control	ion	Allocation	ment	absorption	Departmentalisation
	is obtained by dividing the		direct		1	
	amount of overheads by direct material	Direct material	labour cost	prime cost	work cost	direct material cost
31	cost	cost percentage	percentage	percentage	percentage	percentage
-		1 0	direct	1 0	1 <u> </u>	1 0
	is obtained by dividing the	Direct material	labour cost	prime cost	work cost	Direct labour cost
32	amount of overheads by the direct wages	cost percentage	percentage	percentage	percentage	percentage
		1 0	direct	1 0	<u> </u>	1 0
	is obtained by dividing the	Direct material	labour cost	prime cost	work cost	
33	amount of overhead by the prime cost	cost percentage	percentage	percentage	percentage	prime cost percentage
	.,	1	direct		Direct labour	r r · · · · · · · · · · · · · · · · · ·
	is obtained by dividing the	Direct material	labour cost	prime cost	hour	Direct labour hour
34	amount of overheads by the labour hours	cost percentage	percentage	percentage	percentage	percentage
F.	is obtained by dividing	1	direct		Direct labour	
	the amount of overheads by the macchine	Direct material	labour cost	machine	hour	
35	hours	cost percentage	percentage	Hour rate	percentage	machine hour rate
	Overheads in cost accounts are usually the	1		Variable	semivariable	
36	basis of	Estimate Rates	Fixed rates	rates	rates	Estimated rates
	report help the			-		
37	management in decision making	Audit	cost	estimated	historical cost	Audit
<u> </u>	method helps to compare		direct		Direct labour	
	the efficiencies and cost of operating	Direct material	labour cost	machine	hour	
38	different machines	cost percentage	percentage	Hour rate	percentage	machine hour rate
-	Under absorption means that the	1			. 0-	
	overheads absorbed in production less			selling	distribution	
39	than the overhead	Actual	work	overhead	overhead	Actual
<u> </u>	absorbtion means that the					
	overhead absorbed in production are more					
40	than that of actual overhead	under	Over	Fixed	Variable	Over
<u> </u>	rate is the cost of running		Machine		indirect	-
41	a machine per hour	Labour per hour	Hour	wage hour	labour hour	machine Hour

	Each machine or group of machine is					
	treated as a cost centre in order to identify		Direct	Variable	Semi variable	
42	the expenses	Fixed overhead	overhead	overhead	overhead	fixed overhead
			Direct	Variable	Semi variable	
43	Standing charge is also known as	Fixed overhead	overhead	overhead	overhead	fixed overhead
				Semi		
	Machine expenses is also known	Variable	Fixed	variable	Direct	
44	as	expenses	Expenses	Expenses	expenses	Variable Expenses
			value of	value of	value of	
45	State the bases od Apportionment for rent	Floor area	plant	stock	materials	Floor area
	State the bases of apportionment for		value of	value of	value of	
46	lighting	Light points	plant	stock	materials	Light points
	State the bases for apportionment of		value of	value of	value of	
47	depriciation of plant and macinery	Light points	plant	stock	materials	Value of plant
	State the bases of apportionment for		value of	value of	value of	
48	insurance of stock	Light points	plant	stock	materials	value of stock
	State the bases of apportionment for		value of	value of	value of	
49	material handling charges	Light points	plant	stock	materials	Value of materials
	State the bases of apportionment of	No.of,	value of	value of	value of	
50	supervision	Employees	plant	stock	materials	No.of, Employees
	State the bases of apportionment of repairs	No.of,	value of	value of	value of	
51	to plant	Employees	plant	stock	materials	Valueof plant
	Each machine or group of machine is					
	treated as a cost centre in order to identify		Direct	Variable	Semi variable	
52	the expenses	Fixed overhead	overhead	overhead	overhead	fixed overhead
	Canteen expenses is apportionmet based	No.of,	value of	value of	value of	
53	on	Employees	plant	stock	materials	No.of, Employees
	State the bases for apportionment of		value of	value of	value of	
54	indirect materials	Direct Materials	plant	stock	materials	Direct materials
	State the bases for apportionment of		Direct	value of	value of	
55	indirect wages	Direct Materials	wages	stock	materials	Direct wages
	State the bases for apportionment of		value of	value of	value of	
56	municipal taxes	Floor area	plant	stock	materials	Floor area
			value of	value of	value of	
57	State the bases for advertising	Actual Expenses	plant	stock	materials	Actual Expenses
	is the process of			Cost		
	distribution of overheads to various	Cost	Cost	Apportion	Cost	
58	departments	Classification	Allocation	ment	absorption	Cost Apportionment
				Cost		
	method depends upon the	Cost	Cost	Apportion	Cost	
59	type and size of the business	Classification	Allocation	ment	absorption	Cost Classification
				Cost		
	is process of charging the	Cost	Cost	Apportion	Cost	
60	full amount of overhead without division	Classification	Allocation	ment	absorption	Cost allocation

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

### UNIT-IV

Elements of Cost: Classification, allocation, apportionment and absorption of overheads; Underand over-absorption; Capacity Levels and Costs; Treatments of certain items in costing like interest on capital, packing expenses, bad debts, research and development expenses; Activity based cost allocation

#### **Elements of Cost**

#### **Meaning and Definition**

Aggregate of all expenses relating to indirect material cost, indirect labour cost and indirect expenses is known as Overhead. Accordingly, all expenses other than direct material cost, direct wages and direct expenses are referred to as overhead.

According to Wheldon, Overhead may be defined as "the cost of indirect material, indirect labour and such other expenses including services as cannot conveniently be charged to a specific unit."

Blocker and Weltmer define overhead as follows :"Overhead costs are operating cost of a business enterprise which cannot be traced directly to a particular unit of output. Further such costs are invisible or unaccountable."

#### **Importance of Overhead Cost**

Nowadays business is a dynamic organism. Advancement of technological development and innovation, economic situations and social considerations are the important factors for modernization of industries at mass production to meet its more demand. The overhead charges are heavily increased and they represent major portion of total cost. Therefore, it assumes greater importance for cost control and cost reduction.

#### **Classification of Overheads**

Classification of overheads is the process of grouping of costs based on the features and objectives of the business organization. The following are the important methods on which the overheads are classified:

- ✓ On the basis of Nature.
- ✓ On the basis of Function.
- ✓ On the basis of Variability.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

 $\checkmark$  On the basis of Normality.

✓ On the basis of Control.

### (1) On the Basis of Nature

One of the important classifications is on the basis of nature or elements. Based on nature the aggregate of all indirect material cost, indirect labour cost and indirect other expenses are known as overheads. Accordingly, overheads are grouped into (a) Indirect Material Cost (b) Indirect Labour Cost and (c) Indirect Expenses.

(a) **Indirect Material Cost:** Indirect materials do not form part of the finished products. Indirect materials are indirectly or generally used for production which cannot be identified directly. For example, oil, lubricants, cotton waste, tools for repairs and maintenance etc. are indirect materials.

(b)**Indirect Labour Cost:** Indirect labour is for work in general. The importance of the distribution lies in the fact that whereas direct labour can be identified with and charged to the job, indirect labour cannot be so charged and has, therefore, to be treated as part of the factory overheads to be included in the cost of production. Examples are salaries and wages of supervisors, storekeepers, maintenance labour etc.

(c)**Indirect Expenses:** Any expenses that are not specifically incurred for or can be readily charged to or identified with a specific job. These are the expenses incurred in general for more than one cost centre. Examples of indirect expenses are rent, insurance, lighting, telephone, stationery expenses ·etc.

### (2) On the Basis of Function

The classification overheads on the basis of the various function of the business concern is known as function wise overheads. Here there are four important functional overheads such as :

- ✓ Production Overhead
- ✓ Administration Overhead
- ✓ Selling Overhead
- ✓ Distribution overhead
- A. Production Overhead: Production overhead is also termed as manufacturing overhead or works overhead or factory overhead. It is the aggregate of all indirect expenses which are incurred for work in operation or factory. These costs are normally incurred during the period when the production process is carried on. For example, factory rent, factory light, power, factory employees' salary, oil, lubrication of plant & machinery, et

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

- **B.** Administrative Overhead: Administrative expenses are incurred in general for management to discharge its functions of planning organizing, controlling, co-ordination and directing. These expenses are not specifically incurred and cannot be identified with the specific job. It is also termed as office cost. For example, office rent, rates, printing, stationery, postage, telegram, legal expenses etc. are the office and administrative costs.
- **C. Selling Overheads:** Selling expenses are overheads which are incurred for promoting sales, securing orders, creating demand and retaining customers. For example, salesmen's salaries, advertisement, rent and rates of show room, samples, commission etc.
- **D. Distribution Overhead:** Distribution overhead are incurred for distribution of products or output from producers to the ultimate consumers. For example, warehouse staff salaries, expenses of delivery van, storage expenses, packing etc.

### (3) On the Basis of Variability

One of the important classifications is on the basis of variability. According to this, the expenses can be grouped into (a) Fixed Overhead (b) Variable Overhead and (c) Semi-Variable Overhead.

(a) Fixed Overhead: Fixed cost or overhead incurred remain constant due to change in the volume output or change in the volume of sales. For example, rent and rates of buildings, depreciation of plant, salaries of supervisors etc.

(b) Variable Overhead: Variable overhead may be defined as "they tend to increase or decrease in total amount with changes in the volume of output or volume of sales." Accordingly the change is in direct

proportion to output. Indirect materials, Indirect labour, repair and maintenance, power, fuel, lubricants etc. are examples of variable overhead costs.

(c) Semi-Variable Overheads: Semi-variable overheads are incurred with a change in the volume of output or turnover. They neither remain fixed nor do they tend to vary directly with the output. These costs remain fixed upto a certain volume of output but they will vary at other part of activity. Semi-variable overheads are mixed cost, i.e., partly fixed and partly variable. For example, power, repairs and maintenance, depreciation of plant and machinery telephone etc.

### (4) On the Basis of Normality

Overheads are classified into normal overheads and abnormal overheads on the basis of normality features. According to this normal overheads are incurred in achieving the target output or fixed plan. On the other hand, abnormal overhead costs are not expected to be incurred

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

at a given level of output in the conditions in which the level of output is normally produced. For example, abnormal idle time, abnormal wastage etc. Such expenses are transferred to Profit and Loss Account.

### (5) On the Basis of Control

It is one of important classifications of overhead on the basis of control. Based on control it is grouped into controllable overhead and uncontrollable overhead. Controllable overhead which can be controlled by the action of a specified number of undertaking. For example, idle time, wastages etc. can be controlled. Uncontrollable overheads cannot be controlled by the action of the executive heading the responsibility centre. For example, rent and rates of building cannot be controlled.

- ✓ Usefulness of Overhead Classification
- ✓ It ensures effective cost control.
- ✓ It helps the management for effective decision making.
- ✓ The application of marginal costing is essentially for profit planning, cost control, decision making etc. are based on the classification of overheads.
- ✓ On the basis of classification of fixed and variable cost, flexible budgets are prepared at different levels of activity.
- ✓ It facilitates fixing of selling price.
- ✓ Cost classification is useful for break-even analysis. Break-even analysis mainly depends on overall.cost and profi"t which can be useful for making or buying decision.
- $\checkmark$  It helps to find out the unit cost of production.

### Procedure or Steps in Overhead

Overheads are incurred for work in general. Overhead is added tQ the prime cost in order to measure the total cost of production or cost of goods sold. For allocation and apportionment of overhead in the cost of production or cost of goods sold the following procedures are involved:

✓ Classification of Overhead

### Course Name: Cost Accounting Course Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

- ✓ Collection of Overhead
- ✓ .Overhead Analysis:

(a) Distribution of overhead to production and service departments, i.e., AllocatiOllnmd

Apportionment of overhead to cost centre.

Re-distribution of overhead from service department to production department, i.e., Allocation and Apportionment of service centres to production centres or departments.

Absorption of overhead by cost units, i.e., computation of overhead absorption rates.

(1) Classification Overhead: We have already discussed the classification of overh~ad in the preceding pages, and the discussion on other procedures would follow in this chapter and the subsequent one.

(2) Collection of Overhead: The production overheads or factory overheads are collected and identified under separate overhead code numbers or standing order numbers. These overheads are collected from different sources and documents. The following are the important sources and documents :

(3) Overhead Analysis : (a) Allocation and Apportionment of Overhead to Cost Centres

The first step of overhead analysis is distribution of overhead to production department and service department. Before analysing overhead, we should know the concept of Allocation, Absorption and Apportionment.

Allocation: Cost allocation refers to the allotment of whole item of cost to cost centres. The technique of charging the entire overhead expenses to a cost centre is known as cost allocation.

Absorption: Cost absorption refers to the process of absorbing all overhead costs allocated to apportioned over particular cost centre or production department by the unit produced.

Apportionment: Apportionment is the process of distribution factory overheads to cost centres or cost units on an equitable basis. The term apportionment refers to the allotment of expenses which cannot be identified wholly with a particular department. Such expenses require division and apportionment over two or more cost centres in proportion to estimated benefits received.

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

Allocation Vs Apportionment

- ✓ Allocation deals with whole amount of factory overheads while apportionment deals with proportion of item of cost or proportion to cost centres.
- ✓ The item of factory overhead directly allocated and identified with specific cost centers. Whereas apportionment requires suitable and equitable basis. For example, factory rent may be allocated to the factory and has to be apportioned among the producing and service departments on an equitable basis.

#### Basis of Apportionment

Overhead apportionment depends upon matching with principles. Accordingly the basis for apportionment should be related to the basis on which the expenditure is incurred. The following are the usual basis adopted for apportionment of overhead :

Overhead Cost		Basis of Distribution		
		No. of light points, floor space or meter		
(1)	Lighting -	reading		
(2)	Rent, Rates and Taxes -	Floor Area		
(3)	Insurance of building }			
	Depreciation of			
	building,	Area of floor		
	Heating			
(4)	Depreciation of plant }			
	and Machinery and -	Book value		
	Equipments			
(5)	E S I, Canteen, Safety, }			
	compensation,			
	supervision -	No. of employees		
	welfare, fringe benefits			
(6)	Delivery Van, }			
	Internal			
	Transport -	Weight, volume ton		

Basis of Apportionment

	Course Name: Cost Accounting Course Code: 17CCU401	Class: II- B. Com CA Batch: 2017-2020
(7)	Audit fees -	Sales or Total Cost Weight, value of materials or Number of
(8)	Storekeeper's expenses -	requisitions
(9)	Power -	H. P. Hours or K. W. Hours

### **Illustration: 1**

A departmental store has several departments. What bases would you recommend for apportioning the following items of expenses to its departments :

- (I) Fire Insurance of building
- (2) Sales commission
- (3) Advertisement
- (4) Salesmen's salaries
- (5) Commission paid to salesmen
- (6) Show room expenses
- (7) Depreciation on plant
- (8) Rent of finished goods, warehouse
- (9) Factory power
- (10) Delivery Van expenses

#### Solution:

	Items	Basis of Apportionment	
(I)	Fire Insurance Building	Floor space or Value	
(2)	Sales Commission	Sales value	
(3)	Advertisement	Sales value	

	Course Name: Cost Accounting Course Code: 17CCU401	Class: II- B. Com CA Batch: 2017-2020
(4)	Salesmen's Salaries	Sales value
(5)	Commission paid to Salesmen	Sales value
(6)	Show room expenses	Sales value or Total cost
(7)	Depreciation on plant	Value of plant
	Rent of finished good	8
(8)	warehouse	Floor space or Area
(9)	Factory power	H.P. Power (or) K.W. hours
(10)	Delivery Van expenses	Weight, Volume

### **Illustration: 2**

A factory has three production departments and two service departments. The following figures have been extracted from the financial books :

	Rs.
Supervision	6,000
Repairs of Plant and Machinery	3,000
Rent	8,000
Light	2,000
Power	3,000
Employer's contribution to ESI	600
Canteen Expenses	1,000

The following further details have been extracted from the books of the respective departments :

Particulars	A	В	С	D	Ε
Direct Wages (Rs.)	4,000	3,000	2,000	2,000	1,000
Area of Square feet	2,000	1,000	500	500	100
No. of Employees	50	40	20	20	10
Value of Machinery	10,000	5,000	3,000	3,000	1,000
Light Points	80	60	30	30	20
H.P. of Machines	200	100	50	50	20
	<b>I</b>				

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

#### Solution:

	Primary Ov Summary	verhead	Dis	stributio	n		
	Basis of	Total	Produc Depart	ction ment		Sen'ice	? Dept.
Particulars	Apportionment	Rs.	1	Departme nts	2	Depart	ment
			А	В	С	D	Ε
Supervision	No. o Employees 5·4·2·2·1	f 6,000	2,142	1,715	857	857	429
Repairs of Plant } and Machinery	Value Machinery 10:5:3:3:1	3,000	1,364	681	409	409	137
Rent	feet 20:10:5:5:1	8,000	3,902	1,951	976	976	195
Light	Light points 8: 6: 3 : 3: 2	2,000	727	545	273	273	182
Power	H.P. of Machines 20:10:5:5:2	s 3,000	1,429	714	357	357	143
Employers Contribution to ESI	Direct Wages 4: 3 : 2 : 2: 1	600 f	200	150	100	100	50
Canteen Expenses	Employees 5:4:2:2:1	1,000	357	286	143	143	71
	Total	23,60 0	10,12 1	6,044	3,115	3,115	1,207

(b) **Re-apportionment (Re-distribution):** Re-distribution of overhead from various service departments to production departments is known as Re-apportionment or Secondary distribution. Accordingly, allocation and apportionment of overheads from service departments or centres to production centres or departments. The following are the important bases adopted for

### Course Name: Cost Accounting Course Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

apportionment of secondary distribution:

	Service Department	Basis of Apportionment
(1)	Purchase Department	Number of Purchase Orders or Number of
	Maintenance and Repair	Purchase Requision or Value of Materials
(2)	Department	Hours worked
(3)	Stores Department	No. of Requisition or Value of Materials
(4)	Personnel Department (Canteen, Welfare, Medical, Employer's liability)	No. of Employees or Direct wages
		No. of Employee or Labour Hours or Direct
(5)	Time Keeping Department	Wages
(6)	Pay roll Department	No. of Employees or Direct Wages
(7)	Accounts Department	No. of Employees
(0)	т. 1.D.	Direct Labour Hours or Machine Hours or
(8)	I ool Room	Direct Wages

	Service Department	Basis of Apportionment
(9)	Transport Department	Car hours, Truck hours, Tonnage handled
(10)	Power House	K.W. Hours
(11)	Fire Insurance	Stock Value

### Methods or Re-apportionment or Re-distribution

The following are the important methods of re-distribution of service department overheads to production department :

- ✓ Direct Re-distribution Method
- ✓ Step Distribution Method

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

- ✓ Reciprocal Service Method this method further grouped into:
- ✓ Repeated Distribution Method
- ✓ Simultaneous Equiation Method
- ✓ Trial and Error Method

(1) Direct Re-distribution Method: Under this method, the cost of service department is directed to re-distribution to the production departments without considering the services rendered by one service department to another service department.

### **Illustration: 3**

Ramesh Ltd. has three production departments A, Band C and six service departments. The following figures are extracted from the records of the company :

Production Departmentss

A	Rs.16000
В	Rs10000
С	Rs.12000
D	Rs.38000

Service Departments

Stores	Rs.2000
Timekeeping	Rs.3000
Maintenance	Rs. 1,000
Power	Rs.2000
Walfare	Rs. 1,000
Supervision	Rs.2000
Total	Rs.49000

The other information available in respect of the production departments :

Particulars	Production

Course Name: Cost Accounting Course Code: 17CCU401			Class: II- B. Com CA Batch: 2017-2020
	De	partments	
	А	В	С
No. of Employees	40	30	20
No. of Stores Requisition	30	20	10
Horse Power of Machines	500	500	600
Machine Hours	2500	1500	1000

You are required to apportion the costs of various service departments to production departments.

### Solution:

### Departmental Overhead Re-distribution Summary

Expenses	Basis	Total	Productio	n Departm	ients
		Rs.	А	В	С
			Rs.	Rs.	Rs.
As per departmental summary }	-	38,000	16,000	10,000	12,000
Stores	No. of Stores				
	Requisitioned	2,000	1,000	667	333
	30: 20 : 10				
Timekeeping	No. of Employees				
	40:30:20	3,000	1,333	1,000	667

КА	RPAGAM ACADEN	ЛҮ OF H	IGHER E	DUCAT	ION
Course Name: Course Code:	: Cost Accounting 17CCU401			Clas Batc	s: II- B. Com CA h: 2017-2020
Maintenance	Machine Hours	1,000	500	300	200
	25: 15: 10				
Power	Horse Power	2,000	625	625	750
	5:5:6				
Welfare	No. of Employees	1,000	445	333	222
	40:30:20				
Supervision	No. of Employees	2,000	889	667	444
	40: 30: 20				
Total		49,000	20,792	13,592	14,616

(2) Step Method: Under this method the cost of most serviceable department is first distributed to production departments and other service departments. Thereafter, the next service department is distributed and later the last service department until the cost of all the service departments are redistributed to the production department.

## **Illustration: 4**

A manufacturing company has two production departments A and B and three Service Departments - Timekeeping, Stores and Maintenance. The departmental summary showed the following expenses for Dec. 2003.

Production Departments:	Rs.
A	32,000
В	10,000
Service Departments:	
Timekeeping	8,000
Stores	10,000
Maintenance	6,000
Total Overhead Expenses	66,000

The following information about departments is available and is used as a basis for distribution :

Particular P	Production	Service Departments
--------------	------------	---------------------

Course Name: Cost Ac Course Code: 17CCU40	counting )1	5		C Ba	lass: II- B. Com CA atch: 2017-2020
	Depart	ments			
	A	В	Timekeeping	s Stores	Maintenance
No. of Employees	20	15	10	8	5
No. of Stores Requisitions	12	10	-	+	3
Machine Hours	1200	800	-	-	-

You are required to apportion these costs to production departments :

#### Solution:

Departments	Primary	]			
	Distribution				
	Rs.				
Timekeeping	8000	(-) 8,000			-
Stores	10,000	3,334	(-) 13,334		
Maintenance	6,000	2,500	1,600	(-) 10,100	
А	32,000	1,333	6,400	6,060	45,793
В	10,000	833	5,334	4,040	20,207
Total	66,000	•	•		66,000

Basis of Apportionment:

Timekeeping: 20:15:8:5 (No. of Employees)

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

Stores: 12 : 10 : 3 (No. of Stores Requisition)

Maintenance: 12:8 (Machine Hours)

(3) Reciprocal Service Method : This method recognizes the fact that if a service department receives services from other department, the services should be charged in the receiving department. Thus, the cost of inter departmental services is taken into account on reciprocal basis. The following are the three important methods available for dealing with reciprocal distribution :

(a) Simultaneous Equation Method.

(b) Repeated Distribution Method.

(c) Trial and Error Method.

(a) Simultaneous Equation Method: Under this method, the true cost of total overhead of each service department is ascertained with the help of Simultaneous or Algebraic Equation. The obtained result reapportioned to production department on the basis of given percentage.

(b) Repeated Distribution Method: Under this method, the total overhead costs of the service departments are distributed to service and production departments according to given percentage of the service departments are exhausted, in tum repeatedly until the figures become too small to matter.

(c) Trial and Error Method: In this method, the cost of a service centre is apportioned to another service centre. Then, the cost of another service centre along with the apportioned cost from the first centre

#### Absorption of Overhead

#### Meaning

Absorption of overhead is also tenned as levy, recovery, or application of overhead. Cost absorption refers to the process of absorbing all overhead costs allocated to apportioned over particular cost centre or production department by the unit produced. Accordingly, the distribution of the overhead cost 10 the cost centres or cost units is known as Overhead Absorption.

#### **Overhead Rate**

The apportionment of overhead expenses is done by adopting suitable basis such as output, materials, prime cost, labour hours, machine hours etc. In order to detennine the absorption of overhead in costs of jobs, products or process, a rate is calculated and it is called as "Overhead

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

Absorption Rate" or "Overhead Rate." The overhead rate can be calculated as below :

Overhead Rate = Overhead Expenses / Total quantity or value.

Different overhead rates are applied based on the features and objectives of the business organization. The following are the important overhead absorption rates generally employed :

- (1) Actual Overhead Rate
- Predetermined Overhead Rate
- Blanket Overhead Rate
- Multiple Overhead Rate
- Normal Overhead Rate
- Supplementary Overhead Rate

(1) Actual Overhead Rate: Actual overhead rate as otherwise called the historical rate. This rate is calculated by dividing the actual overhead absorbed by the actual quantity or value of the base selected for a particular period. Assuming that overhead rate is calculated on monthly basis, the following formula is expressed as :

Actual Overhead Rate = <u>Actual overhead during the month</u> \* 100 Actual quantity or Value of the base for the month

(2) **Predetermined Overhead Rate:** Predetermined Dverhead rate is determined in advance of actual production and the rate is computed by dividing the budgeted overhead for the accounting period by the budgeted base for the period. The formula is :

Pre-determined Overhead Rate = <sup>Budgeted Overheads for the Period</sup> x 100 Budgeted

## Base for the Period

(3) Blanket Overhead Rate: Blanket overhead rate is also termed as Single Overhead Rate. A single overhead rate when computed for the entire factory is known as Blanket Rate. It is calculated as :

Blanket Rate = Overhead of Entire Factory

Total Quantum of the base selected

Single rate may be applied suitably in small concerns and only where a single product is manufactured.

(4) Multiple Overhead Rate: Multiple overhead rates involve computation of separate rates for each production department, service department, cost centre, each product or line and for each production factor.

(5) Normal Overhead Rate: Normal Overhead Rate is a predetermined rate calculated with reference to normal capacity. It is calculated as :

Normal Overhead

Normal Overhead Rate = -

Base at Normal Capacity

(6) Supplementary Overhead Rates: These rates used to carryout adjustment between

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

overhead absorbed and overhead incurred. These are used in addition to some other rates and is calculated as under:

Supplementary Overhead Rate = Actual Overhead Incurred - Absorbed Overhead Base Unit or Hours

### Methods of Absorption of Overhead

There are number of methods applicable for computing overhead absorption rate. The following are the various methods of absorbing "Manufacturing Overhead" depending upon the suitable basis selected for the purpose :

- (a) Direct Material Cost Method
- (b) Direct Labour Cost Method
- (c) Direct Labour Hours Method
- (d) Prime Cost Method
- (e) Unit of Output Method
- (f) Machine Hour Rate Method
- **1. Direct Material Cost Method:** Under this method, the rate of absorption is calculated on the basis of direct material cost method. The rate of manufacturing overhead absorption is determined by dividing the manufacturing overhead by the direct material cost. The result obtained the rate of absorption is expressed as percentage. Thus, the overhead rate is calculated by the following formula:

Factory Overheads Direct Material Percentage Rate = ----- x 100

Direct Material Cost

Example: 1

Manufacturing overhead budgeted for 2003 Rs. 20,000

Rs.

Cost of direct materials 80,000

Calculation:

20,000

Direct Material Percentage Rate = x 100 80,000

=25%

(2) Direct Labour Cost Method: Direct Labour Cost Method is also termed as Direct Wages Method. Under this method direct wage rate can be determined by dividing the estimated factory overhead cost apportioned by the predetermined direct wages, and the result obtained is expressed as a pecentage. The following formula for calculating the percentage rate is :

Factory Overhead Percentage of Direct Labour Rate = ------ x 100 Direct Wages

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

Example: 2

Direct Wages paid in factory during the year 2003, Rs. 10,000 Factory overhead during that the period was Rs. 4,000

4,000

Direct Labour Percentage Rate = x 100 = 40% 10,000

(3) Direct Labour Hours Method: Under this method the rate is determined by dividing the production overheads by direct labour hours of each department. This method is designed to overcome the objections of direct labour cost method. This method is most suitable in such industries where the production is carried out manually or by skilled labours. Thus, the direct labour hour rate will be calculated by applying the following formula:

Factory Overhead

Direct Labour Hour Rate =

Direct Labour Hours

(4) Prime Cost Method: Under this method, both direct material cost and direct labour cost are taken into account for determination of recovery rate. The actual or predetermined rate of factory absorption is computed by dividing actual or budgeted overhead expenses by the aggregate of direct material or direct labour cost of the department.

#### **Under Absorption and Over Absorption of Overheads**

- Absorption of overhead may be based either on the actual rate or predetermined rate. If the actual rates are used, the costs having been actually incurred and overhead absorbed are equal. But in the case of predetermined rates, the costs have been determined in advance of incurrence of the overhead expenditure. This may lead to difference of overhead incurred and overhead absorbed. Such a difference of Overhead is said to be under absorption of overhead or over absorption of overhead.

According the term over absorption means that the amount of overhead absorption is more than the actual overhead is said to be over absorption of overhead.

The term under absorption of overhead means that the amount of overhead absorption is less than the actual overhead incurred is said to be under absorption of overhead.

### Causes of Under or Overhead Absorption of Overhead

The following reasons for over and under absorption of overheads :

- 1. Actual overhead cost incurred may be more or less than the budgeted overhead.
- (1) Actual machine hours, labour hour and output may be lower or higher than the budgeted or predetermined base.
- (2) Seasonal fluctuations.
- (3) Wrong computation of overhead absorption rate, output and machine hours:
- (4) Under or Over utilization of production capacity.

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

### **Methods of Treatment**

The following three important methods may be adopted for overhead adjustment and disposal of over or under absorption of overheads :

(1) Carrying Over of Overheads

(2) Application or use of supplementary rates

(3) Write off to Costing Profit and Loss Account.

(1)Carrying Over of Overheads: Under this method, the amount of over or under absorption is carry forward to the next year. This method may be adopted in situation where the normal business cycle extends for more than one year.

(2) Application of Supplementary Rate: Under this method, the supplementary rate is adopted when the amount of under or over absorbed overheads is quite large. Supplementary rate is calculated by dividing the amount of under or over absorbed overheads by the actual base.

The supplementary rate may be used as positive supplementary rate or negative supplementary rate. In the case of positive supplementary rate it is intended to add under absorbed overhead to cost of production. A negative rate, however, adjusted the cost by deducting the amount of over absorbed overhead.

(3) Write otT to Costing Profit and Loss Account: Under this method, if the amount of under or over absorbed overhead is small it may be written off to Costing Profit and Loss Account. If due to some abnormal

. factors, the amount of under or over absorbed is large it should be transferred to Profit and Loss Account.

**Example:** In a factory, the overheads of a production department are absorbed on the basis of Rs. 18 per machine hour. The details for the month of October 2002 are as under :

Factory overheads incurred Rs. 16,50,000.

Of the above Rs. 16,50,000	
Amount became payable due to an award of	Rs
abour hour	. 2,50,000
Prior period expenses booked in the month of	Rs
October 2002	. 1,50,000
Actual Machine hours worked	Rs. 65,000

Actual production was 2,60,000 units, of which 1,95,000 units were sold. On analyzing the reasons it was found that 40% of the under absorbed overheads was due to defective planning and the rest was attributed to normal cost increase.

How would you treat under absorbed overheads in Cost Accounts?

#### Solution:

Course Name: Cost Accounting Course Code: 17CCU401		Batch: 2017-2020
Under absorbed overhead expenses for the	month of Oct. 2002	
		Rs.
Total expenses incurred		16,50,000
Less: Amount paid according to la award }	bour court	
(assumed to be non-recurring)	2,50,000	
Prior period expenses	1,50,000	4,00,000
		12,50,C
Net overhead expenses incurred for the	e month	00
Factory overhead absorbed 6,500 hrs x	k Rs. 18	11,70,000
		Rs.80,0
Under absorbed overheads		00

Treatment of under absorbed overheads in cost account:

(1) 40% due to defective planning. This being abnormal should be debited to P & L : (2) Balance 60% should be distributed over finished goods. Inventory and cost of Under absorbed overheads in Cost = Rs. 32,000 + Rs. Account 48,000 =Rs. 80,000 Finished goods = 48000inventory = Rs. 12,000 Х 4 = 48000Cost of Sales = Rs. 36,000Х 4

### Example

The total overhead expenses of a factory are Rs. 4,46,380. Taking into account the normal working of the factory, overhead was recovered in production at Rs. 1.25 per hour. The actual hours worked were Rs. 2,93,104. How would you proceed to close the books of accounts, assuming that besides 7,800 units produced of which 7,000 were sold, there were equivalent units in work in progress?

On investigation, it was found that 50% of the unabsorbed overhead was on account of

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

increase in the cost of indirect materials and indirect labour and the remaining 50% was due to factory inefficiency. Also give the profit implication of the method suggested.

Solution:

Overhead	Recov	rered	from	
production	l		R	S.
(Rs. 29310	04 x 1.25)		=	3,66,380
Actual	overhead	exp	oenses	
incurred			=	4,46,380
Amount	of un	der-reco	overed	
overhead			=	80,000

50% of the above amount is due to increase in the cost of indirect material and indirect labour and should be charged to units produced by means of a supplementary rate.

No. of total units produced = 7,800 + 200 = 8,000 units

Supplementary rate = 50% of Rs. 80,000 I 8,000 = Rs. 5 per unit

The amount of Rs. 40,000 should be apportioned among cost of sales, finished goods and work in progress at the rate of Rs.5 per unit.  $P_{\alpha}$ 

		AS.
Cost of sales = $7,000 \times Rs. 5$	= 35,000	
Finished goods = $800 \times Rs. 5$	=	4,000
Work in progress = $200 \times Rs. 5$	=	1,000
		40 00

By using this method, the profit for the period will be reduced by Rs.35,000 and the value of stock will increase by Rs.5,000.

The balance amount due to factory inefficiency should be charged to Costing Profit and Loss Account as this is abnormal cost for which the production should not be penalized. Administration, Selling and Distribution Overheads

Administration Overhead: Administrative overhead are incurred in general for management to discharge its functions of planning, organizing, controlling, co-ordination and directing. These expenses are not specifically incurred which cannot be identified with the specific. Thus, the overheads are collected under a standing order number, allocated and apportioned to various cost centres and units.

The administrative overhead is absorbed under anyone of the following methods:

- 1 Transferring to Profit and Loss Account
- 2 Apportioning to Works Overheads
- 3 Apportioning to Selling Overheads.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

**Selling and Distribution Overhead :** Selling and distribution expenses are incurred for promoting sales, securing orders, creating demand and distribution of products or output from producers to the ultimate consumers. The incidence of selling and distribution overheads depends on external factors such as distance of market, nature of competition etc. which are beyond the control of management. They are dependent upon customer's behaviour, liking etc. These expenses are the nature of policy costs and hence not amenable to control. The overhead rate of selling and distribution overheads can be determined by anyone of the following basis :

- (a) A rate per article or unit of production
- (b) A percentage on the selling price of each article or production unit
- (c) A percentage on the factory cost.

### **Treatment of Important Overhead Charges**

Expenses on Removal and Reelection of Machine : Such expenses may be incurred due to factors like change in method of production, an addition or alteration in the factory building, change in flow of production. All such expenses are treated as production overheads, when amount of such expense is large, it may be spread over a period of time. If such expenses are incurred due to faulty planning or other abnormal factor, then they may be charged to Costing **Profit and Loss Account.** 

*Training Expenses:* Training expenses are part of production, administration and selling & distribution overheads based on particular employee posted in the department. If such expenses are huge due to high labour turnover, such expenses should be excluded from costs and charged to Costing Profit and Loss Account.

*Packing Expenses:* Cost of primary packing necessary for protecting the product or for convenient handling should become part of prime cost. The cost of packing incurred to facilitate the transportation of the product from the factory to the customer should become part of distribution cost. In case of special packing done at the request of the customer the cost of the same should be charged to specific work order or job. The cost of fancy packing to attract customers is an advertising expenditure. Hence it is to be treated as selling overhead.

Idle Time Wages: Normal idle time wages is treated as a part of cost of production. Thus in case of direct workers an allowance for normal idle time is built into labour cost rates. In the case of indirect works, normal time wages is spread over all the products or jobs through the process of absorption of factory overhead. Abnormal idle time cost is not included as a part of production cost and is shown as a separate item in the Costing Profit and Loss Account. So that normal cost are not disturbed.

Overtime Wages: If overtime is resorted to at the desire of the customer, then overtime premium is charged to concerned job directly. If overtime is required to cope with general production programe for meeting urgent orders, the overtime premium should be treated as

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

overhead cost of particular department or cost center which works overtime. If overtime is worked on account of abnormal conditions such as flood, earthquake etc that should be charged to Costing Profit and Loss Account.

Normal Loss and Abnormal Loss: Treatment of normal and abnormal loss of materials arising during storage, which inflate the issue price. Normal loss can be charged to stores overheads and also can be treated as a separate item of overheads to be recovered as a percentage of material consumed. On the other hand, in the case of abnormal loss, it is charged to Costing Profit and Loss Account. If the loss is due to error in documentation it should be corrected through adjustment entries.

Idle Capacity Cost: Idle capacity is that part of the capacity of a plant, machine or equipment which cannot be effectively utilized in production. The idle capacity may arise due to lack of product demand, non-availability of raw material, shortage of skilled labour, shortage of power etc. Cost associated with idle capacity are mostly fixed in nature. These costs remain unabsorbed or unrecovered due to under utilization of plant and service capacity.

If the idle capacity cost is due to unavoidable reasons a supplementary overhead rate may be used to recover the idle capacity cost. In this case, the costs are charged to the production capacity utilized.

If the idle capacity is due to avoidable reasons such as faulty planning, etc. the cost should be charged to Costing Profit and Loss Account.

If the idle capacity cost is due to seasonal factors then the cost should be charged to the cost of production by inflating overhead rates.

Pre-Production Costs: These are costs incurred during the period when a new factory is in the process of being established a new project is undertaken or a new product line or product is taken up but there is no established or formal production to which such costs may be charged. These costs are normally treated as deferred revenue expenditure and are charged to future production.

Research and Development Cost: These are costs incurred in the discovery of new ideas or processes by experiment or otherwise and for putting the results of such experiments on a commercial basis. Research cost defined as the cost of searching for new or improved product, new application of material or new improved methods, processes, systems or services.

Development cost is the cost of the process which begins with the implementation of the decision to use scientific or technical knowledge to produce a new or improved product etc. and ends with the commencement of formal production of that product by that method.

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

Cost of Small Tools: Tools purchased may be capitalized and depreciated over life if life is ascertainable. Revaluation method of depreciation may be used in respect of very small tools of short effective life. Depreciation may be charged to factory overheads, if tools use can be identified with the departments. It may be charged to cost of department on the basis of actual issues.

#### KARPAGAM ACADEMY OF HIGHER EDUCATION DEPARTMENT OF COMMERCE

## Subject Code:17CCU401 Subject Name: Cost Accounting

Batch: 2017-2020

	UNI	Г - IV			
Question	Option 1	Option 2	Option 3	Option 4	Answer
	Indirect	Direct	Work	Factory	Indirect
overhead means	expenses	expenses	expenses	expenses	Expenses
classification of overhead is important					
inorder to identify cost with					
centre	Process	sales	Cost	production	Cost
· · · · · · · · · · · · · · · · · · ·					
materials are those			D		T
finished goods	diment	in dias st	Kaw	cost of	Indirect
linished goods	direct	mairect	material	material	material
of indirect materials					
cannot be identified with and allocated					
but can be apportioned to apportioned to					
a particular product	cost	expenses	labour	sales	Cost
		_			
labours which is not					
directly engaged in production of goods	<b>D</b> .		semi-	<u>ai :11 1</u>	
or services	Direct	indirect	skilled	Skilled	Indirect
the wages paid for indirect labour is					
known as	direct	indirect	bonus	penalty	Indirect
				1 2	
labours helps the direct					
labour engaged in production	direct	indirect	bonus	penalty	Indirect
	т 1. ,	D: /	1 1	11.	• ••
expenses the are not directly	Indirect	Direct	overhead	selling	indirect
charged to production	expenses	expenses	expenses	expenses	expenses
					manufactu
	production	manufacturi	selling	distribution	ring
factory expenses is also known as	overhead	ng overhead	overhead	overhead	overhead
		-			
overhead covers all					
expenses incurred from stage to raw	production	factory	selling	distribution	factory
materials to finished goods	overhead	overhead	overhead	overhead	overhead
	adminstar				Adminstra
expenses incurred for	ation	factory	selling	distribution	tion
running the adminstrative office	overhead	overhead	overhead	overhead	overhead
	administra				
expenses incurred for	tion	factory	selling	distribution	Selling
actual sales and promotion of sales	overhead	overhead	overhead	overhead	overhead
			11.	1	
expenses incurred for with	administra	tactory	selling	distribution	distributio
packing and delivery of goods to	tion	overnead	overnead	overnead	n overhead

customers	overhead				
don not vary with the volume of products	Fixed overhead	variable overhead	selling overhead	semivariabl e overhead	fixed overhead
are partly fixed and partly variable	Fixed overhead	variable overhead	selling overhead	semivariabl e overhead	semivariab le overheads
oveheads refers to such overhead which are expected to be incurred in attaining a given output	Normal	Abnormal	Controllabl e	Un controllable	Normal
oveheads refers to such overhead which are not expected to be incurred in attaining a given output	Normal	Abnormal	Controllabl e	Un controllable	abnormal
cost are variable cost which can be controlled	Normal	Abnormal	Controllabl e	Un controllable	controllabl e
cost are fixed cost which cannot be controlled	Normal	Abnormal	Controllabl e	Un controllable	un controllabl e
materials are those materials which do not form a part of the finished goods	direct	indirect	Raw material	cost of material	Indirect material
is the process of grouping of cost according to their common characterstics	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost classificati on
is defined as the allotment of whole amount of cost centre or cost units	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost allocation
is defined as the alloment proportions of cost to cost centre or cost units	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost apportion ment
means allotment of overheads to jobs	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	cost absorption
Expenses which can be directly identified with a particular department or cost centre is called	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost Allocation

allocation and apportionment of overheads expenses to various production and service department is known as	Departme ntalisation	Cost Allocation	Cost Apportion ment	Cost absorption	Departmen talisation
department are those department which enable other department tp work	Service	Production	Sales	Purchase	Service
ensures accuracy in cost ascertainment	Departme ntalisation	Cost Allocation	Cost Apportion ment	Cost absorption	Departmen talisation
facilitates work and supervision	Departme ntalisation	Cost Allocation	Cost Apportion ment	Cost absorption	Departmen talisation
esssential for budgetary control	Departme ntalisation	Cost Allocation	Cost Apportion ment	Cost absorption	Departmen talisation
is obtained by dividing the amount of overheads by direct material cost	Direct material cost percentage	direct labour cost percentage	prime cost percentage	work cost percentage	direct material cost percentage
is obtained by dividing the amount of overheads by the direct wages	Direct material cost percentage	direct labour cost percentage	prime cost percentage	work cost percentage	Direct labour cost percentage
is obtained by dividing the amount of overhead by the prime cost	Direct material cost percentage	direct labour cost percentage	prime cost percentage	work cost percentage	prime cost percentage
is obtained by dividing the amount of overheads by the labour hours	Direct material cost percentage	direct labour cost percentage	prime cost percentage	Direct labour hour percentage	Direct labour hour percentage
is obtained by dividing the amount of overheads by the macchine hours	Direct material cost percentage	direct labour cost percentage	machine Hour rate	Direct labour hour percentage	machine hour rate
Overheads in cost accounts are usually the basis of	Estimate Rates	Fixed rates	Variable rates	semivariabl e rates	Estimated rates
report help the management in decision making	Audit	cost	estimated	historical cost	Audit
method helps to compare the efficiencies and cost of operating	Direct material	direct labour cost	machine	Direct labour hour	machine

different machines	cost percentage	percentage	Hour rate	percentage	hour rate
Under absorption means that the overheads absorbed in production less than the overhead	Actual	work	selling overhead	distribution overhead	Actual
absorbtion means that the overhead absorbed in production are more than that of actual overhead	under	Over	Fixed	Variable	Over
rate is the cost of running a machine per hour	Labour per hour	Machine Hour	wage hour	indirect labour hour	machine Hour
Each machine or group of machine is treated as a cost centre in order to identify the expenses	Fixed overhead	Direct overhead	Variable overhead	Semi variable overhead	fixed overhead
Standing charge is also known as	Fixed overhead	Direct overhead	Variable overhead	Semi variable overhead	fixed overhead
Machine expenses is also known as	Variable expenses	Fixed Expenses	Semi variable Expenses	Direct expenses	Variable Expenses
State the bases od Apportionment for rent	Floor area	value of plant	value of stock	value of materials	Floor area
State the bases of apportionment for lighting	Light points	value of plant	value of stock	value of materials	Light points
State the bases for apportionment of depriciation of plant and macinery	Light points	value of plant	value of stock	value of materials	Value of plant
State the bases of apportionment for insurance of stock	Light points	value of plant	value of stock	value of materials	value of stock
State the bases of apportionment for material handling charges	Light points	value of plant	value of stock	value of materials	Value of materials
State the bases of apportionment of supervision	No.of, Employee s	value of plant	value of stock	value of materials	No.of, Employees
State the bases of apportionment of repairs to plant	No.of, Employee s	value of plant	value of stock	value of materials	Valueof plant
Each machine or group of machine is treated as a cost centre in order to identify the expenses	Fixed overhead	Direct overhead	Variable overhead	Semi variable overhead	fixed overhead
Canteen expenses is apportionmet based on	No.of, Employee s	value of plant	value of stock	value of materials	No.of, Employees
---	----------------------------	--------------------	---------------------------	-----------------------	----------------------------
State the bases for apportionment of indirect materials	Direct Materials	value of plant	value of stock	value of materials	Direct materials
State the bases for apportionment of indirect wages	Direct Materials	Direct wages	value of stock	value of materials	Direct wages
State the bases for apportionment of municipal taxes	Floor area	value of plant	value of stock	value of materials	Floor area
State the bases for advertising	Actual Expenses	value of plant	value of stock	value of materials	Actual Expenses
is the process of distribution of overheads to various departments	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost Apportion ment
method depends upon the type and size of the business	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost Classificati on
is process of charging the full amount of overhead without division	Cost Classificat ion	Cost Allocation	Cost Apportion ment	Cost absorption	Cost allocation

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

#### UNIT- V

Methods of Costing: Unit costing, Job costing, Contract costing, Process costing (process losses, valuation of work in progress, joint and by-products), Service costing (only transport).

#### Meaning:

The term 'methods' and 'systems' are used synonymously to indicate an integrated set of procedures based on a complex concept of ideas, principles and concepts. The term method of costing refers to cost ascertainment. Different methods of costing for different industries depend upon the production activities and the nature of business. For these, costing methods can be grouped into two broad categories:

## **METHODS OF COSTING**

(1) Job costing and

(2) Process costing.

## (1) Job Costing

Job costing is also termed as Specific Order Costing (or) Terminal Costing. In job costing, costs are collected and accumulated according to jobs, contracts, products or work orders. Each job is treated as a separate entity for the purpose of costing. The material and labour costs are complied through the respective abstracts and overheads are charged on predetermined basis to arrive at the total cost. Job costing is used in printing, furniture making, ship building, etc.

Job costing is further classified into

- (a) Contract costing
- (b) Cost plus contract and
- (c) Batch costing

(a) Contract Costing:

This method of costing is applicable where the job work is big like contract work of building. Under this method, costs are collected according to each contract work. Contract costing is also termed as Terminal Costing. The principles of job costing are applied in contract costing.

(b) Cost plus Contract:

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

These contracts provide for the payment by the contracted of the actual cost of manufacture plus a stipulated profit. The profit to be added to the cost. It may be a fixed amount or it may be a stipulated percentage of cost. These contracts are generally entered into when at the time of undertaking of a work, it is not possible to estimate its cost with reasonable accuracy due to unstable condition of material, labour etc. or when the work is spread over a long period of time and prices of materials, rates of labour etc. are liable to fluctuate.

## (c) Batch Costing:

In Batch Costing, a lot of similar units which comprise the batch may be used as a cost unit for ascertainment of cost. Separate Cost Sheet is maintained for each batch by assigning a batch 306 A Textbook of Financial Cost and Management Accounting number. Cost per unit of product is determined by dividing the total cost of a batch by the number of units of the batch. Batch Costing is used in drug industries, ready-made garments industries, electronic components manufacturing, T V Sets, etc.

## (2) Process Costing

This costing method refers to continuous operation or continuous process costing. Process costing method is applicable where goods or services pass through different processes to be converted into finished goods. Process costing is used in Cement industries, Sugar industries, Textiles, Chemical industries etc.

The following are the important variants of process costing system:

(a) Operation Costing:

It is concerned with the determination of the cost of each operation rather than process. It offers scope for computation of unit operation cost at the end of each operation by dividing the total operation cost by total output of units.

(b) Operating Costing:

Operating costing is also termed as service costing. Operating costing is similar to process costing and is used in service industries. This method of costing is suitable for concerns rendering services.

For example, Hospitals, Transport, Canteen, Hotels, etc.

Class: II- B. Com CA Batch: 2017-2020

(c) Output Costing:

Output costing is also called Unit Costing (or) Single Costing. This method of costing is applicable where a concern undertakes mass and continuous production of single unit or two or three types of similar products or different grades of the same products. Under this method cost per unit is measured by dividing the total cost by number of units produced. Output Costing is used in industries like Cement, Cigarettes, Pencils, Quarries etc.

(d) Multiple Costing:

This method of costing means combination of two or more methods of costing like operation costing and output costing. Under this method the cost of different sections of production are combined after finding out the cost of each and every part manufactured. This method of costing is suitable for the industries manufacturing motor cars, engines, aircraft, tractors, etc.

## **TECHNIQUES OF COSTING**

Costing is the technique and process useful to allocation of expenditure, cost ascertainment and cost control. In order to fulfill the needs of the management it supplies necessary information to the management. The following are the various techniques of costing:

- (a) Uniform Costing
- (b) Marginal Costing
- (c) Standard Costing
- (d) Historical Costing
- (e) Absorption Costing
- (a) Uniform Costing:

Uniform Costing is not a distinct method of costing. In fact when several undertakings start using the same costing principles and! or practices, they are said to be following uniform costing. The basic idea behind uniform costing is that the different firms in an industry should adopt a common method of costing and apply

Course Name: Cost Accounting	
Course Code: 17CCU401	

Class: II- B. Com CA Batch: 2017-2020

uniformly the same principles and techniques for better cost comparison and common good.

(b) Marginal Costing:

The C. I. M. A. London defines Marginal costing as "a technique of costing which aims at ascertaining marginal costs, determining the effects of changes in costs, volume, price etc. on the Company's profitability, stability etc. and furnishing the relevant data to the management for enabling it to take various management decisions by segregating total costs into variable and fixed costs."

(c) Standard Costing:

Standard Costing is a technique of cost accounting which compares the standard cost of each product or service with actual cost to determine the efficiency of the operation, so that any remedial action may be taken immediately.

(d) Historical Costing:

Historical costing is the ascertainment and recording of actual costs when, or after, they have been incurred and was one of the first stages in the growth of the Cost Accountant's work. Actual costs refer to material cost, labour cost and overhead cost.

(e) Absorption Costing:

Absorption Costing is also termed as Full Costing (or) Orthodox Costing. It is the technique that takes into account charging of all costs both variable and fixed costs to operation processed or products or services.

#### SOME OTHER METHODS OF COSTING

The methods used for the calculation of cost per unit of output are known as costing methods. Different methods are available for the calculation of the cost per unit of output. The choice of a specified method depends on the manufacturing process. According to the terminology of CIMA, there are two generic classes of costing methods:

- 1. Specific order costing
- 2. Process costing

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

#### Specific order costing:

This is also known as job costing or terminal costing. This category of costing method is suitable for the work (job, batch, contract) of separate identity in nature which is mostly authorized by a specific order. Under this category, job costing, batch costing, contract costing are included.

## **Process costing:**

This is also known as operation costing or period costing. This category of costing method is suitable for industries manufacturing goods using a series of continuous or repetitive processes or operations. Under this category, operation costing (single unit or output and multiple), process costing, and some times batch costing are included. These methods are discussed briefly.

## **Process costing:**

This is suitable for industries manufacturing goods using a series of continuous or repetitive processes or operations. Many units of the same product are manufactured during a period. Examples: paper, soap, paint, textiles and chemicals. Under this method, costs are assigned to each process and the product cost assigned on an average basis.

#### **Operation costing (One operation costing):**

This is also known as unit or output costing. This is suitable for industries where manufacture is continuous and units are identical. Example: brick kilns, paper mills. Under this method, the entire production cycle is costed and the total accumulated cost is divided by the number of units produced to ascertain cost per unit.

#### **Operation costing (Multiple operations costing):**

This method of manufacture consists of a number of distinct operations. Usually this method refers to conversion cost—the cost of converting raw materials into finished goods. Input units and cost are determined after taking into account the rejections in each operation. The cost per unit is ascertained with reference to final output.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

#### Multiple costing:

This is also known as composite costing. This is suitable for industries where a number of component parts are produced separately but all are assembled in the final product. In such industries (e.g., cycle, radio, automobile), a combination of different costing methods are used. This method is not included in the terminology of CIMA, of late.

#### Service costing:

This is also known as operating costing. This is suitable for concerns which render services. Examples: transport, power, hospitals, canteens. This method is applied to ascertain the cost of services rendered. This is usually expressed in compound units.

#### **Examples:**

Transport  $\rightarrow$  Tonne, kilometres Power supply  $\rightarrow$  Kilowatt-hour Hospital  $\rightarrow$  Patient day

#### **MEANING OF OPERATING COSTING**

Operating costing is a method of ascertaining the cost of providing or operating a service. It is also known as service costing.

CIMA London defines Operating Costing as "that form of operation costing which applies where standardized services are rendered either by an undertaking or by a service cost renter with in an undertaking".

## **Cost Unit:**

Determining the suitable cost unit to be used for cost ascertainment is a major problem in service costing. Selection of a proper cost unit is a difficult task. A proper unit of cost must be related with reference to nature of world and the cost objectives. The cost unit related must be simple i.e. per bed in a hospital, per cup of tea sold in a canteen and per child in a school.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

In a certain cases a composite unit is used i.e. Passenger – Kilometer in a transport company.

The following are some of example of cost units used in different organizations

Enterprises	Cost per unit
Passenger transport	Kilometer
Goods transport	Ton – Kilometer
Hotel	Per room per day
Hospital	Per bed per day
Canteen	Per item, per meal
Water supply	Per 1000 liters
Electricity	Per kilowatt

## **Collection of costing data:**

After determining the cost unit, the cost relating to the service is collected. The collected cost is a presented under the heads suitable for control purpose i.e. fixed expenditure and variable expenditure. The presentation of cost data under difficult categories helps to improve managerial control over cost.

Different industries follow different methods of costing because of the differences in the nature of their work. The various methods of costing are as follows:

## **1. Job Costing:**

In this case the cost of each job is ascertained separately. It is suitable in all cases where work is undertaken on receiving a customer's order like a printing press, motor workshop, etc. In case a factory produces a certain quantity of a part at a time, say 5,000 rims of bicycle, the cost can be ascertained like that of a job. The name then given is Batch Costing.

## 2. Batch Costing:

It is the extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch here is treated as a unit of cost and thus

# Course Name: Cost Accounting Course Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

separately costed. Here cost per unit is determined by dividing the cost of the batch by the number of units produced in the batch.

## **3.** Contract Costing

Here the cost of each contract is ascertained separately. It is suitable for firms engaged in the construction of bridges, roads, buildings etc.

## 4. Single or Output Costing

Here the cost of a product is ascertained, the product being the only one produced like bricks, coals, etc.

## **5. Process Costing**

Here the cost of completing each stage of work is ascertained, like cost of making pulp and cost of making paper from pulp. In mechanical operations, the cost of each operation may be ascertained separately; the name given is operation costing.

## 6. Operating Costing

It is used in the case of concerns rendering services like transport, supply of water, retail trade etc.

## 7. Multiple Costing

It is a combination of two or more methods of costing outlined above. Suppose a firm manufactures bicycles including its components; the parts will be costed by the system of job or batch costing but the cost of assembling the bicycle will be computed by the Single or output costing method. The whole system of costing is known as multiple costing.

Cost Units and Methods of Costing for Different Industries

# Course Name: Cost Accounting Course Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

Industry	Cost Unit	Method of Costing
1. Sugar	Quintal	Process
2. Chemicals	Kilogram	Process
3. Cement	Kg; tonne	Process
4. Timber	Cubic foot	Process
5. Confectionery	Kilogram	Process
6. Automobile	Number	Process
7. Soft drinks	Per bottle	Process
8. Oil Refinery	Per tonne—quintal	Process
9. Bicycle	Number	Multiple
10. Hospital	Per bed /per day or number of patients (OP)	Service
11. Transport	Tonne—km or Passenger km	Service
12. Advertising	Per ad	Job
13.Interior Decoration	Per job	Job
14. Garments	Number	Batch
15. Pharmaceutical	Per number	Batch

# **Illustration 1:**

From the following information calculate fare for passenger KM.

Course Name: Cost Accounting Course Code: 17CCU401

\_

Class: II- B. Com CA Batch: 2017-2020

\_

The cost of the Bus	Rs. 450000
Insurance charges	3 % p.a.
Annual tax	Rs. 4500
Garage rent	Rs. 500 p.m.
Annual repairs	Rs. 4800
Expected life of the bus	5 yrs
Value of scrap at the end of 5 years	Rs. 3000
Route distance	20 km long
Driver's salary	Rs. 550 p.m.
Conductor's Salary	R. 500 p.m.
Commission to Driver & conductor (shared equally)	10 % of the takings
Stationary	Rs. 250 p.m.
Manager-cum-accountant's Salary	Rs. 1750 p.m.
Diesel and Oil (for 100 kms)	125

The bus will make 3 rounds trips for carrying on the average40 passenger's in each trip.

Assume 15 % profit on takings. The bus will work on the average 25 days in a month.

## Solution:

Operating Cost Statement

Bus No.

Capacity: 40 persons

## Course Name: Cost Accounting Course Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

	Particulars	Per Annum	Per Annum	Per Annum
		Rs.	Rs.	Rs.
Α.	Standing Charges			
	Depreciation	84,000		
	Тах	4,500		
	Insurance	13,500		
	Stationery	3,000		
	Manager's Salary	21,000	1,26,000	00.08750
В.	Maintenance Charges			
	Garage Rent	6,000		
	Repairs	4,800	10,800	00.00750
C.	Operating (or) Running Charges			
	Diesel & Oil	3,750		
	Driver' Salary	6,600		
	Conductor's Salary	6,000	16,350	00.01135
	Total		1,53,150	00.10635
	Add : Commission and Profit 25/75			00.03545
	Fare per passenger km.			00.14180

## Working Note:

- (1) No. of Km run in a month : 3 x 2 x 20 x 25 = 3000 km
- (2) No. of passenger km per annum : 3000 x 40 x 12= 14,40,000
- (3) Diesel and oil : 3000 x 125 / 100 = Rs. 3750
- (4) Commission & Profits: Commission 10 % of taking + profit
- 15 % of Taking total = 25 % of taking so the cost

Cost is only 75 %

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

#### Joint Products and Joint Product Costs:

Joint products are produced simultaneously by a common process or series of processes, with each product processing more than a nominal value in the form in which it is produced.

#### **By Products:**

The term "by product" is generally used to denote one or more products of relatively small total value that are produced simultaneously with a product of greater total value.

#### JOINT PRODUCTS AND BY-PRODUCTS

Joint products are products produced simultaneously by a common process or series of processes, with each product processing more than a nominal value in the form in which it is produced.

The term by-product is generally used to denote one or more products of relatively small total value that are produced simultaneously with a product of greater total value.

The meaning of joint products and by-products are as follows: Agricultural product industries, chemical process industries, sugar industries and extractive industries are some industries where two or more products of equal or unequal importance are produced either simultaneously or in the course of the processing operation of a main product.

In all such industries, managements are faced with problems such as valuation of inventory, pricing of products and income determination and problem of making decisions in matters of further processing of by-products and/or joint products after a certain stage.

#### Difficulties in costing by products and joint products

Prepared By Dr. V. Mathan Kumar, Assistant Professor, Department of Commerce, KAHE. Page 12/23

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

By products and joint products are difficult to cost because a true joint cost is indivisible. For example, an ore might contain both lead and Zink. In the raw state, these minerals are joint products, and until they are separated by reduction of the ore, the cost of finding mining and processing is a joint cost

## I. General Characteristics of Joint Production

Joint products are two or more products produced simultaneously by the same process.

Joint products become separate and identifiable at the **split-off point**.

## A. Cost Separability and the Need for Allocation

- 1. Joint costs are the total of the raw material, labor, and overhead costs incurred up to the initial split-off point.
  - a. Joint costs can be allocated to the final product only in some arbitrary manner because such costs cannot be traced directly to the products they benefit.
  - b. Joint cost allocation is performed to meet the requirements of financial reporting (GAAP) and federal income tax law for income measurement and inventory valuation. In addition, joint cost allocation is useful in costing for government cost-type contracts and in justifying prices for legislative or administrative regulations.
  - c. Joint cost allocation is much less useful for cost control and managerial decision making.
- 2. **Separable costs** are those costs incurred after the split-off point; they can be easily traced to individual products.

## B. Distinction and Similarity between Joint Products and By-Products

1. The distinction between joint products and by-products rests solely on the relative importance of their sales value.

# Course Name: Cost Accounting Course Code: 17CCU401

- 2. A **by-product** is a secondary product whose total sales value is relatively minor in comparison with the sales value of the main product (joint product).
- 3. Relationships between joint products and by-products change over time as technology and markets change.
  - a. By-products may become more and more important, eventually becoming joint products.
  - b. When the relative importance of individual products changes, the products need to be reclassified and the costing procedures need to be changed.

## **II.** Accounting for Joint Product Costs

- A. Introduction
  - 1. Joint cost allocations must be done for financial reporting purposes: to value inventory and to determine income. An allocation method must be found, though arbitrary, to allocate the joint costs as reasonably as possible.
  - 2. The joint cost allocation approaches include the following:
    - a. Benefits-received approaches, which include the following methods:
      - Physical units method
      - Weighted average method
    - b. Allocation based on the relative market value, using the following methods:
      - Sales-value-at-split-off method
      - Net realizable value method
      - Constant gross margin percentage method
      - Sales-to-production-ratio method
- B. Benefits-Received Approaches

Course Name: Cost Accounting
Course Code: 17CCU401

1. Physical Units Method

a. Under the **physical units method**, units of physical output, such as heat content, volume, or weight, that measure the benefits received are used to distribute joint costs. This method allocates to each joint product the same proportion of joint costs as the underlying proportion of units.

- Example: Manufacturers of forest products use the physical units method to apply the average conversion cost to all finished products, regardless of their type, grade, or market value.
- b. Disadvantages of the physical units method include the following:
  - It ignores the fact that not all costs are directly related to physical quantities.
  - It may result in incorrect managerial decisions because high profit may be reflected from the sale of high-grade products, with low profit or losses reflected from the sale of low-grade products.
- 2. Weighted Average Method

`The weighted average method uses the **weight factors** to include such diverse elements as amount of material used, difficulty to manufacture, time consumed, difference in type of labor used, and size of unit.

## Weighted physical units = Number of units × Weight factor

- Example: The canning industry uses weight factors to distinguish between can sizes or quality of product. The weighted average method allocates relatively more of the joint cost to the high-grade products because they represent more desirable and profitable products.
- C. Allocation Based on Relative Market Value

The methods in this approach try to assign costs based on the product's ability to absorb joint costs. They are based on the assumption that the joint

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

costs would not be incurred unless the products yield enough revenues to cover all costs plus a reasonable profit.

The relative market value approach of allocation is better than the physical units approach if (1) the physical mix of output can be altered by incurring more (or less) total joint costs, and (2) this alteration produces more (or less) total market value.

- 1. Sales-Value-at-Split-Off Method
  - a. The **sales-value-at-split-off method** allocates joint cost based on each product's proportionate share of market or sales value at the split-off point.
  - b. In this method, the higher the market value, the greater the joint cost assigned to the product.
- 2. Net Realizable Value Method
  - a. The net realizable value method allocates joint costs based on hypothetical sales values because there may not be a ready market for the product at the split-off point.
  - b. This method is particularly useful when one or more products cannot be sold at the split-off point but must be processed further.

Hypothetical	sales	value	=
Market pri	ice – Further p	rocessing costs a	fter split-
off point			

- 3. Constant Gross Margin Percentage Method
  - a. The **constant gross margin percentage method** allocates joint costs such that the gross margin percentage is the same for each product.
  - b. This method assumes that the further processing yields an identical profit percentage across all products.
  - c. Using the constant gross margin percentage method, the joint cost allocation steps include the following calculations:

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

Grand gross margin percentage =  $\frac{(\text{Total revenue} - \text{Total costs})}{\text{Total revenue}}$ 

Joint product gross margin = Market price × Grand gross margin

Joint cost allocated to product = Market value – Gross margin – Separable costs

- 4. Sales-to-Production Ratio
  - a. The **sales-to-production-ratio method** allocates joint costs in accordance with a weighting factor that compares the percentage of sales with the percentage of production.
  - b. In this method, the products that sell the most are allocated a larger share of the joint cost of current production.
  - c. Using the sales-to-production-ratio method, the joint cost allocation steps include:
    - (1) Compute the percentage of total sales based on the joint product units sold.
    - (2) Compute the percentage of total production based on the joint product units produced.
    - (3) Compute the sales-to-production ratio of the joint product.

# Sales-to-production ratio = $\frac{\text{Percentage of total sales}}{\text{Percentage of production}}$

- (4) Use the sales-to-production ratio to allocate joint cost.
- 5. The limitations of allocation based on relative market value include the following:
  - All methods are based on price. If price is used to determine cost, then those costs cannot be used to determine price. The decision would be circular.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

- Changes in relative market prices will cause changes in the costs allocated to the product, even when there has been no change in total costs or the method of production.
- Using allocation based on relative market value produces the same margin per dollar of allocated cost. This could be misleading to management if the impression is created that all products are equally profitable.

## III. Accounting for By-Products

- A. Introduction
  - The main objective of by-product accounting is to determine income and inventory for financial reporting purposes. By-products are of less significance than the main products and may not require precise cost allocation.
  - 2. Relevant factors that influence by-product valuation and accounting include:
    - The uncertainty of by-product value at the time of production.
    - The use of the by-product in other production.
    - The use of the by-product as an alternative to main products.
    - The need for separate profit calculations for sales incentives or for control.
  - 3. By-products can be accounted for using the following:
    - a. Non cost methods
      - Other income
      - By-product revenue deducted from main product cost
    - b. Cost methods
      - Replacement cost method
      - Total costs less by-products valued at standard price method

Course	Name: Cost Accounting
Course	Code: 17CCU401

Class: II- B. Com CA Batch: 2017-2020

- Joint cost operation method
- B. Non cost Methods of Accounting for By-Products

**Non cost methods** make no attempt to allocate joint cost to the by-product or its inventory but instead make some credit either to income or to the main product.

- 1. Other Income Method
  - a. The net sales of by-products for the current period is recognized as "Other Income" or "Miscellaneous Income" and is reported in the income statement. The market value of by-product inventory, if material, should be reported in a footnote to the balance sheet.
  - b. The other income method is used by those firms where:
    - The value of the by-product is small,
    - Any other allocation would be more expensive than the benefits received, or
    - Carrying by-products with the main products would not appreciably affect the cost of the main product.
  - c. Disadvantages of this method include the following:
    - Inventories on the balance sheet are misstated since no value is placed on the by-products.
    - Matching of revenues with expenses is improper if production of by-products occurs in one accounting period and sales occur in another. No entry for by-products is made at the time of production, only at the time of sale.
    - No attempt is made to control the inventory of by-products and to prevent them from losses due to fraud or errors.
- 2. By-Product Revenue Deducted from Main Product Cost

Course Name: Cost Accounting	
Course Code: 17CCU401	

- a. The net sales of by-products will be treated as a deduction from the cost of the main product.
  - Example: The beef-packing industry uses this method because of the great variety of products resulting from operations and the complexity of the processing.
- b. Disadvantages of this method include the following:
  - The method tends to understate the value of the main product.
  - The cost of the main product can vary from month to month because of the varying quantities of by-products sold.
- C. Cost Methods of Accounting for By-Products

Cost methods attempt to allocate some joint costs to by-products and to carry inventories at the allocated cost levels.

1. Replacement Cost Method

The **replacement cost method** values the by-product inventory at its opportunity cost of purchasing or replacing the by-products.

- Example: In the oil refining industry, increasing output of one product will cause a reduction in the output and the profit of the other product.
- 2. Total Costs Less By-Products Valued at Standard Price Method
  - a. By-products are valued at a standard price to avoid fluctuations in by-product value.
  - b. The standard price approach shelters the main product cost from any fluctuations in the by-product price.
  - c. The standard price may be set arbitrarily, or it may reflect an average price over time.
  - d. A variance account is used to account for the difference between actual and standard prices.
- 3. Joint Cost Proration Method

Course Name: Cost Accounting	Class: II- B. Com CA
Course Code: 17CCU401	Batch: 2017-2020

The by-product is allocated some portion of the joint costs using any one of the joint cost allocation methods mentioned in Section II. This method is rarely used in practice.

## IV. Effect of Joint Product Costs on Cost Control and Decision Making

Joint product costing may affect cost control and decision making in the following areas: output decisions, further processing of joint products, and pricing jointly produced products.

- A. Output Decisions
  - 1. Output decisions are normally based on the comparison of total cost of the joint products and the combined sales revenues for measuring profitability at any given point.
  - 2. If management cannot change the product mix or the product mix is determined by customer demand, cost allocation is useless for output decisions because the entire package has to be produced.
- B. Further Processing Decisions
  - 1. In making decisions on whether to sell a joint product at split-off or to process it further, only the costs and revenues incurred after the split-off point are pertinent.
  - 2. Joint costs include those costs incurred prior to the split-off point and, thus, are considered sunk costs with respect to further processing decisions (that is, the joint cost is not a relevant cost).
- C. Pricing Joint Products

Methods used to set joint product prices include:

- 1. Sales or market price method
  - a. This method maintains a constant relationship of cost to market prices, but it cannot be used to set prices since price has to be known in order to determine cost.
  - b. The method is circular but useful in limited situations.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

- Example: The meat-packing industry uses the market value of byproducts as an important determinant of the main product's price.
- Example: The natural gas industry uses it to justify prices and existing price relationships to regulatory bodies. Joint cost allocation is used to determine inventory values, not as a basis to determine a cost to be used in price regulation.
- 2. Historical market differentials between products method

When market differentials are stable over time, this method provides a guide to pricing individual products by giving figures comparable to those of competitors.

D. Pricing Based on Cost of Further Production

This method differs from the benefits-received approaches because it does not assign average cost based on physical or weighted units. It is different from the relative market value because the joint product itself does not have a market value.

Example: The practice of organ transplant sets the costs of the jointly available organs based on the eventual cost of the subsequent transplant operation.

## V. Joint Production of Services

Normally services do not yield a true joint output because a service can be directed to one effect rather than to two effects simultaneously.

Joint cost allocation issues with services usually relate to pricing problems.

- Example: An insurance company may allow only a portion of a massage therapy charge to be allocated to the therapeutic aspect.
- Example: The IRS might allow the cost of a two-day seminar as a deductible business expense. But if the seminar were offered on a cruise ship and spread out over a five-day period, the IRS would look closely if claimed as a deduction and not separated from the overall cost of the cruise.

Course Name: Cost Accounting Course Code: 17CCU401 Class: II- B. Com CA Batch: 2017-2020

## Methods of Allocating the Joint Production Cost:

The allocation of joint product cost incurred up to the split-off point can be made by:

- 1. The market or sales value method, based on the relative market values of the individual products.
- 2. The quantitative or physical unit method, based on some physical measurement unit such as weight, linear measure, or volume.
- 3. The average unit cost method.
- 4. The weighted average method, based on a predetermined standard or index of production.

## KARPAGAM ACADEMY OF HIGHER EDUCATION DEPARTMENT OF COMMERCE

# Subject Code:17CCU401 Subject Name: Cost Accounting

# Batch: 2017-2020

UNIT - V					
Question	Option 1	Option 2	Option 3	Option 4	Answer
Each treated as a					
cost unit	unit price	process	Contract	Unit	Contract
Contracts are generally of a					
duration	Long	Short	medium	very long	Long
costing is mainly adopted in construction of bridges	Process costing	Job costing	Unit costing	Contract costing	process costing
the number of contract undertaken are usually	High	Small	Medium	Very Low	Small
the price is paid in installments depending on the process of work	Process costing	Job costing	Unit costing	Contract costing	Contract Costing
Contract costing is a form ofcosting	order costing	Job costing	Unit costing	Contract costing	Specific order costing
a seprate account is prepared for each contract	Contract	Unit	Job	Specific Order	Contract
cost usually constitute a major portion of the total cost of the contract	Direct	Indirect	Fixed	Variable	Direct
cost usually constitue a small portion of the total cost of contract	Direct	Indirect	Fixed	Variable	In direct
The direct labour cost incurred on the contract is to the contract account	Debited	Credited	Enetered	Fixed	Debited
the direct expenses incurred for the contract is also to the contract account	Debited	Credited	Enetered	Fixed	Debited
which cannot be directly charged to contract	Dircet expenses	Indirect Expenses	Fixed Expenses	Variable Expenses	Indirect Expenses
contracts take a long time for completion and require huge investments	Large	Small	Medium	Very High	Large
money is paid to the contractor after the expiry of a stipulate time	usable	recovery	wastage	useful	recovery
is treated as a reserve	Notional profit	recovery	wastage	useful	Notionla Profit

	installments depending on the process of work	Process costing	Job costing	Unit costing	Contract costing	Contract Costing
Cost = relation  Retention  Durit  Cost = relation    In which contract  contract is  clause  money  Contract  contract    is clause of contract is  contract  clause  money  Contract  contract    is clause of contract  cost +  Esclation  Retention  Unit  Cost +    is clause in contract  cost +  Esclation  Retention  Unit  Esclation    agreement  contract  Cost +  Esclation  Retention  Unit  Esclation    if work completed	contract is a contract in which the contractee agrees to pay the cost of work done plug a percentage of it	Cost	Esolation	Potentian	Unit	Cost
Large  Small  Contract  Contract    in which contract  contract  clause  money  Contract  Cost +    is clause in contract  clause  money  Contract  contract  contract    is clause in contract  contract  clause  money  Contract  contract    is clause in contract  contract  clause  money  Contract  clause    is clause in contract  contract  clause  money  Contract  clause    if work completed  contracts such as constructions of bridgs, theatres and hospitals takes a long time to complete  Large  small  medium  Very small  Large    is a method of costing associated  Operating  Contract  Service  Costing  Operating    costing  costing  costing  costing  costing  Costing  Operating    costing  operating  Costing  lob costing  costing  Costing  Costing  Costing    service  Costing  lob costing  costing  costing  Costing  Costing  Costing  Costing  <	towards profit	Cost +	clause	money	Contract	Cost +
In which contract assure a fixed percentage of profit is clause in contract is clause in contract contract of the contract of the contract of the contract contracts such as constructions of bridgs, theatres and hospitals takes a long time to complete rotracts such as constructions of bridgs, theatres and hospitals takes a long time to complete rotracts are the or the contract or the contract contracts such as constructions of bridgs, theatres and hospitals takes a long time to complete is a method of to result the operating costing providing a service togs for exiting togs for exitin	In which contract	contract	clause	money	Contract	contract
	contracts is assure a fixed percentage of profit	Cost + contract	Esclation clause	Retention money	Unit Contract	Cost + contract
If work completed	is clause in contract	Cost + contract	Esclation clause	Retention money	Unit Contract	Esclation clause
In temperative  one fourth  two fourth  three fourth  one fifth  one fourth	If work completed	contract	ciuuse	money	Conduct	ciuuse
as constructions of bridgs, theatres and hospitals takes a long time to complete Large small medium Very small Large operating costing is also called <u>Process</u> Job costing costing costing <u>Costing</u> <u>Costing</u> <u>I is a method of</u> costing applied to ascertain the <u>Costing</u> Operating <u>Costing</u> Job costing <u>Contract</u> Service <u>Operating</u> <u>Costing</u> <u>I ob costing</u> <u>Contract</u> Service <u>Operating</u> <u>Costing</u> <u>Job costing</u> <u>Contract</u> Service <u>Operating</u> <u>Costing</u> <u>Job costing</u> <u>costing</u> <u>costing</u> <u>Costing</u> <u>costing</u> <u>Costing</u> <u>I nternal</u> <u>Service</u> <u>Operating</u> <u>Costing</u> <u>Job costing</u> <u>costing</u> <u>costing</u> <u>Costing</u> <u>Costing</u> <u>Costing</u> <u>Job costing</u> <u>costing</u> <u>costing</u> <u>Costing</u> <u>Costing</u> <u>Costing</u> <u>Job costing</u> <u>costing</u> <u>C</u>	of the contract price is taken to profit and loss account contracts such	one fourth	two fourth	three fourth	one fifth	one fourth
operating costing is also called ProcessProcessJob costingContract costingService costingService Costing	as constuctions of bridgs, theatres and hospitals takes a long time to complete	Large	small	medium	Very small	Large
is a method of costing applied to ascertain the cost of providing a serviceOperating CostingContract costingService costingOperating Costingtype of costing used in transport servicesOperating CostingContract costingServiceOperating CostingOperating Costingtype of costing used in transport servicesOperating CostingContract costingServiceOperating CostingService rendered in the same oraganisation is known asInternal ServiceExternal ServiceContract ServiceServiceOperating Costingpercent is calculated by dividing the toatl cost by number of service units produced or renderdOperating CostingContract ContractServiceOperating Operating CostingA proper cost unit must be selected in oredr to ascertain the unit of servicesOperating CostContract CostingServiceOperating CostingOperating costing donter name of service costingOperating CostingContract CostingServiceOperating Costingother name of service costingOperating CostingContract CostingServiceOperating Costingother name of service costingOperating CostingContract CostingServiceOperating Costingother name of service costingOperating CostingContract CostingServiceOperating Costingother name of service costingOperating CostingContract CostingServi	operating costing is also called	Process	Job costing	Contract costing	Service costing	Service Costing
type of costing used in transport servicesOperating CostingContract costingService costingOperating CostingService rendered in the same oraganisation is known asInternal ServiceExternal ServiceCostingInternal Servicepercent is calculated by dividing the toatl cost by number of service units produced or renderdOperating CostingContract ServiceServiceOperating ContractA proper cost unit must be selected in oredr to ascertain the unit of servicesCostDemandSalesSupplyCostOperating costingCostingJob costingContract costingServiceOperating CostingContract costingServiceOperating Costingother name of service costingOperating CostingOperating CostingContract costingServiceOperating Costingother name of serviceOperating CostingOperating CostingContract costingServiceOperating Costingindustries using custing do not produce goods but render serviceOperating CostingContract CostingServiceServiceservice rendered to the customers is known asInternal ServiceExternal ServiceCostingCostingserviceServiceServiceServiceServiceServiceService	is a method of costing applied to ascertain the cost of providing a service	Operating Costing	Job costing	Contract costing	Service costing	Operating Costing
Service rendered in the same oraganisation is known asInternal ServiceExternal ServiceCosting BothInternal ServiceInternal Service	type of costing used in transport services	Operating Costing	Job costing	Contract costing	Service costing	Operating Costing
percent is calculated by dividing the toatl cost by number of service units produced or renderdOperating CostingContract costingService costingOperating CostingA proper cost unit must be selected in oredr to ascertain the unit of servicesCostDemandSalesSupplyCostOperating other name of service costingCostDemandSalesSupplyCostOperating costingCostingJob costingContract costingServiceOperating Costindustries using but render serviceOperating CostingContract costingServiceOperating Costingcosting do not produce goods but render serviceOperating CostingContract costingServiceOperating Costingservice rendered to the customers is known asInternal ServiceExternal ServiceCostingexternal service	Service rendered in the same oraganisation is known as	Internal Service	External Service	Both	Costing Service	Internal Service
selected in oredr to ascertain theunit of services  Cost  Demand  Sales  Supply  Cost    other name of service costing  Operating Costing  Job costing  Contract costing  Service  Operating Costing    industries using  Operating Costing  Job costing  Contract costing  Service  Operating Costing    industries using  Operating Costing  Job costing  Contract costing  Service  Operating Costing    service rendered to the customers is known as  Internal  External Service  Costing  Service  Service	percent is calculated by dividing the toatl cost by number of service units produced or renderd A proper cost unit must be	Operating Costing	Job costing	Contract costing	Service costing	Operating Costing
servicesCostDefinitionSalesSupplyCostother name of service costingOperating CostingJob costingContract costingServiceOperating Costingindustries using costing do not produce goods but render serviceOperating CostingOperating Job costingContract ContractServiceOperating Costingcosting do not produce goods but render serviceOperating CostingContract CostingServiceOperating Costingservice rendered to the customers is known asInternal ServiceExternal ServiceCostingCosting serviceexternal service	selected in oredr to ascertain theunit of	Cost	Demand	Sales	Supply	Cast
Operating other name of service costingOperating CostingContract serviceServiceOperating Costingindustries using costing do not produce goodsOperating Operating CostingOperating DeratingContract ContractServiceOperating Operating Costingservice rendered to the customers is known asInternal ServiceExternal ServiceCostingCostingexternal service	501 11005	CUSI	Demanu	Sales	Suppry	
industries using costing do not produce goods but render serviceOperating CostingContract Job costingService costingOperating Costingservice rendered to the customers is known asInternalExternal ServiceCostingCostingexternal service	other name of service costing	Operating Costing	Job costing	Contract costing	Service costing	Operating Costing
service rendered to the customers is known asInternal ServiceExternal ServiceCosting Bothexternal ServiceServiceServiceBothServiceservice	industries using costing do not produce goods but render service	Operating Costing	Job costing	Contract costing	Service costing	Operating Costing
	service rendered to the customers is known as	Internal Service	External Service	Both	Costing Service	external service

Example sof external services	Hospital	Manufacttuting industry	service outlet	distributors	Hospitals
In case only one variable is taken	Simple cost unit	composite cost unit	Multiple cost unit	single cost unit	simple cost unit
In case more than one variabke is combined	Composite costing	multiple costing	single unit costing	opertaing costing	composite costing
the basic problem in costing is the selection of cost unit	Composite costing	multiple costing	single unit costing	opertaing costing	Operating Costing
changes are incurred weather the vechicle is running or not	Standing Charges	operating charges	maintenance charges	variable charges	standing charges
in Standing charges variables are in nature	Fixed	Variable	Semivariable	Changed	Fixed
the example of standing charge	Rent	Salary	Fuel	Power	Rent
variable in nature	Standing Charges	operating charges	maintenance charges	variable charges	operting charges
is an example of operating charge	Pertol/ diesel	annual tax	Insurance	Rent	Petrol/Diesel
charges are semi variable in nature	Standing Charges	operating charges	maintenance charges	variable charges	maintenance charges
is anexample of maintenance charge	Repairs	Depreciation	Wages	Annual Tax	Repairs
Garrage rent will occur in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Fixed Cost
Tax and insurance will occur in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Fixed Cost
general supervision will occur in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Fixed Cost
tyres and tube cost will appear in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Maintenance cost
repair cost will appear in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Maintenance cost
Painting Cost will appear in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Maintenance cost
Pertol, oil, grease Cost will incurr in	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Operating Cost
Wages of operators will incurr in cost	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Operating Cost
Depriciation will incur incost	Fixed cost	Variable Cost	Maintenance Cost	Operating Cost	Operating Cost
costing is generally for long duartion	Job costing	Process costing	unit costing	Contract Costing	contract costing

the contract price is paid in depending on the process of work	monthly	annually	installments	quaterly	Installments
Each contract is treated as a	Cost	Sales	Purchase	Supply	Cost
All cost are accumulated and ascertained for	4.11				
contract	All	Each	Single	Multiple	All
A contract accounts are prepared for each contract	Multiple	seprate	Single	All	Seprate
on contract is usually excecuted at the size of the contract	Work	Process	Account	Sales	Work
usaually constitute a major portion	Direct cost	Indirect cost	total cost	Fixed Cost	Direct Cost
expenses which cannot be directly changed to contracts	Direct expenses	Indirect Expenses	variable expenses	Fixed Expenses	Direct Expenses
can be	*		· ·		
ascertained only on completion					
of the contract	Profit	Loss	Sales	Demand	Profit
In Standing charges variables					
are in nature	Fixed	Variable	Semivariable	Changed	Fixed