

# **LECTURE NOTES ON**

## **COST ACCOUNTING (1)**

### **Scientific concepts & foundations**



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## PREFACE

These Book focus on The Historical Development of Cost Accounting and Definition and Nature of Cost Accounting and the differences between cost, an expense, an expenditure and loss and Objectives of Cost Accounting and Importance of Cost Accounting and Classification of Cost and Cost Measurement Methods and Income Statements and ACCOUNTING FOR DIRECT COSTS and Accounting for Overheads.

**This book consists of five chapters.** Dr. Gamal Ali and Dr. Ashraf Mansour collected and summarized chapter One, Dr. Yasser Kamal, and Dr. Mohammed Samy Farghly collected and summarized chapter Two, Dr. Nancy Ibrahim Riad and Dr. Heba Shaker collected and summarized chapter Three, Dr. Mohiy Samy El-Shabasy and Dr. Mohammed Samy Farghly collected and summarized chapter Four (part 1), Dr. Soha Samir collected and summarized chapter Four (part 2), Dr. Hassan Abdel-Rahman and Dr. Heba Abdel-Atty collected and summarized chapter Five.

## SUPPLEMENTS

Several supplements are available to assist the student. The student's manual contains (a) guides for covering the chapters; (b) a list of illustrations in the text; (c) answers to all the end-of-chapter materials; (d) a set of transparency masters; and (e) discussion case questions and answers. The questions sheet contains many types of test questions for each chapter. The Study Guide includes Chapter by-chapter highlights and a large variety of questions.

**Good Luck.**

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## CHAPTER One

# A Theoretical Framework for Cost Accounting

### Learning objectives for this chapter

This chapter aims to provide the student with a sufficient and appropriate amount of information on the following points:

**The Historical Development of Cost Accounting.**

**Definition and Nature of Cost Accounting.**

**The differences between cost, an expense, an expenditure and loss**

**Objectives of Cost Accounting.**

**Importance of Cost Accounting.**

**Classification of Cost.**

**Elements of cost in cost accounting.**

**Cost Accounting vs Financial Accounting.**

**Cost Accounting vs Managerial Accounting.**

# Chapter (1)

## A Theoretical Framework for Cost Accounting

### **1/1. Introduction:**

Cost accounting is used by a company's internal management team to identify all variable and fixed costs associated with the production process. First, It will measure and record these costs individually, then compare input costs to output results to aid in measuring financial performance and making future business decisions.<sup>1</sup>

Cost accounting is a form of managerial accounting that aims to capture the total cost of production by assessing the variable costs of each step of production as well as fixed costs. Cost accounting is used internally by management in order to make fully informed and sound business decisions. Unlike financial accounting, which provides information to external financial statement users, cost accounting is not required to adhere to set standards and can be flexible to meet the needs of management.<sup>2</sup> Cost accounting focuses on understanding the costs of running a business, which is key to making decisions about pricing, investment, budgeting, and more. Cost accounting is not a new concept. It's been around for ages. Let us learn a bit more about the evolution and history of cost accounting.<sup>3</sup>

**This chapter includes presentation, discussion and analysis of all of the following points:**

**1/2. The Historical Development of Cost Accounting.**

**1/3. Definition and Nature of Cost Accounting.**

**1/4. The differences between cost, an expense, an expenditure and loss**

**1/5. Objectives of Cost Accounting.**

**1/6. Importance of Cost Accounting.**

**1/7. Classification of Cost.**

**1/8. Elements of cost in cost accounting.**

<sup>1</sup> <https://www.investopedia.com/terms/c/cost-accounting.asp>

<sup>2</sup> <https://www.investopedia.com/terms/c/cost-accounting.asp>

<sup>3</sup> <https://www.toppr.com/guides/fundamentals-of-accounting/fundamentals-of-cost-accounting/evolution-history-of-cost-accounting/>

### 1/9. Cost Accounting vs Financial Accounting.

### 1/10. Cost Accounting vs Managerial Accounting.

### 1/11. Questions & Exercises.

## 1/2. The Historical Development of Cost Accounting<sup>4</sup>.

Scholars believe that cost accounting was first developed during the industrial revolution when the emerging economics forced manufacturers to start tracking their fixed and variable expenses in order to optimize their production processes. Cost accounting allowed railroad and steel companies to control their costs and become more efficient. By the beginning of the 20th century, cost accounting had become a widely covered topic on business management.<sup>5</sup>

The challenges of resource scarcity and economic transformation brought by the World Wars catalyzed further development in cost accounting. Concepts like standard costs, direct and variable costing, and the advent of budgetary control became prominent during these times. The focus of cost accounting shifted from mere cost ascertainment to strategic cost control and reduction.

In the post-war period, cost accounting techniques grew more sophisticated. The field further matured, taking on a more strategic role in decision-making and integrating practices such as variance analysis. Businesses were not just interested in understanding costs, but also in controlling and reducing them to enhance efficiency and profitability.

The latter part of the 20th century saw the influence of Japanese management practices like JIT and TQM, which pushed for more precise, real-time cost accounting. It also marked the introduction of activity-based costing, a more accurate method to assign indirect costs to products and services, reflecting the increasing complexity of modern business environments.

Finally, the dawn of the 21st century, marked by the digital age, introduced sophisticated software systems and data analytics to

<sup>4</sup> <https://benjaminwann.com/blog/history-of-cost-accounting>

<sup>5</sup> Fleischman, Richard K., and Thomas N. Tyson. "The Economic History Review: Cost Accounting During the Industrial Revolution: The Present State of Historical Knowledge." *Economic History Review*, vol. 46, no. 3, 1993, pp. 503-517.

cost accounting. This digital transformation allowed for real-time tracking of costs, handling vast amounts of data, and providing detailed, actionable insights for managers.

**Throughout history, cost accounting has shown an impressive capacity to evolve and adapt in response to the changing needs of businesses. From the Industrial Revolution to the digital age, its progression has mirrored the complexities and dynamism of the business world.<sup>6</sup>**

### **Origin and Evolution of Cost Accounting:**

The origin and evolution of cost accounting can be traced back to the industrial revolution. The idea was to help the businessmen to record and keep a track of their costs and expenses. **The following is a detailed explanation of that<sup>7</sup>:**

#### **1. Early Beginnings of Cost Accounting:**

The roots of cost accounting lie embedded in shift of economic structure that took place during the Industrial Revolution, from the late 18th to the early 19th centuries.

This period was characterized by a shift from small-scale, artisanal, and home-based production methods to larger-scale factory production powered by machinery. As new industries such as textiles, iron, and coal mining began to rapidly expand, the nature and scope of businesses also evolved dramatically. These changes birthed new challenges and requirements for managing businesses effectively.

For instance, managers and owners needed to track and control the costs of raw materials, labor, and overheads for producing goods on a much larger scale than before. The complexities of industrial operations demanded more sophisticated financial tools to maintain efficiency, profit margins, and competitiveness in the marketplace. Traditional bookkeeping methods were not equipped to deal with these new, multifaceted challenges.

This is where cost accounting started to take form. It provided a systematic way to collect, classify, and record costs. Businesses needed to understand not just their total expenses but also how they were broken down into different parts of the operation. Such

<sup>6</sup> <http://www.mim.ac.mw/books/Cost%20Accounting.pdf>

<sup>7</sup> <https://benjaminwann.com/blog/history-of-cost-accounting>

information was crucial for pricing their products competitively, ensuring they covered their costs and still made a profit.

Thus, the growing complexities of these businesses brought forth the need for more detailed financial information, leading to the emergence of cost accounting during this period.<sup>8</sup>

**The Industrial Revolution was a period of intense change and innovation, and it was within this crucible that cost accounting was born. As businesses grew in size and complexity. Today, cost accounting is a cornerstone of financial management in businesses of all sizes and types.**

## 2. Development of Systems in Cost Accounting:

Into the 19th century, cost accounting began solidifying its role in business management, leading to more structured cost accounting systems. The primary catalysts were the constant growth and evolving intricacies of industries such as textiles and railroads.

Textile mills, for example, needed to account for a multitude of cost variables. This included raw materials like cotton or wool, the labor costs of factory workers, and the overhead expenses involved in running large mills, such as fuel for steam engines, maintenance of machines, and factory rent or depreciation.

**In a nutshell, the 19th century marked a significant phase in the development of cost accounting. Amid industrialization's complexity and scale, businesses sought more advanced financial tools to navigate their challenges. The emergence of cost accounting systems during this era was a testament to the growing sophistication of business management.**

## 3. World War I and II and Cost Accounting:

The two world wars, profoundly impacted multiple facets of society, including the field of cost accounting. The wars created situations of extreme resource scarcity due to the extensive demand for materials and labor for the war efforts. This led to a heightened need for efficient resource allocation, making cost accounting an indispensable tool for governments and businesses alike.

<sup>8</sup> <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

**World War I:** The war introduced massive challenges as nations had to convert their economies for wartime production quickly. This transformation increased the demand for accurate and robust costing systems. **During World War I**, the concept of 'standard costs' was introduced, which is the practice of developing estimated or expected costs for materials, labor, and overhead. This method was used to set 'standard' costs against which actual costs could be compared.

**World War II:** As with the First, the Second World War put enormous pressure on industries to manufacture a wide range of goods for the war effort, from tanks and aircraft to ammunition and uniforms. **During World War II**, costing techniques like direct costing (also known as variable costing), where only variable manufacturing costs are included in product cost, began to gain popularity. These techniques helped make short-term pricing and production decisions under fluctuating demand.<sup>9</sup>

**In essence, the crucible of the two World Wars significantly accelerated the development of cost accounting. Amidst extreme scarcity and the urgent need for efficient resource allocation, cost accounting evolved from a tool for recording and understanding costs to an essential instrument for strategic decision-making, resource planning, and cost control.**

#### 4. Post-World War II Cost Accounting:

The period following the end of World War II witnessed a remarkable transformation in the realm of business management and, consequently, in cost accounting. As the global economy gradually transitioned from a war footing to a peacetime setting, businesses recognized the need to shift their strategic focus. The hard lessons learned about resource allocation and efficiency during the war years didn't fade away but were rather applied to peacetime industries.

As part of this evolution, the focus of cost accounting underwent a significant shift. It was no longer merely about determining costs; instead, it took on a more strategic role involving cost control and cost reduction.

<sup>9</sup> <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

Cost control is about comparing actual costs incurred with the budgeted or standard costs to ensure that business operations stay within planned limits. Any deviation from the planned costs (positive or negative) can then be analyzed to identify its root causes and take corrective measures.

This period also saw the growing use of overhead allocation techniques to more accurately distribute indirect costs to various cost objects (products, services, projects, etc.). Activity-based costing (ABC), which would be developed later in the 20th century, owes its roots to these early attempts at better overhead allocation.<sup>1</sup>

The war years' emphasis on resource efficiency continued, but the approach was more refined, shifting from cost ascertainment to cost control and cost reduction. This evolution paved the way for the advanced cost management techniques used today.<sup>1</sup>

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**In summary, the post-World War II era marked a maturation of cost accounting as it transitioned from a purely operational tool to a strategic management aid.**

### 5. Late 20th Century Cost Accounting:

The latter part of the 20th century was marked by a continued evolution of cost accounting practices. Notably, Japanese manufacturing practices like just-in-time (JIT) and total quality management (TQM) became widely recognized and adopted, bringing about significant changes to cost accounting.

**JIT is a production strategy** aimed at reducing in-process inventory and its associated carrying costs. Under this system, materials are purchased, and units are produced only as needed to meet actual customer demand. JIT's advent required cost accounting to become more precise and operate in real-time to track the costs associated with this lean production method accurately. It led to developing more granular and timely cost-tracking and reporting systems.

**TQM is a management approach** centered on that long-term success comes from customer satisfaction. It involves all members of an organization participating in improving processes,

<sup>1</sup> <http://www.mim.ac.mw/books/Cost%20Accounting.pdf>

<sup>1</sup> <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

goods, services, and culture. TQM introduced the concept of 'cost of quality,' which includes the costs associated with preventing, detecting, and correcting defects. It expanded the realm of cost accounting to include these 'quality costs,' further refining the understanding of product costs and decision-making processes.

Indirect costs started to constitute a larger portion of total costs, as the correlation between direct labor and indirect costs diminished. ABC was introduced as a Solution to this problem, it assigns costs to products based on their required activities, providing a more accurate reflection of resource usage, by tying costs more directly to the activities that cause them.<sup>1</sup>

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**In summary, the late 20th century saw cost accounting becoming more dynamic and responsive to business needs. Influenced by advanced management techniques like JIT and TQM and improved by methods like ABC, cost accounting took on an even more strategic role in business decision-making during this period. This era laid the groundwork for the advanced, real-time cost tracking and strategic cost management that characterizes modern cost accounting.**

## 6- 21st Century Cost Accounting:

As the world entered the 21st century, it also embarked on an era marked by rapid advancements in digital technology and data processing capabilities.

These developments dramatically altered the business landscape, introducing new challenges and opportunities, and cost accounting was no exception. The advent of the digital age brought significant changes to cost accounting, transforming it into a much more dynamic, precise, and insightful discipline.

The evolution of Information Technology (IT) played a significant role in this transformation. Modern cost accounting systems began utilizing sophisticated software and data analytics tools that could handle vast amounts of data quickly and precisely. These tools automated many of the time-consuming, manual tasks involved in cost accounting, like data entry and

<sup>1</sup> <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

calculations, significantly improving the efficiency and accuracy of cost data processing.

Moreover, these systems enabled real-time cost tracking, a particularly crucial feature in the fast-paced, ever-changing modern business environment. Managers could now monitor costs as they were being incurred, allowing for quick adjustments and decisions to control costs effectively. This real-time visibility into costs also helped businesses to be more agile and responsive to changes in market conditions, enabling more informed and strategic decision-making.<sup>1</sup> <sup>3</sup>

**In conclusion, the 21st century marked a transformative period for cost accounting, driven by the advent of the digital age. The combination of sophisticated software systems, real-time cost tracking, and advanced analytics has turned cost accounting into a powerful tool that records and controls costs and generates strategic insights to drive business performance.**

### 1/3. Definition and Nature of Cost Accounting:<sup>1, 2</sup>

Companies need to employ cost accounting strategies to analyze their cost structure. Under this procedure, the cost is assigned to a company's product, services, and other company activities. **Cost accounting** is a branch of accounting. It consists of procedures to record and report the measurement of costs to manufacture products. This includes different methods to recognize, classify, aggregate, and report manufacturing costs and compare them with standard costs. Fixed costs, variable costs, direct costs, indirect costs, and operating costs are considered in cost accounting.<sup>1</sup>

**Cost Accounting** refers to the classifying, recording and appropriate allocation of expenditure for the purpose of determining the costs of products or services. It also helps in the presentation of arranged data for the control purposes and guidance to the management. Cost accounting deals with the production, selling and distribution costs.<sup>1</sup> **Cost accounting**

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<sup>1</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

<sup>1</sup> <https://cleartax.in/s/cost-accounting>

<sup>1</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

<sup>1</sup> <https://www.shiksha.com/online-courses/articles/objectives-of-cost-accounting/>

<sup>1</sup> <https://www.toppr.com/guides/fundamentals-of-accounting/fundamentals-of-cost-accounting/objectives-of-cost-accounting/>

refers to the computation of a company's overall expenditure. This procedure includes an assessment of a company's variable and fixed costs involved in each step of production. Cost accounting helps in taking strategic decisions to manage a company's expenses. **Cost accounting** is a method of managerial accounting which aims to capture the total production cost by measuring the variable costs as well as fixed costs.<sup>1</sup>

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**Cost accounting** is defined by the Institute of Management Accountants as "a systematic set of procedures for recording and reporting measurements of the cost of manufacturing goods and performing services in the aggregate and in detail. It includes methods for recognizing, classifying, allocating, aggregating and reporting such costs and comparing them with standard costs". **Cost accounting provides** the detailed cost information that management needs to control current operations and plan for the future.<sup>1</sup>

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**There are two types of Cost Accounting systems, they are:**<sup>2</sup>

- **Non – Integrated Accounting System:** The accounting system in which separate set of books is maintained for cost information.
- **Integrated Accounting System:** The accounting system in which cost and financial data are maintained in a single set of books.

Cost accounting information is also commonly used in financial accounting, but its primary function is for use by managers to facilitate their decision-making.<sup>2</sup>

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**Important terms we must know to understand what is cost accounting:**<sup>2</sup>

- **Cost:** The money spent on or allocated to a given item, product, or activity.
- **Costing:** "The method and procedure of assessing costs" is characterized as "costing."
- **Cost Accounting:** The process of cost accounting initiates with the collection of all expenditures and revenues of the

<sup>1</sup> <https://cleartax.in/g/terms/cost-accounting#meaning-of-cost-accounting>

<sup>1</sup> [https://en.wikipedia.org/wiki/Cost\\_accounting](https://en.wikipedia.org/wiki/Cost_accounting)

<sup>2</sup> <https://keydifferences.com/difference-between-cost-accounting-and-financial-accounting.html>

<sup>2</sup> [https://en.wikipedia.org/wiki/Cost\\_accounting](https://en.wikipedia.org/wiki/Cost_accounting)

<sup>2</sup> <https://economictimes.indiatimes.com/definition/cost-accounting>

organization based on which they will be later estimated and finishes off with the outcome of statements for determining expenses.

- **Management Accounting:** Management accounting is the use of accounting and financial management principles to create, defend, preserve, and increase value for stakeholders in for-profit and non-profit enterprises in the public and private sectors.
- **Cost Management:** The use of management accounting principles, data gathering tools, data analysis, and data presentation to offer the data necessary to plan, manage, and control expenses.<sup>2</sup>

#### 1/4. The differences between cost, an expense, an expenditure and loss:<sup>2</sup><sup>4</sup>

The differences between cost and expense is that cost identifies an expenditure, while expense refers to the consumption of the item acquired. A key reason why a cost is, in practice, frequently treated exactly as an expense is that most expenditures are consumed at once, so they immediately convert from a cost to an expense. This situation arises with any expenditure related to a specific period, such as the monthly utility bill, administrative salaries, rent, office supplies, and so forth. Unfortunately, cost and expense tend to be used interchangeably even within the accounting terminology.

##### Definition of Cost:

Cost most closely equates to the term *expenditure*, so it means that you have expended resources in order to acquire something, transport it to a location, and set it up. However, it does not mean that the acquired item has yet been consumed. Thus, an item for which you have expended resources should be classified as an asset until it has been consumed. Examples of asset classifications into which purchased items are recorded are prepaid expenses, inventory, and fixed assets.

<sup>2</sup> <https://economictimes.indiatimes.com/definition/cost-accounting>

<sup>2</sup> <https://www.accountingtools.com/articles/what-is-the-difference-between-cost-and-expense.html>

**For Example**, the cost of an automobile may be \$40,000 (since that is what you paid for it) and the cost of a product you built is \$25 (because that is the sum total of the expenditures you made to build it). The cost of the automobile likely includes sales taxes and a delivery charge, while the cost of the product probably includes the cost of materials, labor, and manufacturing overhead. In both cases, you have expended funds to acquire the automobile and the product, but have not yet consumed either one. Accordingly, the first expenditure is classified as a fixed asset, while the second one is classified as inventory. Similarly, an advance paid to an employee is classified as a prepaid expense.

#### **Definition of Expense:**

**An expense** is the reduction in value of an asset as it is used to generate revenue. If the underlying asset is to be used over a long period of time, the expense takes the form of depreciation, and is charged ratably over the useful life of the asset. If the expense is for an immediately consumed item, such as a salary, then it is usually charged to expense as incurred.<sup>2</sup> **Expense is a cost** whose utility has been used up; it has been consumed.

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For example, the \$40,000 automobile you purchased will eventually be charged to expense through depreciation over a period of several years, and the \$25 product will be charged to the cost of goods sold when it is eventually sold. In the first case, converting from an asset to an expense is achieved with a debit to the depreciation expense account and a credit to the accumulated depreciation account (which is a contra account that reduces the fixed asset). In the second case, converting from an asset to an expense is achieved with a debit to the cost of goods sold and a credit to the inventory account. Thus, in both cases, we have converted a cost that was treated as an asset into an expense as the underlying asset was consumed.

#### **Definition of an expenditure**

An expenditure is a payment or the incurrence of a liability in exchange for goods or services. Evidence of the documentation triggered by an expenditure is a sales receipt or an invoice.

<sup>2</sup> <https://www.accountingtools.com/articles/the-difference-between-an-expense-and-an-expenditure>

### Comparing Expenses and Expenditures:

The key difference between an expense and an expenditure is that an expense recognizes the consumption of a cost, while an expenditure represents the disbursement of funds. An expense is usually recognized when a related sale is recognized or when the item in question has no future utility. An expenditure is usually recognized either when cash is paid out or a liability is incurred. An additional difference is that an expense appears in the income statement, while the effect of an expenditure appears in the balance sheet, either as a reduction of cash or an increase in liabilities. A further difference is that expenses are generally associated with the short-term operations of a business, while some expenditures are associated with the acquisition of assets that are intended to be used for a long period of time.

### Examples of Expenses and Expenditures:

Examples of expenses are compensation expense, utilities expense, and the cost of goods sold. Examples of expenditures are a payment to acquire a fixed asset, a payment to reduce the outstanding balance of a loan, and a payment to distribute dividends to shareholders. As a comparative example, an organization makes an expenditure of \$3,000 for a desktop computer. It then charges the computer to expense over the next three years, which results in an annual depreciation expense of \$1,000.

### Losses:

Expenses and losses are both costs that a company incurs, and both reduce the company's net income. However, they differ in terms of their nature, where they arise from, and how they are treated in financial reporting. Losses are costs that are not directly related to the normal operations of the business. They usually result from incidental or non-recurring events. Examples of losses include loss on the sale of assets, loss from natural disasters, loss from lawsuits, and loss on investments. Losses also reduce a company's net income and are reported separately from expenses on the income statement, typically under 'Other Expenses' or 'Other Losses.'<sup>2</sup>

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<sup>2</sup> <https://www.superfastcpa.com/what-is-the-difference-between-expenses-and-losses/>

So, the main difference between expenses and losses is their connection (or lack thereof) to the core operations of the business. Expenses are the ordinary and necessary costs of running a business, while losses are irregular or extraordinary costs that aren't directly tied to the business's primary activities.<sup>2</sup>

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### Example of The differences between Expenses and Losses<sup>2</sup>

#### Expense Example:

Suppose a company, Alpha Inc., pays \$1,000 every month for its office space lease. This \$1,000 is an expense because it is a cost related to its ordinary business operations – providing office space for its employees to work. This rent expense would be recorded on the income statement and matched against the revenue earned in that period.<sup>2</sup>

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#### Loss Example:

Now, let's say Alpha Inc. also owns a delivery van for transporting goods. One day, the van is involved in an accident and it's beyond repair. Alpha Inc. must write off the remaining value of the van, say \$5,000, which it had not yet depreciated. This write-off is considered a loss because it's not part of the company's core business operations and is due to an unusual, non-recurring event (the accident). This loss would be recorded on the income statement, typically under a category like "Other Losses."

In both examples, the company's net income decreases by the amount of the expense or loss. However, the expense is associated with regular business operations (paying rent), while the loss is associated with an extraordinary event (the vehicle accident).<sup>3</sup>

## 1/5. Objectives of Cost Accounting:

**Cost accounting** is a part of management accounting that is concerned with the identification, accumulation, classification and appropriation of cost data in a business to help management with information that is useful for price determination, budgeting, financial control and decision making among other things. Cost

<sup>2</sup> <https://www.superfastcpa.com/what-is-the-difference-between-expenses-and-losses/>

<sup>2</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

<sup>2</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

<sup>3</sup> <https://www.shiksha.com/online-courses/articles/objectives-of-cost-accounting/>

accounting produces information purely for internal use by management.<sup>3</sup>

- 1) **Determining input cost:** One of the major objective of cost accounting is determining the input cost. When undertaking business, goods and services have widely varying complexities and cost structures. Identifying the costs of input into a product is a very important function to business management. Being able to correctly identify and apply costs is one of the primary functions of cost accounting systems.
- 2) **Pricing Decision / Determining the Selling Price:** One of the most important cost accounting objectives is determining the product's cost. To decide the selling price, product cost and cost per unit of product are important. Rather than determining the selling price, it indicates what the selling price should be.
- 3) **Helps with Decision Making:** Another cost accounting objective is to help with decision making. There are various decisions businesses make that are impacted by information produced by cost accounting. One that is easy to grasp is the outsourcing decision traditionally referred to as make or buy. An example of this is an online retailer which is contemplating how they will carry out their deliveries. Cost information can be used to determine resource usage and rank possibilities. It can also be used to determine an appropriate product mix in a product line. Helping with decision making is a major objective of cost accounting.
- 4) **Cost control:** Cost accountants use various techniques such as standard costing, inventory, and budgetary control. Every item of cost is budgeted at the beginning of accounting periods. It is the process of regulating costs of operating an undertaking. Through cost control, the efficiency of the enterprise increases in turn.
- 5) **Making Operative Policies:** With cost accounting, thoroughly analysed cost data is provided. This forms the basis for formulating policies about day-to-day business activities. Cost accountants provide important information to

<sup>3</sup> <https://financialyard.com/objectives-of-cost-accounting/>

management so that they can formulate operative policies for:

- Producing or purchasing a component
  - Determining cost volume profit relationship
  - Deciding on whether a loss-bearing operation should continue or shut down
  - Continuing or replacing existing machinery with economical equipment

**6) Quicker preparation of financial statements:** Through cost accounting, accountants can prepare financial statements within a shorter time period. Cost accountants offer periodic statements of accumulated costs with analysis.

**7) Ascertaining costing profit:** Through cost accounting, analysts can ascertain whether an activity is costing profit or loss on an objective basis. This is made possible by matching cost with the revenue of the activity.

**8) Helping in Budget Preparation:** Of course business operations have to be planned for and again cost accounting provides crucial information for budgeting purposes. Helping with budget preparation is an objective of cost accounting. Depending on the source of funding owners or managers would need to approach with solid plan that shows how much is required to fund operations and also how much they expect to make from operations.

**9) Cost Benefit Analysis:** Another important objective of cost accounting is to help with cost benefit analysis. Cost benefit analysis has many applications in management. It is used in cost accounting to determine profitability, break-even point, special order decisions among others.

**10) Break-Even Analysis:** Break-even point is a cornerstone of management decision making and perhaps the most famous product of cost accounting. The break-even point is a mathematical calculation arrived at where profit or loss for a business is zero. This point is important because it determines a minimum threshold for activity level and provides a quantity at which a business's experiences greater profitability as the

<sup>3</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

activity increases. This allows a business's management to know when to take on additional business at reduced prices. A brilliant example of this in application is airline ticketing.

### Other Objectives of Cost Accounting:<sup>3</sup>

- Cost accounting facilitates prompt and reliable information to management
- It helps determine the cost per unit of a product
- Can help management with determining bonuses basing on productivity and cost savings
- Cost accounting helps with exercising effective control of raw materials, work in progress and finished goods
- It helps with special cost studies and investigations which help the management in decision making
- Cost accounting helps with preparation of financial statements, especially profit and loss statement and balance sheet
- It provides data for cost comparisons between different firms
- Cost accounting helps in determining the reasons of increase or decrease in profits
- It helps with analysing the costs of operations and processes
- Cost accounting helps with determining the profitability of each and every product
- Controlling and minimising costs
- Matching cost with revenue

**Cost accounting provides a wide variety of information that is pivotal to many important decisions in business operations. While the information is prepared for internal use it has implications that extend beyond the business affecting customers, competitors and partners.**

### 1/6. Importance of Cost Accounting:

Cost accounting has many advantages. Here are some of the ways it can help a business:<sup>3 , 4 , 5</sup>

<sup>3</sup> <https://financialyard.com/objectives-of-cost-accounting/>

<sup>3</sup> <https://www.zoho.com/books/guides/cost-accounting.html>

<sup>3</sup> [https://www.academia.edu/1430126/Historical\\_Development\\_of\\_cost\\_accounting](https://www.academia.edu/1430126/Historical_Development_of_cost_accounting)

- (1) **Controlling costs:** Cost accounting helps the management foresee the cost price and selling price of a product or a service, which helps them formulate business policies. With cost value as a reference, the management can come up with techniques to control costs with an aim to achieve maximum profitability.
- (2) **Determining the total per-unit cost:** Cost accounting techniques help in determining the total per-unit cost of a product or a service, so that the business can fix the selling price for it.
- (3) **Showing profitable and non-profitable activities:** This information helps the management put an end to non-profitable activities while developing and expanding the profitable ones.
- (4) **Comparing costs over time:** The data in the cost sheets prepared for various time periods helps in comparing the cost for the same product or a service over a period of time.
- (5) **Ascertainment of costs:** Costs are ascertained using any costing method e.g. job costing or process costing as well as any one more of the costing techniques and systems, such as historical costing, standard costing, marginal costing, direct costing.
- (6) **Determining the selling price:** Cost accounting provides detailed and relevant cost figures for determining the selling price of products or services. In fixing selling prices. However, regard must be had to the cost structure, condition of the market, the type of consumer, the area of distribution, the quantity, which can be supplied, the demand for the product and supply thereof.
- (7) **Determining and controlling efficiency:** A cost accountant must study the various operations involved in the manufacture of products, to render the service of measuring efficiency of the organization as a whole or cost-center wise.
- (8) **Preparation of financial statement:** In order to prepare financial statements, it is required to determine the stock-values at the end of the period over which such financial statements are to be prepared. Where cost accounts are kept,

the ascertainment of the value of closing stocks of raw materials, work-in-progress and finished goods become easy and as such financial statements can be prepared monthly or even weekly.

- (9) Providing a basis for operating policy:** Cost accounting plays an important part in the management, as it is used as a basis for formulating operating policies. These policies may be:
- Determination cost-volume-profit relationship;
  - Whether to shut down or operate at a loss;
  - Whether to make or buy from outside suppliers; and
  - Whether to continue with the existing plant and machinery or to replace them by improved and economic ones.

## 1/7. Classification of Cost:

The idea of cost accounting is to collect, classify, record, and suitably allocate expenditures to determine the costs of products or services. After collecting costs, these are classified to ensure their identification with cost centers or cost units. Costs have different features or characteristics, and they are grouped or classified based on their common characteristics. The process of grouping costs based on their common characteristics is known as the classification of cost.<sup>3</sup>

6

### 1/7/1. Different Classification of Cost:<sup>3</sup>

7

The Costs can be classified using different bases or characteristics, including element, nature, variability, controllability, normality, and function. The main Classification of cost are shown in the image below. **Classification of cost:**

8

- **Classification of Cost by Element:**<sup>3</sup>

In this class, costs are categorized based on the factors they are incurred for. Based on their elements, costs may be grouped as:

- 1) **Material cost:** Material cost refers to the cost of commodities supplied to an undertaking (e.g., in the case of a textile mill, the cost of cotton or yarn, the cost of cotton waste to clean the

<sup>3</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

<sup>3</sup> <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

<sup>3</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

machinery, the cost of dyes, the cost of finishing material, and so on).

- 2) **Labor cost:** Labor cost refers to the cost of paying employees in an undertaking, which includes salary, wages, and commission.
- 3) **Expenses:** Expenses refer to the cost of services provided to an undertaking and include the notional cost of owned assets (e.g., rent for a building, telephone expenses, depreciation of the owned factory building, depreciation of delivery van, and so on).

- **Classification of Cost by Nature:**

In this class, costs are classified based on their identifiability with cost centers or cost units. Costs can be grouped as follows based on their nature:

1. **Direct costs:** Direct costs are costs that can be directly and easily traced to (or identified with) a product, process, or department. Common examples of direct costs include the materials used and labor employed in manufacturing an article or in a production process.
2. **Indirect costs:** Indirect costs are costs that are not traceable to any particular product, process, or department, but which are common in a number of products, processes, or departments. Examples of indirect costs are factory rent, factory insurance, and the salary of the factory manager.

- **Classification of Cost by Variability or Behavior:**<sup>3</sup>

Costs (both direct and indirect) can also be classified into the following groups based on their behavior relative to changes in the volume of activity:

- 1) **Variable costs:** Variable costs are costs that vary in a directly proportional way to changes in the volume of output or sales. These costs tend to increase or decrease with the rise and fall in production or sales. Variable costs vary in total but their per-unit cost stays the same. Examples of variable costs are direct material cost, direct wages, direct expenses, consumable stores, and commission on sales.

<sup>3</sup> <https://www.financestrategists.com/accounting/cost-accounting/analysis-of-cost/>

- 2) **Fixed costs:** Fixed costs are costs that generally remain unaffected by changes in sales volume/output. Fixed costs remain unchanged when output or sales increase or decrease. These costs remain fixed in total but their per-unit cost changes with output or sales. These costs depend mainly on the passage of time and do not vary directly with the changes in the volume of output or sales. Typical examples of fixed costs include rent, rates, taxes, insurance charges, and salaries for managers. It is worth remembering that fixed costs are not absolutely fixed for all of time. In fact, fixed costs are fixed only in relation to a particular level of production capacity.
- 3) **Semi-variable or semi-fixed costs:** Semi-variable costs are costs that tend to vary with changes in the volume of output or sales, but which do not vary in a directly proportional way relative to such changes. These costs have the characteristics of both fixed and variable costs. One part of semi-variable costs remains constant irrespective of changes in the volume of output or sales. By contrast, the other part varies in proportion to changes in the volume of output or sales. Typical examples of semi-variable costs include repairs and maintenance costs for plants, machinery, and buildings and supervisor salaries.

▪ **Cost Classification by Controllability:**<sup>4</sup> 0

Under this category, costs are classified based on whether or not they are influenced by the action of a given member of an undertaking. The Classification of costs are:

- 1) **Controllable costs:** Controllable costs are costs that an entity in an undertaking can influence through their action. An undertaking is usually divided into several departments or cost centers that are placed under the direct control and supervision of specified persons. The person in charge of a particular department or cost center can control only those costs that come directly under their control.
- 2) **Uncontrollable costs:** Uncontrollable costs, on the other hand, are costs that cannot be influenced by the action of a specified member of an undertaking. Costs that are

<sup>4</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

controllable for one person may be uncontrollable for another person.

- **Cost Classification by Normality:<sup>4</sup>**

In this category, costs are classified based on whether they are normally incurred at a particular level of output under the conditions for which that level of output is normally attained. Based on normality, costs may be classified as:

- 1) **Normal or unavoidable costs:** Normal or unavoidable costs are normally incurred at a given level of output under the conditions for which that level of output is normally attained. Costs of this kind cannot be avoided at all. The cost of normal spoilage of materials and the cost of normal idle time are typical examples of normal costs.
- 2) **Abnormal or avoidable costs:** Abnormal or avoidable costs are costs that are not normally incurred at a given level of output under the conditions for which that level of output is attained. It is possible to avoid such costs if proper care is taken. The cost of spoilage of material over and above the normal limit is an example of an abnormal cost.

- **Cost Classification by Function:**

**Costs can also be classified based on their perceived function. The following types of cost exist by function:**

1. **Production costs:** Production costs refer to costs that arise in the course of acquiring, processing, and using raw materials. Production costs include the cost of materials, cost of labor, other factory expenses, and the cost of primary packing.
2. **Administration costs:** Administration costs are the costs incurred in formulating business policies, directing the organization, and controlling the operations of an undertaking. Administration costs are not related to research, development, production, distribution, or selling activities.
3. **Selling costs:** Selling costs are incurred to create and stimulate demand and secure orders. As such, these costs are incurred in connection with the marketing of products.
4. **Distribution costs:** Distribution costs are associated with the sequence of operations. This sequence starts with dispatch

<sup>4</sup> <https://www.financestrategists.com/accounting/cost-accounting/analysis-of-cost/>

preparations for the packed product and ends by facilitating the availability of the reconditioned, returned, and empty packages for re-use.

- **Classification by Time:**<sup>4</sup> 2

From the view of time, costs can be classified as:

1. **Historical costs:** Historical costs are costs that are identified after they have been incurred. That is to say, they are determined after goods have been manufactured or services have been rendered. Historical costs simply represent a post-mortem of past events, and they are useful in ascertaining profitability but not in exercising cost control.
2. **Predetermined costs:** Predetermined costs are computed in advance of production based on a specification of all the factors affecting them. Predetermined costs can be further divided into:
  - a) **Estimated costs:** Estimated costs are costs that, according to investigation and analysis, are most likely to be incurred. They are estimated in advance based on the following assumptions: firstly, that costs are more or less free to move; and secondly, that what is made is the best estimate of the cost conditions that will apply when the cost is incurred.
  - b) **Standard costs:** Standard costs refer to a predetermined cost that is calculated from the management's standards of efficient operation and the relevant necessary expenditure. Standard cost is established based on the assumption that costs will not be allowed to move freely but will be controlled as far as possible.

- **Cost Classification by Relevance to Decision-making and Control:**

In this category, costs are classified based on whether they are relevant to managerial decisions. These costs are as follows:<sup>4</sup>

1. **Marginal Cost:** Marginal cost is defined as "the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by

<sup>4</sup> <https://www.financestrategists.com/accounting/cost-accounting/analysis-of-cost/>

<sup>4</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

one unit." Marginal cost refers to the increase in total cost that results from an increase in output by one unit. Marginal cost is denoted by variable cost, and it consists of direct material cost, direct labor cost, direct expenses, and variable overheads.

2. **Sunk Costs:** Sunk costs refer to costs that have already been incurred and cannot be changed by a future decision. These costs become irrelevant costs for later decisions. For example, if a manager decides to replace an existing machine with a new one, the amount of capital invested in the existing machine (less scrap value) will be irrecoverable and, as a result, is known as a 'sunk cost'.
3. **Opportunity Costs:** The opportunity cost of a product or service is measured in terms of revenue that could have been earned by applying the resources to some other use. Opportunity cost can be defined as the cost of foregoing the best alternative. Thus, the opportunity cost of yarn produced by a composite spinning and weaving mill, which is used in the weaving section, would be the price that could have been obtained by selling the yarn in the market.
4. **Imputed Costs:** Imputed costs are costs that are not included in costs but are considered for making management decisions. These costs are hypothetical in character.
5. **Differential Costs:** Differential costs refer to the difference in total costs between two alternatives. When choosing an alternative increases total costs, such increased costs are known as incremental costs.
6. **Shut-down Costs:** Shut-down costs are costs that will still be incurred when a plant is shut down temporarily. Sometimes, the normal operations of a business must be suspended temporarily due to unfavorable market conditions, strikes, or other forces. During the suspension of production or other activities, certain costs may still need to be incurred, and these are considered 'shut-down costs'. Examples of shut-down costs include rent for factory premises, salaries of top management, and so on.
7. **Postponable Costs:** These are the costs that can be postponed or shifted to the future with little or no effect on the efficiency

of current operations. These costs are postponable but not avoidable and must be incurred at a later stage. The concept of a postponable cost is highly significant in the railway and transport business, where it's possible to delay the cost of repairs and maintenance for a certain period.

8. **Replacement Cost:** Replacement cost is the cost of replacing an asset in the current market or at the current price. Thus, the replacement cost of an asset is the cost that would be incurred if the asset were purchased at the current market price and not at the original purchase price.
9. **Abandonment Costs:** Abandonment refers to the complete retirement or withdrawal of a fixed asset from service or use. Fixed assets are abandoned when they are no longer serviceable. Abandonment cost refers to the cost incurred in abandoning a fixed asset.

#### 1/7/2. Other Types of Cost:<sup>4</sup>

- a) **Research Cost:** This refers to the cost of searching for new or improved products, new applications of materials, or new or improved methods of production.
- b) **Development Cost:** This refers to the cost of the process that begins with making the decision to produce a new/improved product/method and ends with the commencement of formal production of that product/method.
- c) **Pre-production Cost:** This refers to the part of the overall development cost that is incurred in making a trial production run before beginning formal production.
- d) **Prime costs:** are a firm's expenses directly related to the materials and labor used in production. It refers to a manufactured product's costs, which are calculated to ensure the best profit margin for a company. The prime cost calculates the direct costs of raw materials and labor that are involved in the production of a good. Direct costs do not include indirect expenses, such as advertising and administrative costs. **Prime cost = Direct raw materials + Direct labor.**

<sup>4</sup> <https://www.financestrategists.com/accounting/cost-accounting/analysis-of-cost/>

- e) **Conversion Cost:** This refers to the costs incurred to convert raw materials into finished goods, and it consists of direct labor cost, direct expenses, and factory overhead.

### 1/8. Elements of cost in cost accounting:

The elements of cost are broadly classified into material, labor, and expenses. Each of them is further divided into direct and indirect costs. The indirect material, labor and expenses can be categorized as overhead costs.<sup>4</sup> <sup>5</sup>

- (1) **Material cost:** This is the cost of the basic substances that are used to produce an item. It can be further classified into direct material and indirect material.

- **Direct material:** Materials which are directly involved in the manufacturing of a product and are present in the finished product constitute direct material. For example, wood used to make furniture, or cloth used to make a shirt.
- **Indirect material:** Materials which are instrumental in the production of finished goods but cannot be assigned to specific physical units. For example, a pair of scissors to cut the cloth for the shirt, or a saw to cut the wood for furniture.

- (2) **Labor cost:** These are the human resources required to convert materials into finished goods. They can be further classified into direct and indirect labor.

- **Direct labor:** People who are involved actively during the manufacturing of products. For example, production or manufacturing labor.
- **Indirect labor:** Employees who are not directly involved in the manufacturing process and whose labor cannot be assigned to one particular product. For example, sales representatives and directors.

- (3) **Expenses:** Costs incurred by a business, other than material and labor costs, generally fall under this category. They are further divided into direct and indirect expenses.

- **Direct expenses:** These are also called chargeable expenses and are usually associated with specific cost units. For example, direct labor, cost of raw materials, utilities, and rent.

<sup>4</sup> <https://www.zoho.com/books/guides/cost-accounting.html>

- **Indirect expenses:** All expenses that do not fall under direct expenses are considered indirect expenses. For example, printing costs, utility bills, and legal consultation.
- (4) Overhead costs:** The general understanding is that overhead costs are similar to indirect expenses. But overhead actually has a wider meaning, which includes indirect labor, indirect material, and indirect expenses.

**Overhead costs can be classified into the following three categories:**<sup>4</sup> 6

- **Factory overhead:** This includes overhead cost incurred due to manufacturing, production, or any other type of cost that is responsible for the smooth functioning of a factory. For example, factory rent, insurance, and utilities.
- **Office and administrative overhead:** These are expenses connected to the management and administration of a business. For example, office rent, printers, and stationery.
- **Selling and distribution overhead:** These are expenses related to marketing a product, acquiring orders, and dispatching goods and services.

### 1/9. Cost Accounting vs Financial Accounting:<sup>4</sup> 7

Cost Accounting refers to that branch of accounting which deals with costs incurred in the production of units of an organization. On the other hand, financial accounting refers to the accounting concerned with recording financial data of an organization, in order to exhibit exact position of the business.

Cost accounting generates information so as to keep a check on operations, with an aim of maximizing profit and efficiency of the concern. Conversely, Financial accounting ascertains the financial results, for the accounting period and the position of the assets and liabilities on the last day of the period. There is no comparison between these two because they are equally important for the users. This chapter presents you The differences between cost accounting and financial accounting in tabular form.<sup>4</sup> 8

<sup>4</sup> <https://icmai.in/upload/Students/Syllabus2016/Inter/Paper-8-New.pdf>

<sup>4</sup> [https://en.wikipedia.org/wiki/Cost\\_accounting#cite\\_note-1](https://en.wikipedia.org/wiki/Cost_accounting#cite_note-1)

<sup>4</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

### **Key Differences Between Cost Accounting and Financial Accounting:**

The following are the major differences between cost accounting and financial accounting.<sup>4</sup> 9

- 1. Cost Accounting aims at maintaining cost records of an organisation. Financial Accounting aims at maintaining all the financial data of an organisation.**
- 2. Cost Accounting Records both historical and per-determined costs. Conversely, Financial Accounting records only historical costs.**
- 3. Users of Cost Accounting is limited to internal management of the entity, whereas users of Financial Accounting are internal as well as external parties.**
- 4. In cost, accounting stock is valued at cost while in financial accounting, the stock is valued at the lower of the two i.e. cost or net realisable value.**
- 5. Cost Accounting is mandatory only for the organisation which is engaged in manufacturing and production activities. On the other hand, Financial Accounting is mandatory for all the organisations, as well as compliance with the provisions of Companies Act and Income Tax Act is also a must.**
- 6. Cost Accounting information is reported periodically at frequent intervals, but financial accounting information is reported after the completion of the financial year i.e. generally one year.**
- 7. Cost Accounting information determines profit related to a particular product, job or process. As opposed to Financial Accounting, which determines the profit for the whole organisation made during a particular period.**
- 8. The purpose of Cost Accounting is to control costs, but the purpose of financial accounting is to keep complete records of the financial information, on the basis of which reporting can be done at the end of the accounting period.**

### **Comparison Chart**

<sup>4</sup> <https://keydifferences.com/difference-between-cost-accounting-and-financial-accounting.html>

Cost accounting and financial accounting use the same information from the business' records and work around the same principles. The differences between the two is that financial accounting gives the value of profit and loss of the business as a whole, while cost accounting tells you about the cost per item and the profit or loss associated with individual products. **Let us look at a few points of distinction between the two:**<sup>5</sup>

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BASIS FOR COMPARISON	COST ACCOUNTING	FINANCIAL ACCOUNTING
<b>Definition</b>	Cost accounting is referred to as a form of managerial accounting that is used by businesses to classify, summarize and analyse the different costs with the purpose of cost control and cost reduction and thereby helping management in making better decisions.	Financial accounting is a branch of accounting that is concerned with the summarizing, recording and reporting of financial transactions that take place in a business concern over a time period.
<b>Meaning</b>	Cost Accounting is an accounting system, through which an organization keeps the track of various costs incurred in the business in production activities.	Financial Accounting is an accounting system that captures the records of financial information about the business to show the correct financial position of the company at a particular date.
<b>Information type</b>	Records the information related to material, labor and overhead, which are used in the production process.	Records the information which are in monetary terms.

<sup>5</sup> <https://keydifferences.com/difference-between-cost-accounting-and-financial-accounting.html>

<b>BASIS FOR COMPARISON</b>	<b>COST ACCOUNTING</b>	<b>FINANCIAL ACCOUNTING</b>
<b>Which type of cost is used for recording?</b>	Both historical and pre-determined cost	Only historical cost.
<b>Users</b>	Information provided by the cost accounting is used only by the internal management of the organization like employees, directors, managers, supervisors etc.	Users of information provided by the financial accounting are internal and external parties like creditors, shareholders, customers etc.
<b>Estimation of Stock</b>	At cost	Cost or Net Realizable Value, whichever is less.
<b>Mandatory</b>	No, except for manufacturing firms it is mandatory.	Yes for all firms.
<b>Time of Reporting</b>	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.
<b>Profit Analysis</b>	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.
<b>Purpose</b>	Reducing and controlling costs.	Keeping complete record of the financial transactions.
<b>Forecasting</b>	Forecasting is possible through budgeting techniques.	Forecasting is not at all possible.

**The information provided by the Cost Accounting is helpful in the decision making of the managers to control costs, but it lacks comparability. The information provided by the financial accounting is capable of making comparisons, but**

**future forecasting cannot be done through this information.  
That is why they both go side by side, in fact, cost accounting data is helpful for financial accounting.**

### 1/10. Cost Accounting Vs Managerial Accounting:<sup>5</sup>

Cost accounting and financial accounting both address different segments. Financial accounting provides the financial position and other aspects of the company and is meant to be used for external users. Cost accounting is more related to the internal aspects of the company and is more related to manufacturing concerns.<sup>5</sup><sup>2</sup>

While Managerial accounting is precisely the decision making calculations that use both costing as well as financial accounting for the purpose of deciding on different aspects of business. Such as, for instance, whether to BUY a particular product or to build it within the company. In this particular example, the managerial accounting will use costing of making as well as buying the product and then decide which option is more feasible.<sup>5</sup>

Cost accounting is that section of accounting which strives at generating data to manage operations with a view to maximizing profits and performance of the company, it is also termed control accounting. On the contrary, management accounting is that type of accounting which support management in planning and decision-making and hence known as decision accounting.<sup>5</sup>

Cost accounting and management accounting are two very crucial branches of accounting discipline. Both of them are used by most of the organizations for better functioning. The main user of both cost accounting and management accounting is an organization's internal management. This creates an impression that both cost accounting and management accounting are same.

The differences between cost accounting and management accounting are of a fine nature and have minor nuances. Cost accounting basically focuses on the quantitative aspects. While

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<sup>5</sup> <https://shinewingsyteoh.com/difference-between-cost-accounting-management-accounting>

<sup>5</sup> [https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample\\_19614.pdf](https://content.kopykitab.com/ebooks/2018/06/19614/sample/sample_19614.pdf)

<sup>5</sup> <https://keydifferences.com/difference-between-cost-accounting-and-financial-accounting.html>

<sup>5</sup> <https://byjus.com/commerce/difference-between-cost-accounting-and-management-accounting/>

management accounting uses a combination of quantitative aspects as well as qualitative aspects.<sup>5</sup>

### 1/10/1. Similarities between Cost Accounting and Management Accounting:<sup>5</sup>

Many of the fundamental processes of cost accounting and management accounting are similar. Both of them require an essential knowledge of accounting basics and principles. Both cost accounting and management accounting use many similar procedures and techniques of accounting, computation and analysis.

Both strive to provide accurate and relevant data and information to help the management in decision making and improving operational performance of an organization.

The information and statements provided by both cost accounting and management accounting are prepared with reference to a particular period, but not necessarily reported or submitted at the financial year end. Both of them are mainly used by the internal management or the employees of an organization.<sup>5</sup>

### 1/10/2. Difference between Cost Accounting and Management Accounting:<sup>5</sup>

- **Definition:** Cost accounting deals with the collection, recording, classification, ascertaining, and analysis of the information and data related to the costs of production and operations; while management accounting deals with the collection, recording, classification, analysis, and presentation of data and information related to the quantitative and the qualitative aspects pertaining to the activities of an organization.<sup>5</sup>
- **Focus:** The primary focus of cost accounting is to accurately record the costs of the transactions or activities, and present cost statements; while the primary focus of management accounting is to help the management in decision making.

<sup>5</sup> <http://www.differencebetween.net/business/accounting-business/difference-between-cost-accounting-and-management-accounting/>

<sup>5</sup> <http://www.differencebetween.net/business/accounting-business/difference-between-cost-accounting-and-management-accounting/>

<sup>5</sup> <http://www.mim.ac.mw/books/Cost%20Accounting.pdf>

<sup>5</sup> <https://khatabook.com/blog/cost-accounting-vs-management-accounting/>

<sup>5</sup> <http://www.mim.ac.mw/books/Cost%20Accounting.pdf>

- **Objective:** Objective of cost accounting is reducing or controlling costs; while objective of management accounting is to help the management of the company in decision making, planning, and controlling. In other words, effective and efficient performance of an organization is the objective of management accounting.
- **Nature:** Cost accounting is both historical and futuristic as it records historical transactions which help in estimating future costs; but management accounting is futuristic as it is mainly related with planning and forecasting.
- **Coverage:** Cost accounting covers typically the transactions, records and statements related with costing and quantitative aspects; while management accounting mainly covers qualitative and quantitative aspects.
- **Scope:** The scope of cost accounting is narrow as it is concerned with costing aspects; while the scope of management accounting is wider comparatively as it covers financial accounting, taxation, planning besides cost aspects in some respects.
- **Level of Depth and Detail:** Cost accounting takes an in-depth look at various details related to the cost of production and operations; while management accounting generally takes a top level view of the overall activities of an organization.
- **Type of Data and Information:** Cost accounting is concerned with the quantitative type of data and information; but management accounting is concerned with both the qualitative as well as quantitative type of data and information. It uses the information that may usually not be expressed in terms of money.
- **Sources of Data:** Cost accounting obtains the data of costs from financial accounting which help in costing work; but management accounting obtains the data from both Cost accounting and financial accounting.
- **Performed by:** cost accounting is performed by a qualified cost accountant with some statutory powers in certain cases; while management accounting is performed by management accountants or by others in some cases.

- **Status:** Cost accounting is constrained in status with limited area of influence; while management accounting has status of priority and a larger area of influence.
- **Timing:** Cost accounting is carried out on a somewhat regular basis; whereas management accounting is usually carried out more as a periodic process.
- **Necessity:** Cost accounting is necessary for some organizations in their day-to-day production related activities or routine operations; while management accounting is optional in many cases and not necessary in the day-to-day operations of a firm.
- **Dependence:** Cost accounting does not depend on management accounting for its success and effectiveness; but management accounting depends on cost accounting for its success and effectiveness.
- **Regulations:** Cost accounting is governed by some cost accounting standards or regulations; but management accounting is usually not governed by a specific and stringent set of standards or regulations.
- **Audit Requirement:** In some cases, the statutory audit of the cost accounting reports is needed; but the statutory audit of the management accounting reports is typically not needed.
- **Report Submission:** Cost accounting reports are submitted to the management of the organization as well as some other external authorities or regulators; but management accounting reports are submitted to the internal management of the organization.<sup>6</sup>

### Comparison Chart for Cost Accounting vs. Management Accounting<sup>6</sup>

1

<sup>6</sup> <http://www.differencebetween.net/business/accounting-business/difference-between-cost-accounting-and-management-accounting/>

<sup>6</sup> <http://www.differencebetween.net/business/accounting-business/difference-between-cost-accounting-and-management-accounting/>

Basis of Comparison	Cost Accounting	Management Accounting
Meaning	The recording, classifying and summarizing of cost data of an organization is known as cost accounting.	The accounting in which both financial and non-financial information is provided to managers is known as management accounting.
Information Type	Quantitative.	Quantitative and qualitative.
Objective	Determining the cost of production and reducing or controlling costs	Providing information to help the management of the company in decision making, planning, and controlling
Scope	Interested in determining, allocating, distributing and accounting for costs.	Impact and effect aspect of costs.
Specific Procedure	Yes	No
Recording	Records past and present data	It focuses on the analysis of future projections.
Planning	Short range planning	Short and long-range planning
Interdependency	Can be installed without management accounting.	Cannot be installed without cost accounting.

### 1/11. Questions & Exercises:

**1/11/1. State which of the following statements is correct and which one is wrong: (a) for correct statements, (e) for wrong statements:<sup>6</sup>**

**2**

1)	A cost object is anything for which a cost measurement is desired.	True
2)	Costs are accounted for in two basic stages: assignment followed by accumulation.	False

<sup>6</sup> Mainly relied on the following sources and references:

- <https://www.aun.edu.eg/commerce/sites/default/files/pdf/Question/Question-bank-2021-e2-3.pdf>
- <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>
- Fleischman, Richard K., and Thomas N. Tyson. "The Economic History Review: Cost Accounting During the Industrial Revolution: The Present State of Historical Knowledge." *Economic History Review*, vol. 46, no. 3, 1993, pp. 503-517.

<b>3)</b>	An actual cost is the cost incurred—a historical or past cost.	True
<b>4)</b>	A direct cost of one cost object can be an indirect cost of another cost object.	True
<b>5)</b>	The broader the cost object definition, higher the proportion of direct costs are of total costs.	True
<b>6)</b>	The cost of electricity used in the production of multiple products would be classified as a indirect cost.	True
<b>7)</b>	Accountants define a cost as a resource to be sacrificed to achieve a specific objective.	True
<b>8)</b>	A cost is a resource sacrificed or foregone to achieve a specific objective.	True
<b>9)</b>	Variable cost per unit reduces with an increase in production volume.	True
<b>10)</b>	A fixed cost is fixed only in relation to a given wide range of total activity or volume and only for a given time span, usually a particular budget period.	True
<b>11)</b>	Managers use cost accumulation data to make decisions and implement them.	True
<b>12)</b>	A cost may be direct for one cost object and indirect for another cost object.	True
<b>13)</b>	Assigning indirect costs is easier than assigning direct costs.	False
<b>14)</b>	Variable costs per unit vary with the level of production or sales volume.	False
<b>15)</b>	Wood used to manufacture chairs is considered a direct variable cost.	True
<b>16)</b>	A fixed cost remains unchanged in total for a given time period, despite wide changes in the related level of total activity or volume of output produced.	True
<b>17)</b>	A unit cost is computed by dividing total cost by the number of units.	True
<b>18)</b>	A unit cost is also called an average cost.	True
<b>19)</b>	Work-in-process inventory are goods partially worked on but not yet completed.	True
<b>20)</b>	All manufacturing costs are period costs.	False

**1/11/2. Choose the best answer for each of the following questions:**<sup>6</sup> <sup>3</sup>

**1. An actual cost is .....**

A	is the cost incurred	C	is anything for which a cost measurement is desired
B	is a predicted or forecasted cost	D	is the collection of cost data in some organized way by means of an accounting system

**Answer: A**

**2. Which of the following is not a selling overhead?**

A	Legal cost on debt realization	C	Royalty on sales
B	Distribution of samples	D	Insurance to cover sold goods while in transit

**Answer: Option A**

**Answer:** Legal cost on debt realization is not a selling overhead. Selling expenses are those expenses which are incurred to promote sales and service to customers.

**3. Idle capacity of a plant refers to The differences between .....:**

A	practical capacity and capacity based on sales expectancy	C	maximum capacity and actual capacity
B	maximum capacity and practical capacity	D	practical capacity and normal capacity

**Answer: Option C**

**Answer:** Idle capacity of a plant refers to The differences between maximum capacity and actual capacity. Idle capacity is the remaining amount of capacity left in a company after productive capacity and protective capacity have been eliminated from consideration.

<sup>6</sup> Mainly relied on the following sources and References:

- <https://www.examveda.com/commerce/practice-mcq-question-on-costing/>
- <https://indiaclass.com/cost-accounting-mcq/>
- <https://www.mbamcq.com/cost-and-managerial-accounting/>
- <https://www.mbamcq.com/cost-and-managerial-accounting/3.php>
- <https://www.aun.edu.eg/commerce/sites/default/files/pdf/Question/Question-bank-2021-e2-3.pdf>
- <https://old.mu.ac.in/wp-content/uploads/2017/01/Cost-Accounting.pdf>

**4. Number of worker employed is used as basis for the apportionment of ....:**

A	PF contribution	C	rent
B	canteen expenses	D	rate and tax

**Answer: Option B**

**Answer:** Number of worker employed is used as basis for the apportionment of canteen expenses.

**5. Fixed cost per unit increases when ....:**

A	production volume increases	C	variable cost per unit decreases
B	production volume decreases	D	variable cost per unit increases

**Answer: Option B**

**Answer:** Fixed cost per unit increases when production volume decreases. Total fixed costs remain the same, within the relevant range. However, the fixed cost per unit decreases as production increases, because the same fixed costs are spread over more units.

**6. The process of grouping of costs according to some common characteristics ....:**

A	secondary distribution	C	primary distribution
B	absorption	D	classification

**Answer: Option D**

**Answer:** The process of grouping of costs according to some common characteristics classification. Cost may be classified according to their nature, i.e., material, labour and expenses and a number of other characteristics.

**7. Comprehensive machine hour rate includes ....:**

A	machine operators wages	C	income tax
B	managing directors salary	D	office rent

**Answer: Option A**

**Answer:** Comprehensive machine hour rate includes machine operator's wages. Composite machine hour rate means the total variable expenses per hour plus the total fixed, constant or standing charges per hour not directly connected with the

operation of the machine, but are the general factory overheads of the department.

**8. Cost assignment .....**

A	includes future and arbitrary costs	C	is the same as cost accumulation
B	encompasses allocating indirect costs to a cost object	D	is The differences between budgeted and actual costs

**Answer: B**

**9. A cost system determines the cost of a cost object by .....**

A	accumulating and then assigning costs	C	assigning and then accumulating costs
B	accumulating costs	D	assigning costs

**Answer: A**

**10. Which of the following factors affect the direct/indirect classification of a cost?**

A	the level of budgeted profit for the next year	C	the ability to execute an order in the most cost-efficient manner
B	the estimation of time required to complete the order	D	the design of the operation

**Answer: D**

**11. Charging output with overhead at reasonable rate is called .....**

A	allocation	C	apportionment
B	appropriation	D	absorption

**Answer: Option C**

**Answer:** Charging output with overhead at reasonable rate is called apportionment. Distribution of an overhead cost to several departments or cost centers is known as apportionment of overheads.

**12. Actual loss is more than the predetermined normal loss; it is .....**

A	normal loss	C	seasonal loss
B	abnormal loss	D	standard loss

**Answer: Option B**

**Answer:** Actual loss is more than the predetermined normal loss; it is abnormal loss. Abnormal loss is the extra loss resulting when actual loss is greater than normal or expected loss, and it is given a cost. The abnormal loss is valued at some unit rate as 'good' units and do not affect the cost of good production. The cost is analysed separately in an abnormal loss account.

**13. Operating costing is a .....**

A	method of costing	C	norm of costing
B	technique of costing	D	procedure of costing

**Answer: Option A**

**Answer:** Operating costing is a method of costing. Operating costing is a process and technique of accumulating and ascertainment of cost for providing a standardized service to the public or to an undertaking.

**14. Which of the following statements is true of direct costs?**

A	A direct cost of one cost object is a true sense of the budgeted costs.	C	A direct cost of one cost object can be an indirect cost of another cost object.
B	All variable costs are direct costs.	D	All fixed costs are direct costs.

**Answer: C****15. Classification and accumulation of costs by fixed and variable costs is of special importance in .....**

A	process costing	C	operation costing
B	unit costing	D	operating costing

**Answer: Option D**

**Answer:** Classification and accumulation of costs by fixed and variable costs is of special importance in operating costing. Operating costing applies where standardized services are provided by an undertaking.

**16. Which of the following is an example of semi-variable cost?**

A	Office expenses	C	Telephone expenses
B	Salary	D	Tax

**Answer: Option C**

**Answer:** Telephone expenses is an example of semi-variable cost. A semi-variable cost, also known as a semi-fixed cost or a mixed cost, is a cost composed of a mixture of both fixed and variable components.

**17. Overhead cost is the total of .....**

A	all indirect costs	C	indirect and direct costs
B	all direct costs	D	all specific costs

**Answer: Option A**

**Answer:** Overhead cost is the total of all indirect costs. Overhead costs refer to those expenses associated with running a business that can't be linked to creating or producing a product or service.

**18. In goods transport service the cost unit is .....**

A	cost per ton	C	cost per ton kilo meters
B	cost per hour	D	cost per vehicle

**Answer: Option C**

**Answer:** In goods transport service the cost unit is cost per ton kilo meters.

**19. Recreation expenses in factory are apportioned on the basis of .....**

A	number of employees	C	material cost
B	prime cost	D	wages

**Answer: Option A**

**Answer:** Recreation expenses in factory are apportioned on the basis of number of employees. Canteen subsidy or expenses, pension, medical expenses, personnel department expenses, cost of recreational facilities. Expenses of wage department.

**20. Compared with financial accounting cost accounting is relatively .... development:**

A	earliest	C	old
B	recent	D	both A & C

**Answer: B. recent**

**21. Cost accounting started as a branch of:**

A	corporate accounting	C	financial accounting
B	accounting	D	Management accounting

**Answer: C. financial accounting**

**22. The vital importance that cost accounting has acquired in the modern age is because of the growth of .... in modern industry:**

A	technologies	C	complexities
B	creativity	D	simplicity

**Answer: C. complexities**

**23. In brief, .... is the activity of finding out the cost of products and services:**

A	Financial accounting	C	Corporate accounting
B	Management accounting	D	Cost accounting

**Answer: D. Cost accounting**

**24. Cost accounting provides .... cost information to various levels of Management for efficient performance of their functions:**

A	Minute	C	Detailed
B	Limited	D	both A & B

**Answer: C. Detailed**

**25. Modern management needs .... information than supplied by financial statements like profit and loss account and balance sheet:**

A	less detailed	C	limited amount of
B	much more detailed	D	much more restricted

**Answer: B. much more detailed**

**26. The information supplied by cost accounting acts as a tool of Management for making ....:**

A	minimum use of scarce resources	C	optimum use of scarce resources
B	maximum use of resources	D	all of the above

**Answer: C. optimum use of scarce resources**

**27. Cost accounting makes optimum use of scarce resources which ultimately add to the .... of business:**

A	loss	C	extinction
B	profitability	D	merger

**Answer: B. profitability**

**28. .... is the process of determining and accumulating the cost of product or activity:**

A	Cost accounting	C	Cost control
B	Financial accounting	D	Cost audit

**Answer: A. Cost accounting**

**29. .... involves the classifying recording and appropriate allocation of expenditure for the determination of cost of products or services:**

A	Pricing	C	Balancing
B	Costing	D	Cost Auditing

**Answer: B. Costing**

**30. Cost accounting is a quantitative method that accumulates, classifies, summarizes and interpret information for ....:**

A	Operational planning and control	C	Product decision
B	Special decision	D	All of the above

**Answer: D. All of the above**

**31. .... involves the process of finding out the causal factors of actual cost varying from the budgeted cost and fixation of responsibility for cost increases:**

A	Cost analysis	C	Cost book-keeping
B	Cost ascertainment	D	Cost system

**Answer: A. Cost analysis**

**32. .... is the objective of cost accounting:**

A	Controlling cost	C	Determining selling price
B	Ascertaining costing profit	D	All of the above

**Answer: D. All of the above**

**33. The term costing and cost accounting are many times used interchangeably but the scope of cost accounting is ....:**

A	limited as compared to costing	C	equal to costing
B	broader than that of costing	D	there is no relation between costing and cost accounting

**Answer: B. broader than that of costing**

**34. In currency to their charge two departments products and services:**

A	Cost comparison	C	Cost system
B	Cost bookkeeping	D	cost ascertainment

**Answer: B. Cost bookkeeping**

**35. Which of the following statement measures the financial position of the entity on particular time?**

A	Income Statement	C	Cash Flow Statement
B	Balance Sheet	D	Statement of Retained Earning

**Correct answer: (B) Balance Sheet**

**36. Which of the following is a characteristic of process cost accounting system?**

A	Material, Labor and Overheads are accumulated by orders	C	Opening and Closing stock of work in process are related in terms of completed units
B	Companies use this system if they process custom orders	D	Only Closing stock of work in process is restated in terms of completed units

**Correct answer: (C)**

**37. Opening and Closing stock of work in process are related in terms of completed units Fixed cost per unit decreases when .....**

A	Production volume increases.	C	Variable cost per unit decreases.
B	Production volume decreases.	D	Variable cost per unit increases.

**Correct answer: (A) Production volume increases.**

**38. Cost of production report is a .....**

A	Financial statement	C	Order Sheet
B	Production Process report	D	None of above

**Correct answer: (B) Production Process report**

**39. The differences between total revenues and total variable costs is known as .....**

A	Contribution margin	C	Operating income
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B	Gross margin	D	Fixed costs
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**Correct answer: (A) Contribution margin**

**40. .... refer to presentation of cost primarily used by the management at different levels:**

A	Cost ascertainment	C	Cost reports
B	Cost audit	D	Cost system

**Answer: C. Cost reports**

**41. Classification of cost is useful ....:**

A	to find gross profit	C	to identify costs
B	to find net profit	D	to identify efficiency

**Answer: Option C**

**Answer:** Classification of cost is useful to identify costs. All the costs of a business can be classified into production costs, administration costs, finance costs, selling costs, distribution costs, research and development costs.

**42. Direct cost incurred can be identified with ....:**

A	each department	C	each month
B	each unit of output	D	each executive

**Answer: Option B**

**Answer:** Direct cost incurred can be identified with each unit of output. Direct costs (such as for labor, material, fuel or power) vary with the rate of output but are uniform for each unit of production, and are usually under the control and responsibility of the department manager.

**43. Cost accounting was developed because of the ....:**

A	limitations of the financial accounting	C	limitations of the human resource accounting
B	limitations of the management accounting	D	limitations of the double entry accounting

**Answer: Option A**

**Answer:** Cost accounting was developed because of the limitations of the financial accounting. The limitations of financial statements are those factors that a user should be aware of before relying on them to an excessive extent. The following

are all limitations of financial statements: Dependence on historical costs. Transactions are initially recorded at their cost.

**44. Cost of sales plus profit is ....:**

A	selling price	C	value of goods produced
B	value of finished product	D	value of stocks

**Answer: Option A**

**Answer:** Cost of sales plus profit is selling price.

**45. Costing refers to the techniques and processes of ....:**

A	ascertainment of costs	C	apportion of costs
B	allocation of costs	D	distribution of costs

**Answer: Option A**

**Answer:** Costing refers to the techniques and processes of ascertainment of costs. Costing is any system for assigning costs to an element of a business.

**46. Prime cost includes ....:**

A	direct materials, direct wages and indirect expenses	C	direct materials, direct wages and direct expenses
B	indirect materials and indirect labour and indirect expenses	D	direct materials, indirect wages and indirect expenses

**Answer: Option C**

**Answer:** Prime cost includes direct materials, direct wages and direct expenses. Prime costs are a firm's expenses directly related to the materials and labor used in production. It refers to a manufactured product's costs, which are calculated to ensure the best profit margin for a company.

**47. Prime cost plus variable overheads is known as.....:**

A	Cost of sales	C	Total Cost
B	Production Cost	D	Marginal cost

**Answer: Option D**

**Answer:** Prime cost plus variable overheads is known as Marginal cost. Marginal cost is the change in the total cost that arises when the quantity produced is incremented by one unit; that is, it is the cost of producing one more unit of a good.

**48. Depreciation of plant and machinery is a part of ....:**

<b>A</b>	factory overhead	<b>C</b>	distribution overhead
<b>B</b>	selling overhead	<b>D</b>	administration overhead

**Answer: Option A**

**Answer:** Depreciation of plant and machinery is a part of factory overhead. Factory overhead is the costs incurred during the manufacturing process, not including the costs of direct labor and direct materials. Factory overhead is normally aggregated into cost pools and allocated to units produced during the period.

**49. Factory overhead can be charged on the basis of ....:**

<b>A</b>	material cost	<b>C</b>	prime cost
<b>B</b>	labour cost	<b>D</b>	direct expenses

**Answer: Option A**

**Answer:** Factory overhead can be charged on the basis of material cost. Factory overhead is the costs incurred during the manufacturing process, not including the costs of direct labor and direct materials.

**50. Material is issued by store keeper against ....:**

<b>A</b>	material requisition	<b>C</b>	goods received note
<b>B</b>	material order	<b>D</b>	purchase requisition

**Answer: Option A**

**51. EOQ stands for ....:**

<b>A</b>	Economic Order Quantity	<b>C</b>	Economic Output Quantity
<b>B</b>	Essential Order Quantity	<b>D</b>	Essential Output Quantity

**Answer: Option A**

**Answer:** Economic order quantity (EOQ) is the ideal order quantity a company should purchase for its inventory given a set cost of production, a certain demand rate, and other variables.

**52. Labour turnover is ....:**

<b>A</b>	productivity of labour	<b>C</b>	change in labour force
<b>B</b>	efficiency of the labour	<b>D</b>	total cost of the labour

**Answer: Option C**

**Answer:** Labour turnover is change in labour force. Labour turnover may be defined as the number of workers replaced

during a given period relative to the average labour force during the period. It is the number of workers who left the job during a period relative to the average labour force during the period.

**53. A typical factory overhead cost is .....**

Audit	C	Design distribution
Compensation of plant manager	D	Internal

**Correct answer: (B) Compensation of plant manager**

**54. Idle time is .....**

time spent by workers in factory	C	time spent by workers off their work
time spent by workers in office	D	time spent by workers on their job

**Answer: Option C**

**Answer:** Idle time is time spent by workers off their work. Idle time is unproductive time on the part of employees or machines caused by management or as a result of factors beyond their control. Idle time is the time associated with waiting, or when a piece of machinery is not being used but could be.

**55. The components of the prime cost are:**

Direct Material + Direct Labor + Other Direct Cost	C	Direct Labor + FOH
Direct Labor + Other Direct Cost + FOH	D	None of the given options

**Correct answer: (A) Direct Material + Direct Labor + Other Direct Cost**

**56. Prime cost + Factory overhead cost is .....**

Conversion cost.	C	Total cost.
Production cost.	D	None of given option.

**Correct answer: (B) Production cost.**

**57. Office and administrative expenses can be charged on the basis of .....**

material cost	C	prime cost
labour cost	D	factory cost

**Answer: Option C**

**Answer:** Office and administrative expenses can be charged on the basis of prime cost. Administrative expenses are the expenses that an organization incurs not directly tied to a specific function such as manufacturing, production or sales.

**58. Sale of defectives is reduced from .....**

A	prime cost	C	cost of production
B	works cost	D	cost of sales

**Answer: Option C**

**Answer:** Sale of defectives is reduced from cost of production. The sale value of scrap may be deducted from the cost of materials consumed or factory overhead.

**59. Wages paid to a labour who was engaged in production activities can be termed as .....**

A	direct cost	C	sunk cost
B	indirect cost	D	imputed cost

**Answer: Option A**

**Answer:** Wages paid to a labour who was engaged in production activities can be termed as direct cost. A direct cost is a price that can be completely attributed to the production of specific goods or services.

**60. Direct material is a .....**

A	fixed cost	C	semi variable cost
B	variable cost	D	semi fixed cost

**Answer: Option B**

**Answer:** Direct material is a variable cost. Direct material cost is the cost of the raw materials and components used to create a product.

**61. Material requisition is meant for .....**

A	purchase of material	C	sale of material
B	supply of material from stores	D	storage of material

**Answer: Option B**

**Answer:** Material requisition is meant for supply of material from stores. A materials requisition form is a source document that the production department uses to request materials for manufacturing process. The production manager usually fills out

the materials requisition form and delivers it to the materials or storage department where all of the raw materials are stored.

**62. The most important element of cost in manufacturing industries is ....:**

A	material	C	direct costs
B	labour	D	indirect costs

**Answer: Option A**

**Answer:** The most important element of cost in manufacturing industries is material. Material is the first and most important element of cost. In most of the manufacturing organisations, materials form the single largest component of cost.

**63. .... is the value of economic resources used as a result of producing or doing the thing costed:**

A	Cost	C	Labour
B	Inventory	D	overhead

**Answer: Option A**

**Answer:** Cost is the value of economic resources used as a result of producing or doing the thing costed. Cost is ascertained by cost centers or cost units or by both.

**64. A company that employs variable costing is MOST likely to find ....:**

A	as sales and demand go down, variable costs decrease	C	as sales and demand go down, variable costs increase
B	as sales and demand go down, most staff find part-time jobs	D	as sales and demand go down, open hours are reduced

**65. Direct materials, direct labour, and direct overhead are basic elements of ....:**

A	depreciation	C	financial accounting
B	managerial accounting	D	cost accounting

**66. All of these statements are true Except:**

A	The two categories of relevant costs are fixed costs and variable costs.	C	Fixed costs are never made up from the sale of any one unit.
B	A special order is anything that deviates from a standard	D	An item should always be priced

	order, whether in timing, attribute, or cost.		<b>below the variable cost per unit.</b>
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**67. Basic objective of cost accounting is .....**

A	profit analysis.	C	financial audit.
B	<b>cost ascertainment.</b>	D	tax compliance.

**68. Audit fess is a part of .....**

A	administration overhead	C	selling overhead
B	distribution overhead	D	works on cost

**Answer: Option A**

**Answer:** Audit fess is a part of administration overhead. Administrative overhead is those costs not involved in the development or production of goods or services. This is essentially all overhead that is not included in manufacturing overhead.

**69. Cost accounting concepts include all the following except .....**

A	planning	C	<b>profit sharing</b>
B	product costing	D	controlling

**Answer: Option C**

**Answer:** Cost accounting concepts include all the following except profit sharing. Cost accounting is an accounting method that aims to capture a company's costs of production by assessing the input costs of each step of production as well as fixed costs, such as depreciation of capital equipment.

**70. Cost unit of a sugar industry can be .....**

A	per litre	C	per metre
B	per tonne	D	per acre

**Answer: Option B**

**Answer:** Cost unit of a sugar industry can be per tonne. A cost unit refers to the unit of quantity of product, service or time (or combination of these) in relation to which costs may be ascertained or expressed.

**71. Warehouse rent is a part of .....**

A	production cost	C	<b>distribution cost</b>
B	factory cost	D	prime cost

**Answer: Option C**

**Answer:** Warehouse rent is a part of distribution cost. Distribution costs (also known as “Distribution Expenses”) are usually defined as the costs incurred to deliver the product from the production unit to the end user. It is a broad terminology and it includes several costs.

**72. The ascertainment of costs after they have been incurred is known as .....**

A	notional cost	C	sunk cost
B	marginal costing	D	historical costing

**Answer: Option D**

**Answer:** The ascertainment of costs after they have been incurred is known as historical costing. In this type of costing system, the costs are ascertained only after they have been incurred.

**73. Indirect material scrap is adjusted along with .....**

A	labour cost	C	factory cost
B	cost of goods sold	D	prime cost

**Answer: Option C**

**Answer:** Indirect material scrap is adjusted along with factory cost. Factory cost refers to the total cost required to manufacture goods. This concept is the basis for several cost accounting analyses.

**74. Over time is .....**

A	actual hours being more than standard time	C	actual hours being more than normal time
B	actual hours being less than standard time	D	standard hours being more than actual hours

**Answer: Option C**

**Answer:** Over time is actual hours being more than normal time. Overtime is the amount of time someone works beyond normal working hours.

**75. Total of all direct costs is termed as .....**

A	cost of production	C	cost of sales
B	prime cost	D	works cost

**Answer: Option B**

**Answer:** Total of all direct costs is termed as prime cost. A prime cost is the total direct costs, which may be fixed or variable, of manufacturing an item for sale.

**76. Direct expenses are also called ....:**

A	overhead expenses	C	sundry expenses
B	chargeable expenses	D	major expenses

**Answer: Option B**

**Answer:** Direct expenses are also called chargeable expenses. Chargeable expenses are any costs that your agency or client has agreed to reimburse to you. These will usually be invoiced through the umbrella company and may well require an expense form, signed by the client, to support the claim.

**77. Labour cost is the second element of ....:**

A	cost	C	sales
B	task	D	profit

**Answer: Option A**

**Answer:** Labour cost is the second element of cost. Labor cost covers one of the major portion of the total cost of a product or job.

**78. Indirect material used in production is classified as ....:**

A	factory overhead	C	selling overhead
B	distribution overhead	D	office overhead

**Answer: Option A**

**Answer:** Indirect material used in production is classified as factory overhead. Indirect materials are materials used in the production process but are not directly traceable to the product.

**79. Cost classification can be done in ....:**

A	four ways	C	two ways
B	three ways	D	several ways

**Answer: Option D**

**Answer:** Cost classification can be done in several ways. Cost classification in economics might involve categories of fixed, variable, opportunity, production and sunk costs. On the other hand, accounting costs can be classified as either direct or indirect for a business.

**80. The loss which arise in manufacturing activity on account of inherent nature of the product is ....:**

A	gross loss	C	abnormal loss
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B	normal loss	D	net loss
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**Answer: Option B**

**Answer:** The loss which arise in manufacturing activity on account of inherent nature of the product is normal loss. Normal loss means that loss which is inherent in the processing operations. It can be expected or anticipated in advance i.e. at the time of estimation.

**81. The cost which is to be incurred even when a business unit is closed is a .....**

A	shutdown cost	C	historical cost
B	sunk cost	D	imputed cost

**Answer: Option A**

**Answer:** The cost which is to be incurred even when a business unit is closed is a shutdown cost. The shutdown price is the minimum price a business needs to justify remaining in the market in the short run.

**82. .... is a resource sacrificed or forgone to achieve a specific objective:**

A	Cost	C	revenue
B	Expense	D	None of the above

**83. .... is the cost incurred:**

A	Fixed cost	C	variable cost
B	Historical cost	D	None of the above

**84. .... is a predicted or forecasted cost:**

A	Fixed cost	C	budgeted cost
B	Historical cost	D	None of the above

**85. .... changes in total in proportion to changes in the related level of total activity or volume:**

A	cost tracing	C	Fixed cost
B	Variable cost	D	None of the above

**86. Classifying a cost as either direct or indirect depends upon .....**

A	the behavior of the cost in response to volume changes	C	whether the cost can be easily traced with the cost object
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<b>B</b>	whether the cost is expensed in the period in which it is incurred	<b>D</b>	whether a cost is fixed or variable
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**Answer: C****87. Which of the following is true of indirect costs?**

<b>A</b>	Indirect costs are always considered sunk costs.	<b>C</b>	Indirect costs always vary in direct proportion to the level of production.
<b>B</b>	All indirect costs are included in cost of goods sold.	<b>D</b>	Indirect costs cannot be traced to a particular cost object in an economically feasible way.

**Answer: D****88. Which of the following is a fixed cost?**

<b>A</b>	monthly rent payment	<b>C</b>	travel expenses
<b>B</b>	electricity expenses	<b>D</b>	direct material costs

**Answer: A****89. Cost behavior refers to .....**

<b>A</b>	how costs react to a change in the level of activity	<b>C</b>	classifying costs as either perpetual or period costs
<b>B</b>	whether a cost is incurred in a manufacturing, merchandising, or service company	<b>D</b>	whether a particular expense is expensed in the same or the following period

**Answer: A****90. Variable costs .....**

<b>A</b>	are always indirect costs	<b>C</b>	include most personnel costs and depreciation on machinery
<b>B</b>	increase in total when the actual level of activity increases	<b>D</b>	are never considered a part of prime cost

**Answer: B****91. Which of the following is a fixed cost for an automobile manufacturing plant?**

A	administrative salaries	C	sales commissions
B	electricity used by assembly-line machines	D	tires

**Answer: A****92. Within the relevant range, if there is a change in the level of the cost driver, then .....**

A	total fixed costs and total variable costs will change	C	total fixed costs will remain the same and total variable costs will change
B	total fixed costs and total variable costs will remain the same	D	total fixed costs will change and total variable costs will remain the same

**Answer: C****93. Which of the following statements about the direct/indirect cost classification is true?**

A	Indirect costs are always traced.	C	The design of sales target affects the direct/indirect classification.
B	Indirect costs are always allocated.	D	The direct/indirect classification depends on the cost control measures.

**Answer: B****94. Cost allocation is .....**

A	the process of tracking both direct and indirect costs associated with a cost object	C	the assignment of indirect costs to the chosen cost object
B	the process of determining the opportunity cost of a cost object chosen	D	made based on material acquisition document

**Answer: C****95. Conversion cost includes cost of converting..... Into .....**

A	Finished goods, Saleable goods	C	WIP, Finished goods
B	Raw material, Finished goods	D	Raw material, WIP

**Answer: D**

**96. Fixed cost is a cost:**

<b>A</b>	Which changes in total in proportion to changes in output	<b>C</b>	Which do not change in total during a given period despite changes in output
<b>B</b>	which is partly fixed and partly variable in relation to output	<b>D</b>	which remains same for each unit of output

**97. Which of these is not an objective of Cost Accounting?**

<b>A</b>	Assisting Shareholders in decision making	<b>C</b>	Cost Control and Cost reduction
<b>B</b>	Determination of Selling Price	<b>D</b>	Ascertainment of Cost

**98. Sunk costs are:**

<b>A</b>	Not relevant for decision making	<b>C</b>	relevant for decision making
<b>B</b>	future costs	<b>D</b>	cost to be incurred in future

**99. Element/s of Cost of a product are:**

<b>A</b>	Expenses only	<b>C</b>	Labour only
<b>B</b>	Material, Labour and expenses	<b>D</b>	Material only

**100. Abnormal cost is the cost:**

<b>A</b>	Cost which is included in the cost of the product	<b>C</b>	Cost which is charged to customer
<b>B</b>	Cost not normally incurred at a given level of output	<b>D</b>	Cost normally incurred at a given level of output

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مختصر السيرة الذاتية للأستاذ  
الدكتور

أشرف محمد إبراهيم منصور

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## **CHAPTER TWO**

# **AN INTRODUCTION TO COST CONCEPTS, CLASSIFICATIONS, PURPOSES, AND BEHAVIOR PATTERNS**

### **Introduction**

Cost accounting is a discipline that furnishes comprehensive cost data necessary for managerial control over present operations and strategic planning for the future. The concept of cost pertains to the financial quantification of the resources expended in order to achieve a certain purpose, such as the production of a tangible product or the provision of an intangible service.

However, it is important to establish a more precise definition of the term "cost" in order to accurately ascertain and convey "the cost" associated with a particular product or service. Therefore, it is common practice to include a descriptive adjective in order to precisely delineate the particular category of cost under examination.

The definition of cost, as commonly understood by accountants, is the allocation of resources that are either sacrificed or forgone to attain a certain purpose. Most individuals perceive costs as financial quantities, denominated in various currencies such as shillings, euros, pounds, or yen, which are necessary to be disbursed to get products and services. Currently, expenses may be conceptualized in a typical manner.

The term "actual cost" refers to the costs that have already been incurred, representing historical or past costs. This contrasts with "budgeted cost," which pertains to anticipated or expected expenses, representing future costs.

Cost accounting information systems are essential for all sorts of corporate organizations, including manufacturing, retailing, and service firms since they enable the tracking of their operations.

Manufacturers engage in the process of transforming acquired raw materials into finished products using labor, technology, and facilities. Merchandisers engage in the procurement of completed items with the intention of afterwards reselling them.

There are two primary types of entities involved in the distribution of commodities: retailers and

wholesalers. Retailers are responsible for selling items directly to individual consumers for their own use. On the other hand, wholesalers engage in the procurement of goods from producers and afterwards sell them to retailers.

Service firms that operate for profit mostly offer services instead of tangible things. Nonprofit service agencies offer services to users for minimal or zero cost.

Manufacturers must build their accounting information systems in a manner that facilitates the accumulation of comprehensive cost data pertaining to the production process, due to the inherent characteristics of the manufacturing process. In contemporary times, it is customary for manufacturers of varying scales to possess cost accounting systems that meticulously monitor the expenses associated with the production and distribution of their assorted range of products. The work primarily focuses on cost accounting concepts and processes in relation to manufacturers; however, it is important to note that many of these ideas also have relevance and applicability to merchandising and service firms.

The manufacturing process entails the transformation of raw materials into final products using labor and a range of factory resources. To ensure operational efficiency and meet production demands, a company is required to undertake a substantial capital expenditure on tangible assets. In order to make final products, a manufacturer is required to procure suitable amounts of raw materials and supplies, as well as establish a labor. Apart from the expenditures associated with materials and labor, the producer also bears additional costs during the production process.

This chapter elucidates many prevalent cost ideas, terminology, and behavioral patterns that have utility across multiple corporate contexts. This will aid in illustrating the diverse objectives of cost accounting systems.

So, this chapter is divided into:

- (2-1) Cost Concepts, Classifications, and their Purposes.
- (2-2) Cost Behavior Patterns.
- (2-3) Elements of Manufacturing Costs (Product Costs).
- (2-4) Production and Cost Flow Cycle.

## **(2-1) Cost Concepts, Classifications, and their Purposes**

A single cost can be categorized and utilized in different ways, depending on the purpose of the analysis.

**Table (2-1): Summary of Cost Classifications**

<b>Purpose of Cost Classification</b>	<b>Cost Classifications</b>
Based on cost objects	<ul style="list-style-type: none"><li>• Direct cost (can be easily traced)</li><li>• Indirect cost (cannot be easily traced)</li></ul>
Based on costs in manufacturing companies	<ul style="list-style-type: none"><li>• Manufacturing costs<ul style="list-style-type: none"><li>• Direct materials</li><li>• Direct labor</li><li>• Manufacturing overhead</li></ul></li><li>• Nonmanufacturing costs<ul style="list-style-type: none"><li>• Selling costs</li><li>• Administrative costs</li></ul></li></ul>
Based on value-adding versus non-value-adding costs	<ul style="list-style-type: none"><li>• Non-value adding costs</li><li>• Value adding costs</li></ul>
Based on preparation of the financial statements	<ul style="list-style-type: none"><li>• Product costs (inventoriable)</li><li>• Period costs (expensed)</li></ul>
Based on making decisions	<ul style="list-style-type: none"><li>• Differential cost (differs between alternatives)</li><li>• Sunk cost (should be ignored)</li><li>• Opportunity cost (foregone benefit)</li></ul>
Based on cost behavior patterns	<ul style="list-style-type: none"><li>• Variable cost (proportional to activity)</li><li>• Fixed cost (constant in total)</li><li>• Step cost</li><li>• Mixed cost (has variable and fixed elements)</li></ul>

These categories help managers in doing the following actions:

**(2-1-1) Classification of Costs Based on Cost Objects (Cost Traceability):**

One significant inquiry pertaining to costs revolves around the nature of their relationship, whether it is direct or indirect, with a certain cost object.

Managers allocate costs to specific cost objects, such as products or services, sales regions, divisions, or operating activities, in order to provide a reasonably precise measurement of costs. One effective strategy for managing costs is to identify those that can be directly attributed to a specific cost item, such as a service or product.

A cost object is a defined activity or entity that necessitates the distinct measurement of costs. In essence, when persons who require accounting information aim to determine the costs related to a certain something, this something is sometimes referred to as a cost object. Cost objects contain a wide range of things for which there is a need to quantify the

costs of resources. These factors may encompass the cost of a product, the expenses associated with delivering services to clients of a financial institution or medical facility, the expenditures related to overseeing a certain department or sales area, or any other elements for which the assessment of resource allocation costs is desired.

A cost object refers to any entity for which there is a need to get cost data, such as goods, consumers, and organizational subunits. In order to allocate expenses to specific cost objects, costs are categorized as either direct or indirect.

**A)** **Direct costs** are costs that may be readily, efficiently, and cost-effectively allocated to a specific cost object. To clarify, direct costs refer to costs that are specifically associated with a certain cost object and may be reasonably allocated to it in a manner that is economically viable.

In order for any cost elements to be considered directly connected to a product, they must meet four specific conditions:

1. Physical tracing refers to the type of tracing that is perceptible to the senses of sight and touch.
2. Causality is a fundamental principle in production, stating that the absence of the cost element renders the production of the final product impossible.
3. The value of the cost factor may be readily determined by calculations.
4. Materiality refers to the extent to which a cost element holds substantial worth in relation to the final product.

**B) Indirect costs** refer to costs that are not readily, conveniently, and economically identifiable with a particular cost object. To clarify, indirect costs pertaining to a cost object are costs that are associated with the specific cost object but cannot be directly allocated to it in a manner that is economically viable. The allocation of indirect costs to the cost object is accomplished via the use of a cost-allocation methodology.

In order for a cost to be allocated to a specific cost object, such as a particular product, it is necessary for the cost to be directly attributable to the activities or

resources associated with the cost object. The salary received by the factory manager is referred to as a **common cost** in the production of a diverse range of products inside the factory. A **common cost** refers to an expenditure that is allocated to provide assistance to several cost objects, however, cannot be specifically traced to any one of them. A **common cost** is categorized as an indirect cost.

**Cost tracing** involves the allocation of direct costs to a specific cost object. **Cost allocation** refers to the process of attributing indirect costs to a certain cost object. The concept of **cost assignment** comprises two distinct processes, namely cost tracing and cost allocation.

Hence, **cost accumulation** refers to the systematic gathering of cost data inside an accounting framework. **Cost assignment** is a comprehensive concept that contains two main components: (1) the process of tracing collected costs to a specific cost object, and (2) the process of allocating accumulated costs to a particular cost object.

Direct costs are costs that can be directly attributed to a specific cost object, whereas indirect costs are expenses that are allocated to a cost object.

**(2-1-2) Classification of Costs Based on Costs in  
Manufacturing Companies:**

Manufacturing enterprises often classify their costs into two major classifications: manufacturing costs and non-manufacturing costs.

The classification of costs may be achieved by establishing a connection between cost elements and the functions performed within the organization. The primary aim of this classification is to differentiate costs into two categories: productive costs and non-productive costs.

**Manufacturing Costs {Production,  
Product, or Inventorial cost}**

are costs incurred inside the factory as a result of converting raw materials into the final product.

**Non-Manufacturing Costs {Non-  
production, Operating, Selling and  
Administration, or Period cost}**

are costs incurred from the point of receiving until selling the final product and incurred in order to implement the company's policies and procedures.

### **A) Manufacturing Costs**

Many manufacturing organizations commonly divide their production costs into two primary direct cost categories: direct materials and direct labor. Additionally, they allocate a third category, known as manufacturing overhead, to encompass indirect costs. The subsequent discourse pertains to an examination of the aforementioned three categories as follows:

**1- Direct Materials** referred to the components utilized in the production of the final product are referred to as raw materials. In fact, the term "raw materials" encompasses all resources utilized in the production of a final product. Furthermore, it is worth noting that the finished product of one firm has the potential to serve as the raw materials for another company. ***Direct materials*** are defined as the raw materials that are incorporated into the final product and can be easily identified and allocated to the cost of the finished product.

**2- Direct labor** encompasses the costs incurred from labor that can be readily attributed to specific units of a product. Direct labor is sometimes referred to

as touch labor due to the fact that direct labor employees are frequently involved in physically handling the product throughout the manufacturing process.

Managers intermittently designate the two primary kinds of direct production costs as prime costs. **Prime costs** refer to the fundamental costs incurred during the manufacturing process, encompassing both the direct costs of materials and the direct costs of labor.

**3- Manufacturing overhead**, encompasses all costs associated with production, excluding direct inputs and direct labor. An illustration of this concept pertains to the inclusion of indirect materials, along with indirect labor, under the manufacturing overhead category.

**a- Indirect materials** refer to raw material resources whose costs are not readily or conveniently attributable to the production of the final products.

**b- Indirect labor** encompasses costs that are not readily or conveniently attributable to individual units of a product.

c- **Other indirect costs** that are not easily attributable to finished goods include the depreciation of manufacturing equipment, electricity costs, property taxes, and insurance premiums that are necessary for the operation of a manufacturing factory.

Manufacturing overhead encompasses just the indirect costs that are linked to the operation of the production. In practical application, managers employ many terminologies to refer to manufacturing overhead, including but not limited to indirect manufacturing cost, factory overhead, and factory burden.

The term "***conversion cost***" pertains to the aggregate of direct labor and manufacturing overhead. The concept of conversion cost pertains to the combination of direct labor and manufacturing overhead since these costs are accrued in the process of transforming raw materials into finalized goods.

**B) Non-manufacturing Costs**

Non-manufacturing costs are commonly classified into two distinct groups, namely selling costs and administrative costs.

- 1) **Selling costs** encompass any costs associated with obtaining client orders and delivering the final product to the consumer. These costs are occasionally referred to as order acquisition and order fulfillment charges. Selling expenses encompass various expenditures such as advertising, shipping, sales travel, sales commissions, sales wages, and costs associated with maintaining completed product warehouses. Selling expenses may be classified into two categories: direct costs and indirect costs.
- 2) **Administrative costs** encompass all expenditures related to the overall management of an organization, as opposed to those linked with the production or sale of goods or services, such as executive remuneration, general accounting, secretarial services, public relations, and similar operational expenses.

**(2-1-3) Classification of Costs Based on Value-  
Adding Versus Non-Value-Adding Costs:**

Costs made to enhance the quality of a product can be classified as value-adding costs if the consumer demonstrates a willingness to pay a premium for the improved product or service. Conversely, if these costs fail to augment the market worth of the product, then are deemed nonvalue-adding costs.

- A) Value-adding cost** refers to the costs associated with an activity that enhances the market value of a certain product or service.
- B) Non-value-adding cost** refers to the costs incurred in an activity that contributes to the overall cost of a product or service without enhancing its market worth.

**(2-1-4) Classification of Costs Based on Financial  
Reporting and the Preparation of the  
Financial Statements:**

In order to facilitate the creation of financial statements, namely a balance sheet, and an income statement, managers engage in the categorization of

costs into two distinct classifications: product costs and period costs.

**A) Product Costs**, also known as ***inventoriable costs***, encompass all costs associated with the acquisition or production of a product. These costs are allocated to inventory and comprise direct materials, direct labor, and overhead. The income statement reflects product costs in the form of the cost of goods sold, whereas the balance sheet presents them as inventory. Product costs are sometimes referred to as inventoriable costs due to their initial assignment to inventories.

**B) Period Costs** also known as ***non-inventoriable costs***, encompass all costs that are not classified as product costs. These costs pertain to the resources utilized within a certain accounting period but are not allocated to specific products. Operating costs are included in the income statement. In accordance with accounting principles, all expenses related to selling and administrative activities are classified as period costs. Period costs include various expenses such as sales commissions, advertising

expenditures, executive salaries, public relations charges, and rental expenses associated with administrative offices.

### **(2-1-5) Classification of Costs based on Decision Making:**

The process of decision-making entails the selection of one option from a set of possibilities. In order to make informed decisions, it is important to take into account relevant expenses (and benefits) while disregarding irrelevant costs (and benefits). In a more precise manner, it is crucial to comprehend the concepts of differential cost and revenue, sunk cost, and opportunity cost.

#### **A) Differential Cost and Revenue**

1) **Differential costs**, also known as future costs, are a type of relevant costs that vary between two choices. A differential cost, sometimes referred to as an ***incremental cost***, is a term used in academic literature to describe the additional costs incurred while making a certain decision or doing a particular course of action. In a technical

sense, it is important to note that the term "**incremental cost**" should specifically denote a rise in cost when comparing two alternatives, whereas a drop in cost should be referred to as "**decremental cost**." The concept of differential cost is a more comprehensive word that encompasses both incremental costs (cost rises) and decremental costs (cost decreases) when comparing different alternatives.

- 2) **Differential revenue** refers to the prospective revenue that exhibits variation between two different options. Differential revenue might be seen as an illustrative instance of a relevant benefit. Any future cost or benefit that exhibits no variation across the options is deemed irrelevant and should be disregarded.

### **B) Sunk Cost and Opportunity Cost**

- 1) **A sunk cost** refers to a cost that has already been expended and is not subject to alteration by any present or future action. Sunk costs, by virtue of their unalterable nature, do not qualify as differentiated costs. In decision-making

processes, it is important to consider just the differential costs as they have relevance. Consequently, it is crucial to disregard sunk costs.

2) **Opportunity cost** refers to the potential benefit that is foregone when an individual chooses one alternative over another.

#### **(2-1-6) Classification of Costs based on Cost Behavior:**

Managers frequently exhibit interest in the manner in which costs react to variations in volume or activity. Through the analysis of both variable and fixed patterns of behavior, individuals are able to acquire valuable knowledge that can be utilized to enhance their decision-making processes in the realm of management.

Cost behavior pertains to the manner in which a cost responds to variations in the degree of activity. As the degree of activity fluctuates, there is a corresponding fluctuation in a certain cost, which may either increase or decrease, or alternatively, remain constant.

In order to effectively strategize, a manager must possess the ability to forecast potential occurrences and accurately predict the extent of cost fluctuations, if any. In order to facilitate the differentiation, costs are frequently classified into three categories: variable, fixed, or mixed. The cost structure of an organization refers to the relative distribution of different types of costs within the organization.

**A) Variable Cost** refers to a cost that exhibits a direct correlation with variations in productive output or other measures of volume. The total amount of a variable cost is directly proportional to variations in the degree of activity.

Hence, variable costs are costs that exhibit a proportional relationship with variations in activity, resulting in a corresponding alteration in their overall amount. While the overall variable costs fluctuate in response to changes in activity levels, the per-unit variable costs stay consistent.

Typical instances of variable costs encompass the cost of goods sold for a merchandising enterprise, direct materials, and direct labor, as well

as the variable components of manufacturing overhead, such as indirect materials, supplies, and power. Additionally, variable components of selling and administrative expenditures, such as commissions and shipping costs, are also considered as examples of variable costs.

The concept of an ***activity base*** refers to a metric that determines the factors contributing to the occurrence of a variable cost. The term "***activity base***" is occasionally used interchangeably with the concept of a "***cost driver***." The activity bases often utilized in various industries are direct labor hours, machine hours, units produced, and units sold.

**B) Fixed Cost** are costs that do not vary within a specified range of activity or time period. A fixed cost is a cost that stays consistent, without variation, irrespective of alterations in the volume of activities.

Hence, fixed costs exhibit a constant total value irrespective of variations in activity levels. On a per-unit basis, fixed costs exhibit a decreasing trend when activity levels grow due to the phenomenon

of cost spreading, wherein fixed costs are distributed over a larger number of units.

Typically, manufacturing overhead encompasses a range of fixed costs, including depreciation, insurance, property taxes, rent, and supervisory wages. In a similar vein, it is common for selling and administration costs to encompass fixed costs such as pay for administrative personnel, advertising expenditures, and the depreciation of assets not directly related to production. In contrast to variable costs, fixed costs remain unaffected by fluctuations in activity levels.

In the context of planning, fixed expenses may be categorized into two distinct types: committed costs and discretionary costs.

1) **Committed fixed costs** pertain to long-term investments made by organizations, which cannot be substantially lowered for brief durations without implementing major alterations. These costs are characterized by their inflexibility since managers frequently encounter

constraints in altering their expenditure levels owing to contractual obligations.

2) **Discretionary fixed costs**, also known as ***managed fixed costs***, often originate from annual managerial choices to allocate funds towards certain fixed cost components. Managers have the authority to exercise discretion in determining the degree of expenditure associated with these expenditures.

Discretionary fixed costs encompass various expenditures such as advertising, research, public relations, management development programs, and internships for students.

Short-term reductions in discretionary fixed costs can be implemented without significantly compromising the long-term objectives of the organization.

C) **Step costs** are characterized by being fixed within a certain range of operations but experience a sudden spike when a capacity limit is reached. The classification of step costs as either step-variable or

step-fixed costs is contingent upon the width of the steps.

- 1) **Step-variable costs** have the characteristic of being relatively constant within a certain range of activity, but experience increases in a discontinuous manner when activity levels extend across the relevant range.
- 2) **Step-fixed costs** exhibit a fixed nature throughout a far broader spectrum of activity compared to step-variable costs.

D) **Mixed costs**, sometimes referred to as semi-variable costs, encompass both a fixed component and a variable component.

- 1) **The fixed component** denotes the fundamental quantity that will be accrued irrespective of the level of activity.
- 2) **The variable component** refers to the monetary value that is subject to alteration in response to variations in activity levels or consumption.

**Example (2-1):**

A company has reported the following costs and expenses for the most recent month:

Direct materials .....	\$69,000
Direct labor .....	\$35,000
Variable manufacturing overhead.....	\$15,000
Fixed manufacturing overhead .....	<u>28,000</u>
Total manufacturing overhead .....	\$43,000
Variable selling expense .....	\$12,000
Fixed selling expense .....	<u>18,000</u>
Total selling expense .....	\$30,000
Variable administrative expense .....	\$4,000
Fixed administrative expense .....	<u>25,000</u>
Total administrative expense .....	\$29,000

**Required:** Compute the following costs;

- 1) Product cost.
- 2) Period cost.
- 3) Conversion cost.
- 4) Prime cost.
- 5) Variable manufacturing cost.
- 6) Total fixed cost.

**Solution**

- 1) Product cost = Direct materials + Direct labor +  
Manufacturing overhead  
$$= \$69,000 + \$35,000 + \$43,000 = \$147,000$$
- 2) Period cost = Selling expense + Administrative expense  
$$= \$30,000 + \$29,000 = \$59,000$$
- 3) Conversion cost = Direct labor + Manufacturing overhead  
$$= \$35,000 + \$43,000 = \$78,000$$
- 4) Prime cost = Direct materials + Direct labor  
$$= \$69,000 + \$35,000 = \$104,000$$
- 5) Variable manufacturing cost = Direct materials + Direct labor + Variable manufacturing overhead  
$$= \$69,000 + \$35,000 + \$15,000$$
$$= \$119,000$$
- 6) Total fixed cost = Fixed manufacturing + Fixed selling overhead expense + Fixed administrative overhead expense  
$$= \$28,000 + \$18,000 + \$25,000$$
$$= \$71,000$$

## **(2-2) Cost Behavior Patterns:**

**Cost behavior** pertains to the manner in which the overall cost fluctuates or alters in response to variations in a specific measure of activity. Several commonly used activity measurements include the quantification of units produced, consumers served, direct labor hours, or machine hours.

Management accounting systems are designed to record the cost of resources obtained and monitor their future utilization. By doing a cost tracing analysis, managers may get insights into the behavioral patterns of costs.

In the field of management accounting, it is often accepted that costs exhibit a linear relationship with activity. This implies that the cost-activity relationship may be accurately represented by a straight line within a specific range of activity referred to as the ***relevant range***.

The ***relevant range*** refers to the range of activities where the assumption of linear cost behavior is realistically applicable. Cost behavior patterns, such as

those observed in paid employees, are sometimes referred to as step-variable costs in academic literature. Step-variable costs have the characteristic of being readily adaptable in response to changing situations. In actuality, the association between total cost and activity may not exhibit perfect linearity. The concept of the relevant range is equally applicable to fixed costs. The assertion that a cost is constant is valid only within a limited range of activities.

The ***relevant range*** refers to the range of the cost driver during which a certain correlation between cost and the degree of activity or volume remains applicable. A fixed cost exhibits a constant value solely within a specified range of the cost driver and a designated time frame, often including a specific budgetary period.

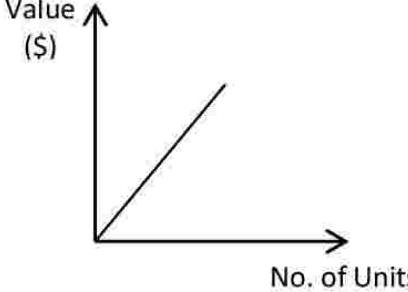
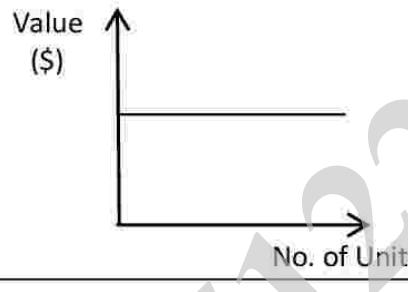
A ***cost driver***, sometimes referred to as ***a cost generator or cost determinant***, encompasses any element that has an impact on the total costs incurred. In other words, a variation in the magnitude of the cost driver will result in a corresponding variation in the magnitude of the total cost of a connected cost object.

In the short term, there are certain costs that remain constant and lack a visible cost driver. However, it is possible for these costs to possess a cost driver in the long run.

The fundamental categories of cost behavior patterns commonly observed in these systems are variable costs, fixed costs, step costs, and mixed costs, as previously mentioned.

Accounting systems commonly provide reports that include both total cost figures as well as cost per unit data. The determination of a ***unit cost***, sometimes referred to as an average cost, involves the division of a given total cost by the corresponding quantity of units.

**Table (2-2): Behavior of total costs and unit costs  
when the level of the cost driver changes.**

<b>Cost behavior pattern</b>	<b>Total costs</b>	<b>Unit costs</b>
When item is a <i>variable cost</i>  	Total costs change with changes in level of cost driver	Unit costs remain the same with changes in level of cost driver
<b>i.e.: <u>Any Direct Cost is VARIABLE COST</u></b>		
When item is a <i>fixed cost</i>  	Total costs remain the same with changes in level of cost driver	Unit costs change with changes in level of cost driver

### **(2-2-1) Major assumptions**

The definitions of variable costs and fixed costs are based on significant underlying assumptions:

- 1) Costs can be classified as either variable or fixed in relation to a certain cost object.
- 2) It is important to provide a certain time frame.
- 3) The total costs exhibit a linear relationship. When represented on standard graph paper, the connection between total variable cost or total

fixed cost and the cost driver will be depicted as a continuous linear function.

- 4) There exists a one-cost driver. The potential impacts of alternative cost drivers on the total costs are either maintained at a fixed level or considered to be negligible.
- 5) Variations in the level of the cost driver fall within a range that is considered relevant.

Variable costs and fixed costs are commonly identified as the predominant cost behavior patterns within contemporary management accounting systems.

#### **(2-2-2) Estimate Cost Behavior: Methods of Measuring Cost Functions**

Once the identification of the most credible factors influencing various costs has been established, managers are presented with a wide range of options for estimating cost functions. The aforementioned techniques encompass:

- 1) **Engineering analysis:** refers to the methodical examination of various components such as materials, supplies, labor, support services, and

facilities required for the development of goods and provision of services. It involves assessing cost behavior based on the expected costs rather than relying just on historical cost data.

- 2) **Account analysis:** is the process of categorizing individual accounts as either variable costs or fixed costs based on their relationship to a chosen cost driver.
- 3) **High-low method:** is a straightforward approach to determining a linear cost function based on historical cost data. It involves identifying the places of maximum and lowest activity and then constructing a line that passes through these two points.
- 4) **Visual-fit method** is a technique employed by cost analysts to visually determine the best-fitting straight line by seeing a plot of all the relevant data.
- 5) **Least-squares regression, often known as regression analysis,** is a statistical technique employed to objectively measure a cost function. This approach involves fitting a cost function to all available data using statistical methods.

### **The Linearity Assumption and the Relevant Range**

A ***mixed cost*** is characterized by the presence of both variable and fixed cost components. Mixed costs, sometimes referred to as semi-variable costs, encompass costs that consist of both fixed and variable components.

$$Y = a + bX$$

In this equation,

$Y$  = The total mixed cost.

$a$  = The total fixed cost.

$b$  = The unit variable cost.

$X$  = The level of activity.

### **Example (2-2):**

Marcos company incurs a cost that is of a mixed nature, referred to as fees paid to the state. The cost comprises an annual license charge of up to \$25,000, in addition to a payment of \$3 per rafting party, which is remitted to the Department of Natural Resources of the respective state. Assuming a hypothetical scenario, it is anticipated that the firm would undertake the organization of 800 rafting parties throughout the upcoming year. The calculation of the total state fees would be determined in the following manner:

$$Y = \$25,000 + (\$3.00 \text{ per rafting party} \times 800 \text{ rafting parties}) = \$27,400$$

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### **Using Hight-low Method**

The ***high-low approach*** is a straightforward technique for approximating the variable and fixed cost elements of a mixed cost. The high-low technique involves the fitting of a mixed cost line by using the data points with the highest and lowest volume.

#### **Example (2-3):**

The data for Katty company presented as follow:

<b><u>Month</u></b>	<b><u>Number of Customers Served (x)</u></b>	<b><u>Total Overhead Cost (y)</u></b>
January	9,000	\$15,000
February	15,000	15,750
March	12,500	16,000
April	6,000	12,500
May	5,000	13,250
June	10,000	13,000

The high-low technique employs the highest data point (February) and the lowest data point (May) to estimate both the variable cost per unit and the overall fixed cost. This perspective fails to acknowledge the existence of the remaining months.

The equation presented provides the variable cost per unit as a result of the computation:

$$\text{Variable Cost per Unit} = \frac{\text{Difference in Total Cost}}{\text{Difference in Activity}} = \frac{(Y_1 - Y_2)}{(X_1 - X_2)}$$

$$\text{Variable Cost per Unit} = \frac{(\$15,750 - \$13,250)}{(15,000 - 5,000)} = \frac{\$2,500}{10,000} = \\ \$0.25 \text{ per unit}$$

Subsequently, by substituting the variable cost data into the linear cost equation and reorganizing the equation to isolate the total fixed cost on the left side of the equation, the resulting expression is as follows:

$$y = a + b x$$

Initially, we will utilize the dataset from the month of February in order to ascertain the total fixed cost:

Total Overhead Cost (February) = Total Fixed Cost + Total Variable Cost (February)

$$\$15,750 = \text{Total Fixed Cost} + (\$0.25 \times 15,000)$$

$$\text{Total Fixed Cost} = \$15,750 - (\$0.25 \times 15,000)$$

$$\text{Total Fixed Cost} = \$12,000$$

The outcome is unchanged when May is employed instead:

Total Overhead Cost (May) = Total Fixed Cost + Total Variable Cost (May)

$$\$13,250 = \text{Total Fixed Cost} + (\$0.25 \times 5,000)$$

$$\text{Total Fixed Cost} = \$13,250 - (\$0.25 \times 5,000)$$

$$\text{Total Fixed Cost} = \$12,000$$

**Example (2-4):**

Tetyani hotels examining the hotel's monthly energy bills, it is evident that the costs for utilities amount to around \$8,000 each month, in addition to an extra \$8 per person. For the sake of this discussion, let us suppose that the hotel management has gathered data pertaining to the volume of guests and utility prices from the previous year.

<b><u>Month</u></b>	<b><u>Guest volume (x)</u></b>	<b><u>Utility Costs (Y)</u></b>
January	13,250	\$114,000
February	15,200	136,000
March	17,600	135,000
April	18,300	157,000
May	22,900	195,400
June	24,600	207,800
July	25,200	209,600
August	24,900	208,300
September	22,600	196,000
October	20,800	176,400
November	18,300	173,600
December	15,420	142,00

The slope is calculated by utilizing the data obtained in July as the highest point and January as the lowest point:

$$\text{Variable Cost per Unit} = \frac{(\$209,600 - \$114,000)}{(25,200 - 13,250)} = \frac{\$95,600}{11,950} = \\ \$8 \text{ per guest}$$

Total mixed costs = Variable cost component + Fixed  
cost component

$$y = bx + a$$

As an illustration, the cost and volume data for the month of July can be included in the following manner:

$$\$209,600 = (\$8 \times 25,200) + a$$

And then solve for  $a$ :

$$a = \$8,000$$

Alternatively, the use of data from the month of January might lead to the attainment of a comparable inference:

$$y = bx + a$$

$$\$114,000 = (\$8 \times 13,250) + a$$

And then solve for  $a$ :

$$a = \$8,000$$

Hence, the fixed cost component remains constant at \$8,000 each month, irrespective of the use of data from either July or January.

Where:

$$y = \$8x + \$8,000$$

$y$  = total monthly utilities cost

$x$  = number of guests

## **(2-3) Elements of Manufacturing Costs**

### **(Product Costs):**

Product costs encompass all costs associated with the production process. The classification of manufacturing or production costs has three fundamental components, namely direct materials costs, direct labor costs, and factory overhead manufacturing costs. These parts will now be addressed in detail:

**A) Direct materials costs** refer to the costs incurred for the materials utilized in the production of a product, which can be conveniently and inexpensively allocated to individual units of the product.

***Direct materials costs*** refer to the costs incurred in acquiring materials that are ultimately incorporated into the cost object, such as work in process and finished goods. These costs may be accurately attributed to the cost object through a financially viable method of tracing.

Several instances of direct materials may be observed, such as the inclusion of meat and bread in hamburgers, the presence of oil and additives in a gallon of gasoline, and the utilization of sugar in the production of confectionery. Direct materials can encompass components that are procured by a corporation from an external manufacturer, such as a battery and windscreen for a vehicle.

Direct materials are categorized as the materials that are included in a specific product and can be easily associated with that product. Indirect materials encompass several products utilized in industrial settings, including sandpaper employed for furniture sanding, lubricants applied to equipment, and other miscellaneous supplies for general manufacturing purposes.

**B) Direct labor costs** refer to the costs incurred from the manual labor required to produce a certain product or service, which can be accurately attributed to individual units. An illustration of this concept is that the wages received by production-

line workers constitutes a component of direct labor costs.

Direct manufacturing labor costs encompass the remuneration of all labor directly associated with the production process, which may be reasonably allocated to the specific cost item, such as work in progress and ultimately produced goods.

Direct labor refers to the workforce engaged in the production process of a produced product, encompassing roles such as machine operators and assembly-line workers. Indirect labor refers to the personnel involved in the manufacturing process who do not directly engage in the production of the units.

**C) Overhead costs** (also called *service overhead, factory overhead, factory burden, manufacturing overhead, or indirect production costs*) refer to costs associated with production that are not easily or readily allocated directly to a specific end product or service.

The costs encompassed in this category consist of *indirect materials*, such as nails, rivets,

lubricants, and tiny tools, as well as ***indirect labor***, which encompasses costs related to maintenance, inspection, engineering design, supervision, and materials handling. ***Additional indirect manufacturing costs*** encompass costs related to facility upkeep, property taxes, property insurance, depreciation on plant and equipment, rental fees, and utility charges.

Indirect manufacturing costs encompass all manufacturing expenses that are associated with the cost object, namely work in process and finished items. However, these costs cannot be directly allocated to the cost object in a practical and economically viable manner. This particular cost category is sometimes known as manufacturing overhead expenses or factory overhead costs.

The categorization of manufacturing costs may be classified into two main components: prime costs and conversion costs.

## **(2-4) Production and Cost Flow Cycle:**

In order to determine product costs accurately, it is imperative for management accounting systems to accurately represent the actual cost flows across organizations. Manufacturing, retail, and service organizations exhibit distinct cost flow patterns, leading to divergent management accounting goals.

Manufacturing enterprises engage in the procurement of raw materials from suppliers, afterwards transforming these materials into physical goods by means of labor and capital resources, such as machines and facilities. Companies operating in the manufacturing industry engage in the procurement of materials and components, which are then transformed into final products.

Typically, these firms possess one or more of the three basic categories of inventories:

- **Raw material inventories** encompass the acquired raw materials that are currently held in store, awaiting utilization in the production

process. This comprises both the beginning and ending raw material inventories.

- **Work in progress inventory**, also known as ***work in process***, encompasses goods that are partially completed and are awaiting further processing. This inventory category covers both the beginning and ending work in progress inventories.
- **Finished goods inventory** encompasses products that have undergone full completion but have not yet been sold, encompassing both the beginning and ending finished goods inventories.

In the context of manufacturing enterprises, it is observed that the work-in-process inventory account serves as the conduit via which all three components of manufacturing cost are channeled. The expenses associated with the use of direct materials and direct labor in the manufacturing process are allocated directly to the Work in Process account. Indirect labor, indirect materials, and other factory expenditures, which encompass all additional costs incurred in the

factory, are allocated to the factory overhead account and subsequently reallocated to the Work in Process. Once the production of items is finalized, the aggregate expenses associated with their production are shifted from the Work in Process category to the Finished items category. The expenses associated with the production of items are shifted from the Finished items account to the Cost of Goods Sold account upon the sale of these goods. Further details will be discussed in the next chapter.

**Figure (2-1): Production and Cost Flow Cycle**

<u>Raw Material</u>		<u>Work-in-process</u>		<u>Finished Goods</u>	
Inputs	Outputs	Inputs	Outputs	Inputs	Outputs
Beg. Mat. XX	D.M. Used XX	Beg. WIP XX	F.G. XX	Beg. F.G. XX	C.G.S. XX
Purchases XX		D.M. XX		F.G. XX	
		D.L. XX			
	End. Mat. XX	F.O.H. XX	End. WIP XX		End. F.G. XX
XX	XX	XX	XX	XX	XX

**Example (2-5):**

Shark Bay inventories for the first quarter of the fiscal year 2023 were as follows:

	<b>January 1</b>	<b>March 31</b>
Raw direct materials	60,000	70,000
Work-in-progress	90,000	85,000
Finished goods	130,000	145,000

Raw material was purchased for \$130,000, conversion costs amounted to \$75,000, and Administrative salaries amounted to \$75,000.

**Required:** Compute the cost of goods manufactured and cost of goods sold.

**Solution**

**1<sup>st</sup>: Get the Direct Material Used:**

Beginning Direct Material, Jan. 1	\$60,000
(+) Direct Material purchased	130,000
(-) Ending Direct Material, March 30	<u>(70,000)</u>
<b>Direct material used in Production</b>	<b><u>\$120,000</u></b>

**2<sup>nd</sup>: Compute the Cost of Goods (finished) Manufactured:**

Direct Material used in Production	\$120,000
Direct Labor and factory Overhead (Conversion)	<u>75,000</u>
Manufacturing cost during the period	195,000
+ Beginning Work-in-Process, Jan. 1	<u>90,000</u>
Total cost of Work-in-Process during the period	285,000
(-) Ending Work-in-Process, March 30	<u>(85,000)</u>
<b>Cost of Manufactured (Finished) Goods</b>	<b><u>\$200,000</u></b>

**3<sup>rd</sup>: Compute the Cost of goods sold:**

Cost of Goods Manufactured (Finished)	\$200,000
+ Beginning Finished Goods, Jan. 1	<u>130,000</u>
Cost of goods available for sale	330,000
(-) Ending Finished Goods, March 30	<u>(145,000)</u>
<b>Cost of Goods Sold</b>	<b><u>\$185,000</u></b>

## **Some Important Rules**

- Prime costs = DM + DL
- Conversion costs = DL + Manuf. OH
- Total Cost = Variable Cost + Fixed Cost
- Manuf. costs (Product Costs) = DM + DL + F.OH
- Discretionary fixed costs = Adv. Cost
- Period costs = Selling & Administrative costs
- DM used = Beg DM + Purchases – End. DM
- Cost of good manufactured (FG) = Beg. WIP + (DM + DL + F.OH) – End. WIP
- Cost of goods sold (C.G.S) = Beg. FG + FG – End. FG
- All Direct Costs = Variable Costs
- Variable manufacturing costs = DM + DL + Variable OH
- Total Variable Cost = VC / unit × No. of units =  $\sum$  Variable Manuf. Costs + Variable S&A Costs

**Essays, True or False, Multiple-Choice  
Questions, and Problems**

**A- Essays**

- 1) What are the determinants that influence the categorization of a cost as either direct or indirect?
- 2) What differentiates direct costs from indirect costs?  
Please provide an example for each category.
- 3) Describe a variable and fixed cost. Explain the significance of differentiating between variable and fixed costs in the realm of cost accounting.
- 4) How would you characterize the accounts of Finished Goods, Work in Process, and Materials?
- 5) What are the fundamental components comprising production costs?
- 6) Differentiate between prime cost and conversion cost. Is the sum of the prime cost and the conversion cost equivalent to the total production cost?

- 7) How does the accounting approach of manufacturing overhead differ from that of direct materials and direct labor costs?
- 8) Illustrate the definition of the term ‘cost object’ and provide three examples of cost objects.
- 9) Explain how a certain direct cost object can be both a direct and indirect cost.
- 10) Define the conceptual underpinnings of the subsequent terms: (a) cost allocations, (b) overheads and (c) prime cost.
- 11) Define the conceptual underpinnings of the subsequent terms: (a) fixed costs, (b) variable costs, (c) semi-variable costs and (d) semi-fixed costs. Please provide examples of costs associated with each of the four categories.
- 12) Differentiate between irrelevant (unavoidable) costs and relevant (avoidable), and please provide examples of each type of cost.
- 13) Define the meaning of the term ‘sunk cost’.
- 14) What is the concept of opportunity cost? Please provide some instances.

## **B- True or False Questions**

- 1) A cost object refers to any entity or item for which there is a need to measure costs.
- 2) There are two fundamental processes involved in accounting for costs: assignment and accumulation.
- 3) The actual cost refers to the cost that has been incurred, representing a historical or previous expenditure.
- 4) Accountants establish the concept of cost as a valuable resource that is willingly relinquished in order to attain a predetermined goal.
- 5) A cost refers to a resource that is given up or not utilized in order to attain a particular goal.
- 6) Managers utilize cost accumulation data in order to formulate choices and then execute them.
- 7) In certain cases, a cost might be classified as direct for a specific cost object, while being categorized as indirect for another cost object.
- 8) The process of allocating indirect costs is comparatively simpler than the process of allocating direct costs.

- 9) The direct cost associated with a certain cost object has the potential to function as an indirect cost for a different cost object.
- 10) The expenditure associated with the utilization of energy in the manufacturing process of various goods would be categorized as an indirect cost.
- 11) The amount of direct costs in relation to overall costs increases as the cost object definition becomes more expansive.
- 12) A fixed cost remains constant with respect to a specific range of total activity or volume, and alone within a designated time frame, typically corresponding to a specific budgetary period.
- 13) A cost driver refers to a variable, such as the level of activity or volume, that has a causal impact on costs within a specific time frame.
- 14) The fixed cost per unit decreases as the production volume increases.
- 15) The costs per unit that are subject to change based on the amount of production or sales volume are known as variable costs.

- 16) The use of wood in the production of chairs is classified as a direct variable cost.
- 17) Variable costs are contingent upon the utilization of resources.
- 18) A fixed cost is a cost that remains constant in its whole during a specified time period, regardless of significant fluctuations in the corresponding level of overall activity or amount of product produced.
- 19) A suitable cost driver for shipping costs may perhaps be the quantity of products transported.
- 20) The calculation of a unit cost involves dividing the total cost by the quantity of units.
- 21) A unit cost is commonly referred to as an average cost.
- 22) It may be asserted that all costs associated with production can be classified as period costs.
- 23) All costs shown on the income statement of a service-sector corporation are classified as inventoriable costs.
- 24) Period costs are incorporated into the calculation of the cost of goods sold.

- 25) Indirect manufacturing costs are also known as manufacturing overhead costs or factory overhead costs.
- 26) Direct material costs are often classified as variable costs.
- 27) The combination of manufacturing overhead and direct materials is commonly referred to as conversion cost in the field of manufacturing.
- 28) In a merchandising business, all costs are classified as period costs.
- 29) A variable cost is a type of expense that exhibits variability in its cost per unit as the amount of activity increases or decreases.
- 30) When there is a rise in the level of activity, it can be expected that the total variable cost will also increase.
- 31) A reduction in production typically leads to an escalation in fixed production costs per unit.
- 32) Determining cost pools and establishing realistic cost driver rates is a procedure that entails a certain level of complexity.

- 33) In order for a cost to be classified as variable, it must exhibit variation in correspondence with either the quantity of units produced, or the quantity of units sold.
- 34) The application of the applicable range does not extend to fixed costs.
- 35) Indirect costs, such as manufacturing overheads, are consistently classified as fixed costs.
- 36) Discretionary fixed costs are incurred as a result of managerial decisions made on a yearly basis to allocate funds towards certain fixed cost categories.
- 37) Committed fixed costs refer to fixed costs that are beyond the control of the organization.
- 38) A mixed cost refers to an expense that has both variable and fixed components.
- 39) In a multi-product facility, the allocation of overhead costs, such as factory rent and supervisory wages, is performed to assign these expenses to specific cost objects.
- 40) The raw material utilized in a product, which can be readily linked to the product, is typically categorized as an indirect cost.

### **C-Multiple Choice Questions**

- 1) Which of the following assertions is accurate?
  - A. Product costs are recognized as expenses on the income statement during the period in which they are incurred.
  - B. Direct labor is considered both a manufacturing cost and a product cost.
  - C. Conversion costs encompass both direct materials and direct labor.
  - D. Non-manufacturing costs are classified and accounted for as period costs.
- 2) Which of the following assertions is accurate?
  - A. Indirect materials and indirect labour are components that are encompassed under the production overhead.
  - B. Examples of selling costs encompass various expenses such as sales commissions, advertising expenditures, shipping fees, and the operational costs associated with maintaining the finished goods in warehouses.
  - C. In the realm of financial accounting, product costs encompass direct materials, direct labor, and manufacturing overhead.

- D. Period costs, in the context of financial accounting, are commonly known as inventoriable costs.
- 3) Which of the following assumptions regarding cost behavior is accurate?
- A. Variable costs remain constant when presented on a per-unit basis.
  - B. Total variable costs have a positive correlation with the amount of activity, resulting in an increase when the latter rises.
  - C. The average fixed cost per unit has a positive relationship with the degree of activity, resulting in an increase.
  - D. The decrease in the amount of activity results in a reduction in total fixed costs.
- 4) Which of the following statements is correct?
- A. One sort of direct cost is referred to as a common cost.
  - B. A sunk cost is typically considered a differential cost.
  - C. Opportunity costs are typically not documented in the financial records of an organization.

- D. A certain cost can be classified as either direct or indirect based on the cost object.
- 5) The computation of a unit cost involves .....
- A. The process of multiplying the total cost by the number of units produced.
  - B. The act of dividing the total cost by the number of units produced.
  - C. The division of variable cost by the number of units produced.
  - D. The act of dividing fixed cost by the number of units produced.
- 6) The term "actual cost" refers to .....
- A. a cost that has been projected or estimated.
  - B. any object or concept for which there is a need to quantify the associated costs.
  - C. the cost incurred.
  - D. Cost data is systematically collected using an accounting system.
- 7) The process of cost assignment is a .....
- A. encompasses prospective and discretionary costs.
  - B. The process of allocating indirect costs to a cost object.

- C. is synonymous with the process of accumulating costs.
  - D. represents the discrepancy between the planned costs and the actual costs.
- 8) A cost system ascertains the costs associated with a particular cost object through the process of
- A. the process of gathering and subsequently allocating costs.
  - B. the process of accumulating costs.
  - C. the process of assigning costs and then accumulating them.
  - D. the process of assigning costs.
- 9) What are the criteria that influence the classification of a cost as either direct or indirect?
- A. The projected level of profit allocated in the budget for the upcoming fiscal year.
  - B. The determination of the duration necessary to fulfill the order.
  - C. The capacity to carry out an order in the most economically advantageous manner.
  - D. the design of the operation.

- 10) The broad referrals employed to denote the process encompassing both the tracing and allocation of collected costs to a specific cost object is .....
- A. cost assignment
  - B. conversion costing
  - C. cost tracing
  - D. cost accumulation
- 11) Cost accumulation is .....
- A. The systematic accumulation of cost data through the utilization of an accounting system.
  - B. anything for which a profit measurement is desired.
  - C. The systematic accumulation of profit data through the utilization of an accounting system.
  - D. anything for which a cost measurement is desired.
- 12) Which of the following statements regarding the categorization of direct and indirect costs is correct?
- A. Indirect costs are consistently tracked.
  - B. Indirect costs are consistently assigned.
  - C. The categorization of direct and indirect sales is

influenced by the design of sales targets.

- D. The classification of costs as direct or indirect is contingent upon the implementation of cost-control measures.

13) Cost tracing is .....

- A. the allocation of direct costs to the selected cost object.
- B. a function related to the allocation of costs.
- C. the procedure of monitoring both direct and indirect costs linked to a cost object.
- D. the process of ascertaining the precise cost of the cost object.

14) Cost allocation is .....

- A. the process of tracking both direct and indirect costs linked to a certain cost object.
- B. the procedure of evaluating the opportunity cost of selecting a particular cost object.
- C. the allocation of indirect costs to the selected cost object is determined.
- D. this determination is based on the material acquisition document.

- 15) The classification of a cost as either direct or indirect is contingent upon the .....
- A. valuation of inventory.
  - B. selected tax system.
  - C. accounting standards.
  - D. selected cost object.
- 16) Which of the following items can be classified as a direct cost?
- A. Customer-service costs incurred by a multiproduct corporation, with particular attention given to Product A as the cost object.
  - B. Printing costs are accrued in relation to the processing of payroll checks, with the cost object being the payroll check processing.
  - C. The salary received by a maintenance supervisor employed in a manufacturing facility that produces many products. Specifically, the cost object under consideration is Product B.
  - D. The cost object pertains to the utility costs incurred by the administrative offices, specifically the accounting department.

- 17) Indirect manufacturing costs are a category of costs that are not directly associated with the production of goods or services, that .....
- A. The costs can be attributed to the product.
  - B. The cost object may be readily identified.
  - C. it is customary to incorporate both the costs associated with materials and the costs related to labor.
  - D. The inclusion of fixed as well as variable costs is a possibility.
- 18) Which of the following statements accurately describes indirect costs?
- A. Indirect costs are universally regarded as sunk costs.
  - B. All indirect costs are encompassed in the cost of goods sold.
  - C. Indirect costs have a consistent pattern of fluctuation that is directly correlated with the level of production.
  - D. Indirect costs are those that cannot be allocated to a specific cost object in a financially viable manner.

- 19) Which of the following statements is correct?
- A. The direct cost of a certain cost object will invariably be classified as a direct cost for any other cost object.
  - B. Due to a cost-benefit analysis, certain direct costs may be classified as indirect costs.
  - C. All fixed costs can be classified as indirect costs.
  - D. All direct costs can be classified as variable costs.
- 20) Which of the following statements accurately describes direct costs?
- A. The direct cost associated with a certain cost object provides an accurate representation of the budgeted costs.
  - B. All variable costs are classified as direct costs.
  - C. The direct cost of a certain cost object will invariably be classified as a direct cost for any other cost object.
  - D. All fixed costs can be classified as direct costs.
- 21) If the amount of sales rises within a relevant range, which of the following statements is accurate?
- A. The fixed cost experiences an increase.

- B. The variable cost undergoes a drop.
  - C. The variable cost experiences an increase.
  - D. The fixed cost undergoes a drop.
- 22) Which of the following represents a fixed cost?
- A. The monthly payment for rent.
  - B. Costs associated with electricity expenses.
  - C. Expenses related to travel.
  - D. Costs associated with direct materials.
- 23) Cost behavior pertains to .....
- A. The relationship between costs and changes in the level of activity.
  - B. Determining the nature of costs in manufacturing, retailing, or service companies.
  - C. Categorizing costs as perpetual or period costs.
  - D. the determination of whether a certain expenditure is recognized as an expense in the current accounting period or in the subsequent period.
- 24) Which of the following statements is accurate in the event of a decline in production volume?
- A. The fixed cost per unit experiences an increase.
  - B. The average cost per unit undergoes a drop.

- C. The variable cost per unit experiences an increase.
  - D. The variable cost per unit undergoes a drop.
- 25) Variable costs .....
- A. refers to as indirect costs.
  - B. rises in total when there is an increase in the actual level of activity.
  - C. composed of most depreciation on machinery and personnel costs.
  - D. are never treated as part of the prime cost.
- 26) Fixed costs are depending upon the .....
- A. amount of resources utilized.
  - B. amount of consistent costs throughout a certain duration.
  - C. quantity of production.
  - D. total quantity of units sold.
- 27) Given that the production of motorcycles for the month amounts to 2,000 units, and each motorbike necessitates a belt with a price tag of \$20, the total cost incurred for the acquisition of belts is .....
- A. regarded as a direct fixed cost.
  - B. regarded as a direct variable cost.

- C. regarded as an indirect fixed cost.
  - D. regarded as an indirect variable cost.
- 28) The primary cost driver of direct labor costs is the .....
- A. number of machine setups required for the product.
  - B. distance travelled in miles.
  - C. total number of hours spent on production.
  - D. total number of hours the machines were in operation.
- 29) Which of the following statements is correct?
- A. There exists a causal link between the cost driver and the amount of cost.
  - B. Fixed costs are associated with cost drivers within the short-term period.
  - C. In the short term, all costs are influenced by specific factors known as cost drivers.
  - D. The volume of output is considered a cost driver of distribution costs.
- 30) The term used to describe a range of activity or volume within which specified cost-volume relationships are consistently upheld is known as

the .....

- A. average range.
- B. cost driver range.
- C. relevant range.
- D. cost-allocation range.

Answer the following questions (31-32) using the information below:

Engy Ratinco operates as a clothes shop. The unit costs pertaining to Product (ERT) are as follows:

Direct materials	\$ 70
Direct manufacturing labor	20
Variable manufacturing overhead	15
Fixed manufacturing overhead	32
Sales commissions (2% of sales)	5
Administrative salaries	<u>16</u>
Total	<u>\$158</u>

- 31) What is the per unit cost of direct variable manufacturing costs for Product (ERT)?
- A. \$105
  - B. \$110
  - C. \$90
  - D. \$142

- 32) What is the per unit cost of indirect non-manufacturing variables for Product (ERT)?
- A. \$5
  - B. \$142
  - C. \$90
  - D. \$21

Answer the following questions (33-34) using the information below:

Rania Albert Company engages in the production of a diverse range of products. The unit costs pertaining to Product (RAT) are as follows:

Direct materials	\$54
Direct manufacturing labor	8
Variable manufacturing overhead	11
Fixed manufacturing overhead	25
Sales commissions (2% of sales)	5
Administrative salaries	<u>12</u>
Total	<u>\$115</u>

- 33) What is the proportion of the total variable costs per unit attributed to the Product (RAT) in relation to the total cost?
- A. 75%

B. 70%

C. 68%

D. 72%

34) What is the proportion of fixed costs per unit for Product (RAT) in relation to the total cost?

A. 28%

B. 26%

C. 32%

D. 20%

35) When a production quantity of 20,000 units is reached, the variable costs amount to \$8 per unit. Thus, when a total of 10,000 units are manufactured

.....  
A. The variable costs are expected to stay constant at \$8 per unit.

B. The total sum of variable costs is projected to amount to \$60,000.

C. The variable unit costs are projected to rise to \$12 per unit.

D. The variable unit costs are projected to reduce to \$3 per unit.

Answer the following questions (36-37) using the information below:

Anaco Company reported the following:

Manufacturing costs	\$150,000
Units manufactured	5,000
Units sold	4,700 units
Selling price per unit	\$75 per unit
Beginning inventory	100 units

36) What is the average production cost per unit?

- A. \$42
- B. \$32
- C. \$30
- D. \$40

37) What is the cost of production for the ending inventory of finished goods?

- A. \$8,000
- B. \$5,000
- C. \$11,000
- D. \$12,000

38) Companies in the ..... sector engage in the acquisition of materials and components, which are then transformed into final products.

- A. Manufacturing
- B. Service
- C. Professional
- D. Merchandising

39) Merchandising-sectors \_\_\_\_\_.

- A. engage in the process of acquiring and then reselling physical goods without altering their fundamental form.
- B. offer intangible products to consumers.
- C. acquire raw materials and components and transform them into finished goods.
- D. engage in the process of acquiring and then reselling physical goods while modifying their fundamental form.

40) Service-sector companies \_\_\_\_\_.

- A. offer intangible products to consumers.
- B. engage in the process of acquiring and then reselling physical goods without altering their fundamental form.
- C. engage in the process of acquiring and then reselling physical goods while modifying their fundamental form.

- D. acquire raw materials and components and transform them into finished goods.
- 41) Service-sector firms provide information on ..... inventory account(s).
- A. none.
  - B. direct materials, work-in-process, and finished goods.
  - C. only finished goods.
  - D. work-in-process, and finished goods.
- 42) In the context of a manufacturing organization, direct labor costs may be encompassed within ..... inventory account(s).
- A. only direct materials.
  - B. direct materials, work-in-process, and finished goods.
  - C. only merchandise.
  - D. both work-in-process and finished goods.
- 43) Which of the following costs may be classified as inventoriable?
- A. distribution costs.
  - B. customer service costs.
  - C. manufacturing overhead cost.

- D. marketing costs.
- 44) The term used to describe costs that are originally recognized as assets but are subsequently expensed when goods are sold is .....  
A. inventoriable costs.  
B. research and development costs.  
C. irrelevant costs  
D. period costs.
- 45) Period costs \_\_\_\_\_.  
A. are recognized in the period in which they are incurred.  
B. can be directly attributed to goods are recognized.  
C. are recognized as costs in the subsequent period in which they are incurred.  
D. are also often known as manufacturing overhead costs.
- 46) The costs that are recognized and reported on the income statement within the accounting period in which they are incurred are referred to as .....  
A. indirect costs.  
B. inventoriable costs.

C. period costs.

D. direct costs.

47) The concept of total production costs includes

..... costs.

A. direct materials, direct manufacturing labor, and  
manufacturing overhead.

B. prime costs and period.

C. indirect materials, indirect manufacturing labor,  
and manufacturing overhead.

D. direct materials and period.

48) Manufacturing overhead composed of:

A. indirect labor but not indirect materials.

B. indirect materials but not indirect labor.

C. all manufacturing costs.

D. all manufacturing costs, except direct materials  
and direct labor.

49) Conversion cost includes the following  
components:

A. Manufacturing overhead cost.

B. Direct labor and manufacturing overhead cost.

C. Direct labor cost.

D. Direct materials and direct labor cost.

- 50) Which of the following would not be classified as a period cost:
- the salary of the firm president's secretary.
  - sales commissions.
  - depreciation of a manufacturing machine.
  - the cost of a general accounting office.
- 51) Which of the expenditures listed below exemplifies a period cost rather than a product cost?
- Insurance on production equipment.
  - Wages of salespersons.
  - Depreciation of production equipment.
  - Wages of production machine operators.
- 52) In the context of a production environment, it is customary to assign an indirect cost, such as ..... to a specific cost object.
- labor is performed by administrative secretaries.
  - raw materials.
  - utilities.
  - labor is performed by employees who run manufacturing equipment.

## **D- Problems**

### **Problem (2-1):**

Hamilton Hospital seeks to ascertain the expenditure associated with each individual patient's period of hospitalization. The establishment in question is a comprehensive healthcare center that primarily provides fundamental medical services while refraining from offering specialized procedures such as organ transplantation.

#### **Required:**

- a. Categorize each of the subsequent expenditures as either direct or indirect in relation to each patient.
- b. Categorize each of the subsequent expenditures as either fixed or variable in relation to daily hospital expenses.

	<u>Direct</u>	<u>Indirect</u>	<u>Fixed</u>	<u>Variable</u>
Electronic monitoring	_____	_____	_____	_____
Meals for patients	_____	_____	_____	_____
Nurses' salaries	_____	_____	_____	_____
Parking maintenance	_____	_____	_____	_____
Security	_____	_____	_____	_____

**Problem (2-2):**

The arrangement of cost drivers in the right column below is randomly ordered in relation to the functions listed in the left column. In other words, they are not compatible.

	<b>Function</b>		<b>Representative Cost Driver</b>
1.	Purchasing	A.	Number of employees
2.	Billing	B.	Number of shipments
3.	Shipping	C.	Number of customers
4.	Computer Support	D.	Number of invoices
5.	Personnel	E.	Number of desktop computers
6.	Customer Service	F.	Number of purchase orders

**Required:** Please align each business function with its corresponding cost driver.

**Problem (2-3):**

The following salaries and wages have been occurred for Yano Inc., for the month:

Direct Labor: Plant	\$630,000
Indirect Labor: Plant	255,000
Supervision: Plant	96,000
Sales Commission	120,000
Sales Salaries	<u>54,000</u>
	\$1,155,000

**Required:** how much would be properly classified as:

- |                  |                   |
|------------------|-------------------|
| (a) Product cost | (b) Period cost   |
| (c) Fixed cost   | (d) Variable cost |

**Problem (2-4):**

Moracoo House Manufacturing now manufactures a monthly output of 2,000 units. The subsequent per-unit statistics, measured in thousands, pertain to sales made to regular clients:

Direct materials	\$500
Direct manufacturing labor	80
Variable manufacturing overhead	140
Fixed manufacturing overhead	<u>100</u>
Total manufacturing costs	<u>\$820</u>

The factory possesses a production capacity of 4,000 units. The compensation of the plant administrator amounts to \$30,000.

**Required:**

- a. What is the total cost of manufacturing 2,000 units?
- b. What is the total cost of manufacturing 3,000 units?
- c. What is the per unit cost when manufacturing 3,000 units?

**Problem (2-5):**

The following income statement was issued by the  
Monaco Company:

Sales 8,000 Units	\$84,000
Direct Material	\$12,500
Direct Labor	7,500
Variable Overhead	2,500
Fixed Overhead	<u>10,000</u>
Cost Of Goods Sold	<u>32,500</u>
Gross Margin	\$51,500
Variable Selling and Administration	10,500
Fixed Selling and Administration	<u>20,000</u>
Net Income	<u>\$ 21,000</u>

**Required:** Compute the dollar amount of each of the following costs for the Monaco Company:

- a. Total fixed costs
- b. Prime costs
- c. Variable manufacturing costs.
- d. Period costs.
- e. Conversion costs.

**Problem (2-6):**

Each of the aforementioned elements corresponds to one of the following companies: Hatcho Electronics (a manufacturing company), Matcho Food Retailers (a merchandising company), and Latcho Real Estate (a service sector company).

Please categorize each item as either inventoriable (I) costs or period (P) costs.

		inventoriable (I) costs or period (P) costs
a.	Salary of Hatcho Electronics president	
b.	Depreciation on Hatcho Electronics assembly equipment	
c.	Salaries of Hatcho's assembly line workers	
d.	Purchase of frozen food for sale to customers by Matcho Food Retailers	
e.	Salaries of frozen food personnel at Matcho Food Retailing	
f.	Depreciation on freezers at Matcho Food Retailing	
g.	Salary of a receptionist at Latcho Real Estate	
h.	Depreciation on a computer at Latcho Real Estate	
i.	Salary of a real estate agent at Latcho Real Estate	

**Problem (2-7):**

Aramco Manufacturing Company has provided you with the following information for the month of March 2023:

	<b>Variable costs</b>	<b>Total Fixed</b>
	<b>Per unit</b>	<b>Costs</b>
Direct labor		\$13.75
Direct materials		42.38
Manufacturing overhead	14.25	\$60,000
Marketing costs	7.13	25,000
Administrative costs	1.45	37,500

**Required:** Compute the following, assuming that 2,000 units are produced and sold at a selling price of \$90 per unit:

- 1) Total variable cost
- 2) Variable inventoriable cost
- 3) Full absorption cost
- 4) Full cost
- 5) Contribution margin
- 6) Gross margin
- 7) Profit margin

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# CHAPTER Three

## Cost Measurement Methods and Income Statements

### Learning Objectives:

After studying this chapter, students should be able to:

1. Distinguish between Absorption costing and Variable costing.
2. Prepare Income Statement under Absorption costing and Variable costing.
3. Reconcile the Net Income difference between the two costing methods.

### 3.1 Introduction:

In taking short- or long-term decisions, the management of organizations in both the public and private sectors must adopt some tools that would help better decision making for the achievement of organizational **goals**. In Accounting, there are many tools to be used in guiding

effective decision-making by management. Two of the most popular decision-making methods are absorption costing and variable costing.

The two methods are expected to be appropriately used in short-term managerial decision making that would lead to efficient management of resources for the production of income, profit and wealth. The decision to be taken would normally be about the future, which is full of risks and uncertainties. This requires a lot of care and attention when using either of the two methods.

**Therefore, this chapter will discuss the following points:**

- a. Explain the concepts and differences between absorption (full and variable (marginal) costing methods.
- b. Prepare profit statements based on absorption costing and variable costing system.
- c. Reconcile absorption and variable (marginal) profits.
- d. Explain the arguments for and against absorption variable costing methods.

### **3.2. Absorption Costing (Full Costing):**

Absorption costing is the total cost technique. It is the practice of charging all costs, both variable and fixed, to operations, processes or products. Under absorption costing all costs whether variable or fixed are treated as product cost. Absorption costing is also known as full costing technique.

Absorption costing is a method of inventory costing in which all variable manufacturing costs and all fixed manufacturing costs are included as inventoriable costs; i.e. inventory absorbs all manufacturing costs. Under both absorption costing and variable costing, all variable manufacturing costs are inventoriable costs and all nonmanufacturing costs whether variable or fixed, are period costs and are recorded as expenses when incurred.

Absorption costing is the method of costing that is used in preparing income statements to ascertain the results of operations of private and public sector organizations. The term absorption is about absorbing the general

overhead (fixed) costs being shared to all the units of goods or services produced to ascertain the total cost of production per unit rather than total variable cost per unit.

Absorption costing does not make any difference between variable and fixed cost in the calculation of profits. It charges all costs, both variable and fixed, to operations, products or processes. In absorption costing both variable and fixed production costs are included in the determination of the cost of a product. This implies that the fixed cost is treated as a product cost and not as a period expense.

Absorption costing recognizes fixed costs (usually fixed production costs) as part of the cost of a unit of output and hence as product costs

### **3.2.1. Features of Absorption Costing:**

- In the absorption costing, the unit cost is determined on the basis of full cost, i.e., variable and fixed manufacturing cost.

- The cost of inventory will be higher in absorption costing as product cost includes fixed factory overhead.
- Absorption costing net profit changes with production.
- It is a conventional costing where gross profit is determined by subtracting the cost of goods sold from sales and net profit is determined by subtracting all marketing and administrative expenses from the gross profit.
- Under or over-allocation of fixed factory overhead is required to be adjusted in absorption costing as it is included in the cost of production.

### **3.2.2. Basic Equation of Absorption Costing:**

Sales – Cost of Goods Sold = Gross Margin (or Gross Profit)

Gross Margin - Fixed Cost = Net Operating Income

### **3.2.3. Some Arguments Supporting Absorption Costing:**

1. Absorption costing does not underestimate the importance of fixed costs.
2. Absorption costing avoids pretended losses being reported.
3. Fixed overheads are essential for production.
4. Consistency with external reporting.

### **3.3. Variable (Marginal) Costing:**

Variable cost is the increase or decrease in the total cost that result from changes in activity level or from a change in the method of production or distribution. In other words, we can say that with the increase in one unit of output, the total cost is increased and this increase in total cost from the existing to the new level is known as ‘Marginal Cost’.

The concept of marginal costing is based on the important distinction between product costs and period costs, the former being related to the volume of output and the latter to the period rather than the volume of

production. Marginal costing is regarded as the products' costs, only those manufacturing costs that tend to vary directly with the volume of output. This is in complete contrast to the conventional system of costing under which all manufacturing costs - fixed as well as variable - are treated as product costs.

### **3.3.1. Features of Variable Costing**

- Costs are separated into fixed and variable elements and semi-variable costs are also differentiated likewise.
- Only the variable costs are considered for computing the value of inventory of work-in-progress and finished products.
- Fixed costs are charged off to revenue wholly during the period in which they are incurred and are not considered for valuing product costs/inventories.
- Prices may be based on marginal costs and contribution but in normal circumstances, prices would cover costs in total.

- Profitability of departments or products is determined in terms of contribution margin.
- The unit cost of a product means the average variable cost of manufacturing the product.

### **3.3.2. Basic Equation of Variable Costing:**

Sales - Variable Costs = Contribution Margin

Contribution Margin - Fixed Cost = Net Operating Income

### **3.3.3. Some Arguments Supporting Variable Costing:**

1. Variable costing provides more useful information for decision-making.
2. Variable costing removes from profit the effect of inventory changes.
3. Variable costing avoids fixed overheads being capitalized in unsaleable inventories.

### **3.4. Major Differences between Absorption Costing and Variable Costing:**

Absorption costing considers all cost elements as essential for production and sales and, so, all of them are to be captured when determining total cost at all levels of production up to sales.

Variable costing, on the other hand, is a technique of costing that considers fixed costs as a period cost and so, irrelevant when making a decision on the total cost of a product to be compared against its benefit for the determination of its profitability/ viability. It is theoretically about variable or direct costing.

As the two methods are used in preparing income statements, some important differences could be noticed when the income statements are compared.

#### **1. The treatment of fixed overhead production cost:**

While absorption costing accepts the overhead cost as part of the cost of goods sold, variable costing treats it as a period cost which must be considered whether or

not there is production and, so, it is not to be part of the cost to be totaled for a product or service.

## **2. The determination of cost of ending inventory:**

Absorption costing recognizes total cost per unit to be multiplied by the ending units to get the value of ending inventory while variable costing recognizes only the total variable cost per unit for that purpose as all fixed costs (production, administrative and selling) must have been covered by contribution margin.

## **3. The profit shown under each of the two techniques:**

While the absorption costing income statement first shows gross profit before net profit, variable costing income statement first shows contribution margin, which is the difference between sales and total variable costs. This shows that except where all the units produced are sold, the two income statements would not amount to the same level of profit at the initial stage.

The main cause of difference between absorption and variable profits is fixed costs carried in beginning and ending inventory in absorption costing.

Absorption costing is used in preparing income statements at the end of an accounting period by all three forms of businesses: sole proprietorships, partnerships, and corporations. This method is, therefore, better used to help decisions on performance evaluation with respect of the result of operations at the end of an accounting period. Variable costing technique is only relevant for short-term managerial decision-making, focusing on the future happenings of businesses.

Variable costing as a cost accounting system is significantly different from absorption costing. It is an alternative method of accounting for costs and profit, which rejects the principles of absorbing fixed overhead into unit costs.

<b>Variable Costing (Marginal Costing)</b>	<b>Absorption Costing (Full Costing)</b>
Ending inventory is valued at the variable production costs only	Ending inventory is valued at full production cost (variable and fixed)
Fixed costs are charged in full against the profit of the period in which they are incurred. They are treated as period costs.	Fixed costs are treated as product costs. They are only expensed when the inventory is sold.

### 3.5. Preparation of Income Statements

#### Income Determination: Under Absorption and Variable Costing

The absorption income statement for external reporting shows the functional classification of costs, that is, manufacturing costs vs. non-manufacturing expenses (or operating expenses); whereas, the alternative format of income statement (variable costing income statement) organizes the costs by behavior (variable costs and fixed costs) rather than by function.

The absorption costing income statement emphasizes the concept of gross margin (or gross profit).

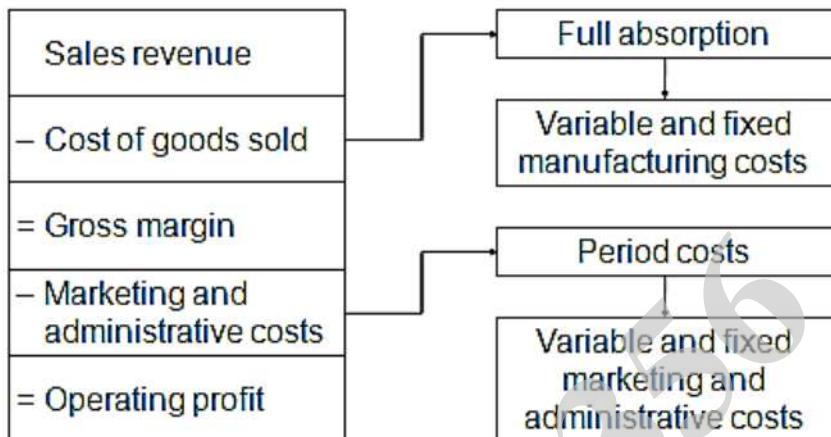
Gross Margin (or gross profit) = Sales - Cost of Goods Sold.

The variable costing income statement on the other hand, highlights the concept of contribution margin.

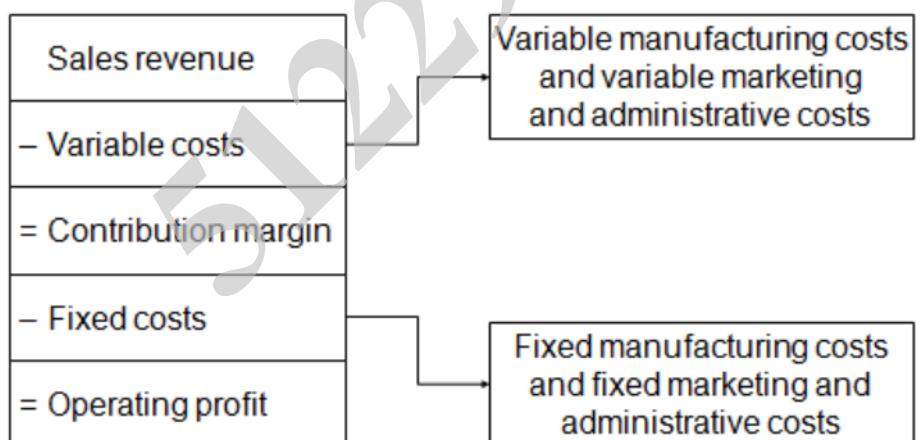
Contribution Margin = Sales - Variable Costs.

These two concepts are independent and have nothing to do with each other. Gross margin is available to cover non-manufacturing expenses, whereas contribution margin is available to cover fixed costs.

## A. Income statement: Absorption costing (Traditional Income Statement)



## B. Income statement: Variable costing (Contribution Income Statement)



### A. Income statement: Absorption costing (Traditional Income Statement)

Sales		XXXX
<b>(-) Cost of Goods Sold</b>		
Direct Materials used in production	X	
(+ ) Direct Labor	<u>X</u>	
Prime Cost	X	
(+ ) Manufacturing Overhead (VOH & FOH)	<u>X</u>	
Total current manufacturing cost for the period		XXX
(+ ) Beginning balance of WIP	<u>XX</u>	
Total manufacturing cost for all units produced		XXX
(-) Ending balance of WIP	<u>(XX)</u>	
Cost of Finished Goods		XXX
(+ ) Beginning Inventory of FG	<u>(XX)</u>	
Cost of Goods available for sale		XXX
(-) Ending inventory of FG	<u>(XX)</u>	
Cost of Goods Sold		<u>(XXXX)</u>
Gross Profit		XXXX
<b>(-) Marketing &amp; Administrative Costs:</b>		
Variable marketing costs		XXX
Fixed marketing and admin costs	<u>XXX</u>	
<b>Net Operating Income</b>		<u>(XXX)</u>
		XXXX

#### Note:

Cost per unit = Cost of goods manufactured / units produced

WIP: Work in process

FG: Finished goods

### **3.6. Examples:**

#### **Example 1:**

X Company produces a certain product, the information related to this product:

Selling price \$15 per unit

Costs:

Fixed manufacturing cost \$40,000

Variable manufacturing cost \$6 per unit  
 $(D.M + D.L + V.OH)$

Fixed administrative cost \$15,000

Variable selling cost \$1 per unit

Activity Level:

A. 10,000 units

B. 20,000 units

Sales 8,000 units under both activity levels.

**Required:**

Prepare Income statement for both activity levels

under:

1. Absorption costing (full costing)
2. Variable costing (marginal costing)

**Solution:**

	<b>Activity Level: 10,000 Units</b>	<b>Activity Level: 20,000 Units</b>
Ending FG = Units produced – Units sold	$10,000 - 8,000 = 2,000 \text{ units}$	$20,000 - 8,000 = 12,000 \text{ units}$
Cost/unit = Fixed cost + Variable cost / Unit (Absorption Costing)	$\$40,000 + \$6 \times 10,000 = \$100,000$ $\text{Cost/unit} = \$100,000 / 10,000 = \$10 \text{ per unit}$	$\$40,000 + \$6 \times 20,000 = \$160,000$ $\text{Cost/unit} = \$160,000 / 20,000 = \$8 \text{ per unit}$
Cost/unit = Variable Manufacturing (Variable Costing)	\$6 per unit	\$6 per unit

### 1. Income Statement under Absorption costing (Traditional Income Statement)

	<b>10,000 Units</b>	<b>20,000 Units</b>
Sales Revenue (8,000 x \$15)	\$120,000	\$120,000
<b><u>(-) Cost of Goods Sold</u></b>		

Beginning FG	0	0
<b><u>+ Manufacturing Cost</u></b>		
Variable manufacturing cost: 10,000 x \$6 20,000 x \$6	60,000	120,000
Fixed manufacturing cost	<u>40,000</u>	<u>40,000</u>
= Cost of goods available for sale	100,000	160,000
(-) Ending FG: 2,000 x \$10 12,000 x \$8	<u>(20,000)</u>	<u>(96,000)</u>
Cost of Goods Sold	<u>(80,000)</u>	<u>(64,000)</u>
Gross Profit (Sales – CGS) 120,000 – 80,000 120,000 – 64,000	40,000	56,000
<b><u>(-) Operating Expenses</u></b>		
Variable selling cost 8,000 x \$1	8,000	8,000
Fixed administrative cost	<u>\$15,000</u>	<u>\$15,000</u>
Total Operating Costs	(23,000)	(23,000)
<b>Net Income</b> (Gross Profit – Total Operating Costs) 40,000 – 23,000 56,000 – 23,000	17,000	33,000

## 2. Income Statement under Variable costing (Contribution Income Statement)

	<b>10,000 Units</b>	<b>20,000 Units</b>
Sales Revenue (8,000 x \$15)	\$120,000	\$120,000
<b>(-) Total Variable Cost</b>		
Beginning FG	0	0
Variable manufacturing cost: 10,000 x \$6 20,000 x \$6	60,000	120,000
= Variable Cost of goods available for sale	60,000	120,000
(-) Ending FG: 2,000 x \$6 12,000 x \$6	<u>(12,000)</u>	<u>(72,000)</u>
Variable Cost of Goods Sold	(48,000)	(48,000)
+ Variable selling cost 8,000 x \$1	8,000	8,000
Total Variable Cost	<u>(56,000)</u>	<u>(56,000)</u>
Contribution Margin (Sales - Total Variable Cost) 120,000 – 56,000	64,000	64,000
<b>(-) Fixed Costs</b>		

Fixed manufacturing cost	40,000	40,000
Fixed administrative cost	<u>\$15,000</u>	<u>\$15,000</u>
Total Fixed Costs	(55,000)	(55,000)
<b>Net Income</b>		
64,000 – 55,000	9,000	9,000

**Note:** The difference in net income for the two activity levels =  $33,000 - 17,000 = \$16,000$ , while units sold are the same (8,000 units):

	<b>10,000 Units</b>	<b>20,000 Units</b>	<b>Difference</b>
Ending FG	2,000 units x \$4 = \$8,000	12,000 units x \$2 = \$24,000	24,000 – 8,000 = \$16,000

### Example 2:

X Manufacturing Co. makes a product, the Sneakers, which has a variable production cost of \$6, variable marketing costs are Zero, and fixed costs amounting to 90,000 per year. Assuming a 10,000 Sneakers production and a selling price of 10.

**Required:** Calculate the contribution and profit for March 2021, using variable costing principles, if sales were as follows:

- a) 20,000 Sneakers
- b) 30,000 Sneakers
- c) 40,000 Sneakers

### **Solution**

The first stage in the profit calculation must be to identify the variable costs, and then the contribution. Fixed costs are deducted from the total contribution to derive the profit. All closing stocks are valued at marginal production cost 6 per unit). For 20,000, 30,000, and 40,000 Sneakers this would be:

	<b>20,000 units</b>	<b>30,000 units</b>	<b>40,000 units</b>
Sales @ \$10	\$200,000	\$300,000	\$400,000
Variable production cost	\$120,000	\$180,000	\$240,000
Contribution margin	\$80,000	\$120,000	\$160,000
Less fixed costs	90,000	90,000	90,000
Profit / (loss)	(10,000)	30,000	70,000
Contribution per unit	4	4	4

The conclusions which may be drawn from the example are as follows:

- a) The profit per unit varies at differing levels of sales because the average fixed overhead cost per unit changes with the volume of output and sales.
- b) The contribution per unit is constant at all levels of output and sales. Total contribution, which is the contribution per unit multiplied by the number of units sold, increases in direct proportion to the volume of sales.
- c) Since the contribution per unit does not change, the most effective way of calculating the expected profit at any level of output and sales would be as follows:
  - First, calculate the total contribution,
  - Then deduct fixed costs as a period charge to find the profit.

### **Example 3:**

Adam Toys manufacturing company manufactured one product (Dolls); the following costs relate to a financial year when 50,000 units of Dolls are made:

Direct materials \$87,500

Direct labor            \$57,500  
 Indirect costs        \$77,500 (of the Indirect costs, \$65,000 behaves as a fixed cost, and the remainder as a variable cost).

**Required:**

- Calculate the cost of one unit of Doll using the Variable (Marginal) costing method.
- If each unit of Doll sells for \$10 and all the production of 50,000 units is sold, calculate the profit for the year using the marginal costing statement. Show the contribution per unit and total contribution.

**Solution:**

**Cost of one Doll**

Using only the variable (marginal) costs to calculate the cost one unit of Doll.

Direct materials  $(87,500 \div 50,000)$             1.75

Direct materials  $(57,500 \div 50,000)$             1.15

Indirect Variable costs

$(77,500 - 65,000) = 12,500 \div 50,000$

## Marginal costing statement for the financial year

	Per unit	For a year
Sales	10.00	500,000
Less: variable costs	3.15	<u>157,500</u>
Contribution	6.85	342,500
Less Fixed costs		<u>65,000</u>
Profit		277,500

Note that the fixed costs are not calculated in unit terms but are simply deducted in total from the total contribution.

### Example 4:

The following cost information for X Company during 2023 was as follows:

<b>Variable cost / unit</b>		<b>Fixed OH \$50,000</b>
DM	\$30	No. of units produced
DL	\$12	Beg. WIP (10% completed)
VFOH	\$20	End. WIP (80% completed)

### Additional information:

Beg FG 2,500 units,

Units sold 21,000 units @ \$100/unit

End FG 1,500 units

**Marketing & and administrative expenses**

Variable

Fixed                    \$250,350

**Total                    \$500,350**

**Required:**

1. Prepare income statement under:

A. Absorption Costing

B. Variable Costing

2. Reconcile Net Income difference between the two costing methods

**Solution:**

Cost per unit = (Fixed Cost + Variable Cost) / units produced

$$= (50,000/20,000 \text{ units}) + \$62 = 2.5 + 62 = \$ 64.5$$

**A. Income Statement under Absorption costing (Full Costing)**

Sales Revenue (21,000 x \$100)			2,100,000
<b><u>(-) Cost of Goods Sold</u></b>			

Direct Material (20,000 x \$30)	600,000		
Direct Labor (20,000 x \$12)	<u>240,000</u>		
Prime Cost		840,000	
+ Variable FOH (20,000 x \$20)	400,000		
Fixed FOH	<u>50,000</u>		
Total FOH		<u>450,000</u>	
Total Current Manufacturing Costs		1,290,000	
+ Beginning WIP $(10\% \times 1000 \text{ U} \times \$64.5)$		<u>6,450</u>	
Total cost of WIP		1,296,450	
(-) Ending work in process $(80\% \times 3000 \text{ U} \times \$64.5)$		<u>(154,800)</u>	
Total cost of finished goods		1,141,650	
+ Beginning finished goods $(2,500 \text{ U} \times 64.5)$		<u>(161,250)</u>	

Cost of goods available for sale		1,302,900	
(-) Ending finished goods (1,500 U × 64.5)		(96,750)	
Cost of goods sold			(1,206,150)
Gross profit			893,850
(-) Marketing & Administrative			(500,350)
<b>Net Income (Absorption Costing)</b>			393,500

### B. Income Statement under Variable costing (Marginal Costing)

Sales Revenue (21,000 x \$100)			2,100,000
<b><u>(-) Total Variable Cost</u></b>			
Direct Material (20,000 x \$30)	600,000		
Direct Labor (20,000 x \$12)	<u>240,000</u>		
Prime Cost		840,000	

+ Variable FOH (20,000 x \$20)		<u>400,000</u>	
Total variable manufacturing costs		1,240,000	
+ Beginning WIP (10% × 1000 U × \$62)		<u>6,200</u>	
Total cost of WIP		1,246,200	
(-) Ending work in process (80% × 3,000 U × \$62)		<u>(148,800)</u>	
Total Cost of goods manufactured		1,097,400	
+ Beginning finished goods (2,500 unit × \$62)		155,000	
Total Cost of goods available for sale		<u>1,252,400</u>	
(-) Ending finished goods (1500 U × \$62)		<u>(93,000)</u>	

Variable Cost of goods sold		1,159,400	
+ Variable marketing cost & administrative		<u>250,000</u>	
Total variable cost			<u>(1,409,400)</u>
Contribution margin			690,600
(-) Fixed costs:			
Fixed factory overhead ( $2.5 \times 20,000$ )		50,000	
Fixed Marketing & administrative		<u>250,350</u>	
			<u>(300,350)</u>
<b>Net Income (Variable Costing)</b>			390,250

## 2. Reconcile Net Income difference between the two costing methods

<b>Net Income (absorption costing)</b>	<b>\$393,500</b>
+ Difference in Beg. WIP $\$2.5 \times 10\% \times 1,000$	250
(-) difference in End. WIP $\$25 \times 80\% \times 3,000$	(6,000)
+ Difference in Beg. FG $\$2.5 \times 2,500$	6,250
(-) Difference in End. FG $\$2.5 \times 1,500$	<u>3,750</u>
<b>Net Income (Marginal Costing)</b>	<b>390,250</b>

### Example 5:

A firm has prepared the following budget for a new product

	Variable costs per unit	Fixed costs per period
DM	\$6	—
DL	\$13	—
Overhead	\$7	\$20,000
Selling	\$2	\$10,000
Administration	\$1	\$15,000
<b>Total</b>	<b>\$29</b>	<b>\$45,000</b>

During the first period, the firm plans on producing and selling 1,000 units.

**Required:**

What is the expected inventoriable cost per unit under:

- (A) Absorption Costing? and
- (B) Variable Costing?

**Solution:**

**A) Cost Statement (Absorption Costing):**

Direct material (10,000 × 6)	6,000	
Direct labor (10,000 × 13)	<u>13,000</u>	
Prime cost		19,000
+ Manufacturing OH		
Variable OH	7,000	
Fixed OH	<u>20,000</u>	
		<u>27,000</u>
<b>Current Manufacturing Cost</b>		46,000

Therefore, Cost per unit = 46,000 / 1,000 = \$46/un

**B) Cost Statement (Variable Costing):**

Direct material (10,000 × 6)	6,000	
Direct labor (10,000 × 13)	<u>13,000</u>	
Prime cost		19,000

+ Variable Manufacturing Cost		
Variable OH		7,000
<b>Current Manufacturing Cost</b>		26,000

Therefore, Cost per unit =  $26,000 / 1,000 = \$26/\text{unit}$

### 3.7. Questions:

#### 1. Multiple Choice Questions:

1. \_\_\_\_\_ is a method of inventory costing in which all variable manufacturing costs (direct and indirect) are included as inventoriable costs and all fixed manufacturing costs are excluded.
- A) Variable costing
  - B) Mixed costing
  - C) Absorption costing
  - D) Standard costing

2. Absorption costing is required for all of the following except:

- A) Generally accepted accounting principles
- B) Determining a competitive selling price
- C) External reporting to shareholders
- D) Income tax reporting

3. Absorption costing:

- A) Expenses marketing costs as cost of goods sold
- B) Treats direct manufacturing costs as a period cost
- C) Includes fixed manufacturing overhead as an inventoriable cost
- D) Is required for internal reports to managers

4. \_\_\_\_\_ method(s) include(s) fixed manufacturing overhead costs as inventoriable costs.

- A) Variable costing
- B) Absorption costing
- C) Throughput costing
- D) All of these answers are correct.

5. Variable costing:

- A) Expenses administrative costs as cost of goods sold
- B) Treats direct manufacturing costs as a product cost
- C) Includes fixed manufacturing overhead as an inventoriable cost
- D) Is required for external reporting to shareholders

6. \_\_\_\_\_ method(s) is required for tax reporting purposes.

- A) Variable costing
- B) Absorption costing
- C) Throughput costing
- D) All of these answers are correct.

7. The only difference between variable and absorption costing is the expensing of:

- A) Direct manufacturing costs
- B) Variable marketing costs
- C) Fixed manufacturing costs
- D) Both A and C are correct.

8. Which of the following inventory costing methods shown below is required by GAAP (Generally Accepted Accounting Principles) for external financial reporting?
- A) Absorption costing
  - B) Variable costing
  - C) Throughput costing
  - D) Direct costing
9. The contribution-margin format of the income statement:
- A) Is used with absorption costing
  - B) Calculates gross margin
  - C) Distinguishes between manufacturing and nonmanufacturing costs
  - D) Is used with variable costing
10. The gross-margin format of the income statement:
- A) Is used with variable costing
  - B) Is used with absorption costing
  - C) Calculates contribution margin
  - D) Distinguishes variable costs from fixed costs

11. The gross-margin format of the income statement:

- A) Distinguishes between manufacturing and nonmanufacturing costs
- B) Distinguishes variable costs from fixed costs
- C) Is used with variable costing
- D) Calculates contribution margin

12. \_\_\_\_\_ are subtracted from sales to calculate contribution margin.

- A) Variable manufacturing costs
- B) Variable selling and administrative costs
- C) Fixed manufacturing costs
- D) Both A and B are correct.

13. \_\_\_\_\_ are subtracted from sales to calculate gross margin.

- A) Variable manufacturing costs
- B) Variable selling and administrative costs
- C) Fixed manufacturing costs
- D) Both A and C are correct.

14. The difference between operating incomes under variable costing and absorption costing centers on how to account for:

- A) Direct materials costs
- B) Fixed manufacturing costs
- C) Variable manufacturing costs
- D) Both B and C are correct.

15. One possible means of determining the difference between operating incomes for absorption costing and variable costing is by:

- A) Subtracting sales of the previous period from sales of this period
- B) Subtracting fixed manufacturing overhead in beginning inventory from fixed manufacturing overhead in ending inventory
- C) Multiplying the number of units produced by the budgeted fixed manufacturing cost rate
- D) Adding fixed manufacturing costs to the production-volume variance

**Problems:****Problem 1:**

X Company produces and sells chairs for \$80 per unit.

In 2023, 50,000 chairs were produced and 40,000 were sold. Other information for the year includes:

Direct materials \$30.00 per unit

Direct manufacturing labor \$ 2.00 per unit

Variable manufacturing costs \$ 3.00 per unit

Sales commissions \$ 5.00 per unit

Fixed manufacturing costs \$25.00 per unit

Administrative expenses, all fixed \$15.00 per unit

What is the inventoriable cost per unit using variable costing?

- A) \$32
- B) \$35
- C) \$40
- D) \$60

What is the inventoriable cost per unit using absorption costing?

- A) \$32
- B) \$35

- C) \$60
- D) \$80

**Problem 2:**

X Company produces and sells laptop parts for \$60.00 per unit. In 2023, 100,000 parts were produced and 75,000 units were sold. Other information for the year includes:

Direct materials \$24.00 per unit  
Direct manufacturing labor \$ 4.50 per unit  
Variable manufacturing costs \$ 1.50 per unit  
Sales commissions \$ 6.00 per part  
Fixed manufacturing costs \$750,000 per year  
Administrative expenses, all fixed \$270,000 per year  
What is the inventoriable cost per unit using variable costing?

- A) \$28.50
- B) \$30.00
- C) \$36.00
- D) \$43.50

What is the inventoriable cost per unit using absorption costing?

- A) \$30.00
- B) \$36.00
- C) \$37.50
- D) \$43.50

**Problem 3:**

For 2023, X Company had sales of 150,000 units and production of 200,000 units. Other information for the year included:

Direct manufacturing labor \$187,500  
Variable manufacturing overhead 100,000  
Direct materials 150,000  
Variable selling expenses 100,000  
Fixed administrative expenses 100,000  
Fixed manufacturing overhead 200,000

There was no beginning inventory.

**Required:**

- a. Compute the ending finished goods inventory under both absorption and variable costing.

- b. Compute the cost of goods sold under both absorption and variable costing.

#### **Problem 4:**

X Company manufactures and sells televisions. For the month of July there was no beginning inventory, there were 3,000 units produced and 2,500 units sold. The manufacturing variable cost per unit is \$385 and the variable operating cost per unit was \$312.50. The fixed manufacturing cost is \$450,000 and the fixed operating cost is \$75,000. The selling price per unit is \$925.

#### **Required:**

Prepare the income statement for X Company for July under variable costing.

#### **Problem 5:**

The following information of X Company are presented below:

Beginning inventory: Finished goods	3,000 units
Direct Materials	\$6/unit
Direct Labor	\$4/unit

Var. Manufacturing OH	\$7/unit
Fixed. Manufacturing OH	\$18,000
Variable Selling & Admin.	\$3/unit
Fixed Selling & Admin.	\$6,000
Production	10,000 units
Sales	11,000 units
Selling price	\$40/unit

**Required:**

Prepare a variable-cost income statement.

**Problem 6:**

X Company produces and sells pillows for \$80.00 per unit. In the first month of operation, 3,000 units were produced, and 2,250 units were sold. Actual fixed costs are the same as the amount budgeted for the month.

Other information for the month includes:

Variable manufacturing costs                    \$38 per unit

Variable marketing costs                    \$2 per unit

Fixed manufacturing costs                    \$60,000 per month

Administrative expenses, all fixed \$12,000 per month

Ending inventories:

Direct materials                                    -0-

WIP	-0-
Finished goods	750 units

**Required:**

- a. What is the cost of goods sold per unit when using absorption costing?
- b. What is gross margin when using absorption costing?
- c. What is operating income when using absorption costing?

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# CHAPTER FOUR

## ACCOUNTING FOR DIRECT COSTS

### Introduction

Cost accounting classifies product costs into two categories: direct costs and indirect costs. The differentiation between these two types of expenses is of utmost importance since costing systems manage them in various manners.

The determination of whether a cost is classified as direct or overhead can be intricate, as it is contingent upon the specific cost item. Furthermore, this classification is influenced by managerial and accounting preferences.

**Direct costs**, also known as **prime costs**, refer to the expenses that may be directly attributed to the production of goods or services. In the context of manufacturing enterprises, direct costs are often classified into two main categories: materials and labor.

So, this chapter is divided into:

Part (1): Accounting for Direct Material Costs

Part (2): Accounting for Direct Labor Costs

### Part (1):

#### Accounting for Direct Material Costs

Direct costs are expenses that can be directly attributed to specific items, or the entity being analysed.

Direct materials, on the other hand, pertain to raw materials that are incorporated into the final product, and their cost can be readily determined by tracing them through to the finished product. One example of a direct material utilized by an apparel manufacturer is fabric.

This part covers materials control basics, internal processes, and transitioning to a lean production system for efficiency and waste reduction.

The following points will be addressed in this part:

- 1- Materials Control and Economic Order Quantity.
- 2- Materials Costing Control Procedures.
- 3- Determination of Direct Material Cost per Unit.
- 4- Material Inventory Costing Methods.
- 5- Material Loss in the Production Process.
- 6- Just-in-Time Materials Control.

### (1) Materials Control and Economic Order Quantity:

There are two fundamental components of materials control, namely, (1) the physical control or protection of materials, and (2) the control of the capital invested in materials.

#### A) Physical Control of Materials

Every organization needs the implementation of an internal control system encompassing protocols aimed at ensuring the protection of assets. Due to the inherent vulnerability of highly liquid assets, such as cash and marketable securities, to theft, the level of security afforded to these assets is typically deemed sufficient. Nevertheless, it is imperative to safeguard additional resources such as inventory from unauthorized use or theft.

In order to achieve efficient management of resources, it is imperative for a firm to uphold three key principles: (1) restricted access, (2) division of responsibilities, and (3) precision in record-keeping.

### B) Controlling the Investment in Materials

One of the primary objectives of materials control is to ensure the maintenance of an optimal level of raw materials inventory. In order to ensure effective operations, it is important to keep an inventory that is both sufficiently large and diverse. However, it is crucial to avoid excessive inventory size that surpasses the requirements of scheduled production demands.

The effective planning and control of materials investment necessitates a thorough examination of several elements in order to ascertain the optimal timing and quantity of orders.

The concept of an Order Point entails establishing a minimum level of inventory that is necessary for each specific category of raw material. Additionally, it is important for inventory records to accurately reflect the quantity of each type of raw material currently available.

The Economic Order Quantity (EOQ) represents the point at which an order should be initiated, but it does not provide guidance on the optimal quantity of units to be bought in order to achieve maximum cost efficiency.

In order to ascertain the appropriate amount for an order, it is necessary to take into account both the expenses associated with making an order (referred to as order costs) and the expenses incurred from maintaining goods in stock (known as carrying costs).

The economic order quantity, also known as the ideal amount to order at one time, is the order size that effectively minimizes the cumulative costs associated with ordering and carrying inventory for a certain time frame, such as a year.

Various quantitative models and methods have been devised to compute the economic order quantity. One mathematical equation that can be employed is as follows:

$$EOQ = \sqrt{\frac{2 \times CO \times N}{CC}}$$

Where:

EOQ = economic order quantity

C = cost of placing an order

N = number of units required annually

CC = annual carrying cost per unit of inventory

*Economic Order Quantity (EOQ)*

$$= \sqrt{\frac{2 \times \text{cost of placing an order} \times \text{number of units required annually}}{\text{annual carrying cost per unit of inventory}}}$$

### Example (1):

The Kebmo firm possesses the following pertaining to material (R-100):

Number of units required annually	15,000 units
Cost of placing an order (CO)	\$15
Annual carrying cost per unit of inventory	\$0.6

**Required:** Compute the Economic Order Quantity.

### Solution

$$EOQ = \sqrt{\frac{2 \times \$15 \times 15,000}{\$0.6}} = 866 \text{ units}$$

### Example (2):

According to Fatima Supply Company's estimation, the projected usage of material used for the year is 40,000 units. The material is priced at a rate of \$8 per unit, with an anticipated ordering cost of \$12 per order.

The yearly carrying cost amounts to \$0.4 per unit.

**Required:** Compute the Economic Order Quantity.

### Solution

$$EOQ = \sqrt{\frac{2 \times \$12 \times 40,000}{\$0.4}} = 1,549 \text{ units}$$

### **(2) Materials Costing Control Procedures:**

Considering the significance of material costs, the internal system of the institution incorporates diverse processes to effectively manage and regulate these costs throughout the several phases of purchase, receipt, storage, distribution, and transfer. These procedures are outlined as follows:

#### **A- Materials Purchasing Procedures:**

The document cycle commences with the initiation of the purchasing process, wherein a purchase request is generated by the respective warehouse or department necessitating the desired items. Subsequently, the accounting department is to be furnished with the original application, while the purchasing department is to get a duplicate copy of such application.

##### **- Material Request:**

This document has been duly authorized by the proprietor of the warehouse to facilitate the transfer of commodities to other warehousing facilities. To ensure the provision of necessary supplies, it is essential to create a formal request that clearly outlines the desired

quality and quantity of the items, as well as the intended purpose or activity for which they will be utilized.

For a material request to be considered valid, it is necessary for it to bear the signature of a someone in a position of responsibility, such as a production manager or foreman. This signature serves as an indication that the warehouse has granted consent for the release of the materials stated in the request.

Typically, the process of requesting materials involves the submission of three copies, whereby two copies are dispatched to the stock department and the remaining copy is maintained by the requisitions department for the purpose of inspection.

Upon receipt of a request, the purchasing department initiates communication with suppliers in accordance with the established purchasing system of the organization. Subsequently, after careful evaluation, the department selects a supplier and proceeds to issue a purchase order to them.

The order encompasses many pieces of information, including the company's name and address, the order number, the supplier's name and address, the conditions

of delivery, the terms of any discounts, and the specifics of the items being ordered.

The order comprises one original document and two duplicate copies. The first document is dispatched to the designated supplier for the purpose of material delivery, while a duplicate is forwarded to the receiving department to facilitate the preparation for material receipt. The second duplicate enables the comparison of the data inside the command with the data within the command.

The materials are dispatched by the supplier to the company's control and reception department, where they undergo verification to ensure compliance with the standards outlined in the request and order. Subsequently, a control and reception report are prepared.

The inspection report documents the assessment of arriving items, providing a definitive evaluation of their approval or rejection. The present report provides comprehensive information pertaining to the order number, delivery terms, supplier's contact data, as well as the signatures of the test and acceptance committee.

The inspection and reception report comprises of four copies, including one original and three duplicates. The first copy is forwarded to the accounting department, the second copy is delivered to the bulk buying department, and the third copy is provided to the purchasing department for the purpose of documenting the condition of the ordered products. Additionally, a duplicate will be dispatched to retail establishments.

### **B- Procedures of Storage Materials:**

Upon the arrival of the supplies at the warehouse, the reconciliation procedure is initiated by using the duplicate copy of the purchase order and the duplicate copy of the inspection and reception report, which are transmitted to the warehouse by the buying office.

Based on the available data, it is observed that material pick-up permits are generated in triplicate, including one original and two duplicates. The original permit is retained inside the warehouses for the purpose of documenting the transaction in the goods card, inventory book, and material buy book maintained in the accounting records.

In order to achieve scientific management and optimize stock levels, several stock levels are established.

### (3) Determination of Direct Material Cost per Unit:

The unit cost of direct material should include the invoice price and other costs paid to vendors until those materials reach the stores or a point of free delivery.

The following table (4-1) shows the most important expenses that are charged to purchases:

**Table (4-1): Expenses that are charged to Purchase Cost of Direct Material**

<u>Items</u>	<u>Distribution basis</u>
(1) Discounts	
Trade discount	Deducted from the value of purchases
Quantity discount	Deducted from the value of purchases
Cash discount	It is not included in the cost of purchasing materials
(2) Transportation & Shipping expenses	quantity or weight
(3) Materials Handling and Storage Expenses	Weight or number of material orders handled or net value of materials
(4) Internal Transport Charges	distance traversed or volume or weight or net value
(5) Commission	Net purchase value
(6) Insurance expense	Net purchase value
(7) Customs duties & Value added tax	It is not included in the cost of purchasing materials
(8) The departments of purchases and stores expenses	It is not included in the cost of purchasing materials
(9) Purchase Finance Interest Expenses	It is not included in the cost of purchasing materials

*(Prepared by authors)*

### Example (3):

Assuming that the quantity purchased from the raw material (M) during the period is 500 tons and the purchase price of a ton of raw material is \$1,000, there is a trade discount of 10% and a cash discount of 5% if the payment is made within a week and the payment was made within the discount period, and there are customs duties of \$10,000, purchase commission of 2%, transportation expenses to the factory stores of \$ 12 per ton, and insurance expenses of \$8,000.

#### Required:

- 1- Compute the total cost of raw material (M).
- 2- Compute the cost per ton of raw material (M).

#### Solution

Description	Total
Quantity (tons)	500
Purchase price (\$)	\$1,000
<b>Total Purchase value</b>	<b>500,000</b>
(-) Trade discount ( $\$500,000 \times 10\%$ )	(50,000)
<b>Net Purchase value</b>	<b>450,000</b>
+ purchase commission ( $\$450,000 \times 2\%$ )	9,000
+ Transportation expenses ( $\$12 \times 500$ tons)	6,000
+ the insurance expenses	8,000
<b>Total Purchase cost (M)</b>	<b>473,000</b>
<b>Cost per ton (<math>\\$473,000 \div 500</math> tons)</b>	<b>\$946</b>

### Example (4):

Magy Company purchased three products: 1,000 units of product (A) at a price of \$20, 1,500 units of product (B) at a price of \$30, and 2,000 units of product (C) at a price of \$40. The transportation and shipping expenses for this order amounted to \$11,250, and the purchase commission on goods was 5%.

#### Required:

- 1- Compute the total cost of each of the three types.
- 2- Compute the cost per unit of each of the three types.

#### Solution

Description	Total	Types		
		A	B	C
Quantity (units)	4,500	1,000	1,500	2000
Purchase price (\$)	-----	20	30	40
<b>Total Purchase value</b>	<b>145,000</b>	<b>20,000</b>	<b>45,000</b>	<b>80,000</b>
+ Transportation and Shipping expenses (\$ 11,250 × $\frac{.....}{4500}$ )	11,250	2,500	3,750	5,000
+ Purchase commission (\$145,000 × 5%)	7,250	1,000	2,250	4,000
<b>Total Purchase cost (\$)</b>	<b>163,500</b>	<b>23,500</b>	<b>51,000</b>	<b>89,000</b>
Cost per ton (\$ .... ÷ ..... units)	-----	23.5	34	44.5

### **Example (5):**

Assuming that the quantity purchased from the raw material (C) during the period is 600 tons and the purchase price of a ton of raw material \$1,000, and quantity purchased from the raw material (D) during the period is 800 tons and the purchase price of a ton of raw material \$1,200, and quantity purchased from the raw material (E) during the period is 200 tons and the purchase price of a ton of raw material \$1,400, there is trade discount is 10% and the cash discount is 5% if the payment is made within a week and the payment was made within the discount period, and Value added tax \$20,000, and purchase commission 4%, and shipping expenses \$40,000, and transportation expenses to the factory stores \$60,000, the insurance expenses \$80,000, and internal transport charges \$100,000, and materials handling and storage expenses \$120,000, and purchase finance interest expenses \$140,000.

### **Required:**

- 1- Compute the total cost of each of the three types.
- 2- Compute the cost per ton of each of the three types.

### Solution

Description	Total	Types		
		C	D	E
Quantity (tons)	1,600	600	800	200
Purchase price (\$)	-----	1,000	1,200	1,400
<b>Total Purchase value</b>	<b>1,840,000</b>	<b>600,000</b>	<b>960,000</b>	<b>280,000</b>
(-) Trade discount ( $\$1,840,000 \times 10\%$ )	(184,000)	(60,000)	(96,000)	(28,000)
<b>Net Purchase value</b>	<b>1656000</b>	<b>540000</b>	<b>864000</b>	<b>252000</b>
+ Purchase commission ( $\$1,656,000 \times 4\%$ )	66,240	21,600	34,560	10,080
+ Shipping expenses ( $\$40,000 \times \frac{.....}{1600}$ )	40,000	15,000	20,000	5,000
+ Transportation expenses ( $\$60,000 \times \frac{.....}{1600}$ )	60,000	22,500	30,000	7,500
+ the insurance expenses ( $\$80,000 \times \frac{.....}{1656000}$ )	80,000	26,087	41,739	12,174
+ Internal Transport Charges ( $\$100,000 \times \frac{.....}{1600}$ )	100,000	37,500	50,000	12,500
Materials Handling and Storage Expenses ( $\$120,000 \times \frac{.....}{1600}$ )	120,000	45,000	60,000	15,000
<b>Total Purchase cost (\$)</b>	<b>2,122,240</b>	<b>707,687</b>	<b>1,100,299</b>	<b>314,254</b>
<b>Cost per ton (\$ .... ÷ ..... tons)</b>	-----	1,179	1,375	1,571

### (4) Material Inventory Costing Methods:

There are different methods of pricing materials, the choice of which depends on the type of material used and the operating conditions. The main methods used for pricing materials are:



*(Prepared by authors)*

#### A. Specific Identification Method:

When materials are procured exclusively for a particular task, the job is invoiced based on the actual costs incurred for the materials. These materials are frequently segregated and only utilized for the designated job.

One advantage of this approach is that the inventory account and cost of material issued accurately reflect the actual quantities on hand and the quantities that have been issued. In the case of high-cost items, this approach is often deemed indispensable.

### **Example (6):**

Assume that the GFR manufacturer has procured raw material (D) for the purpose of fulfilling Job Order No. (0022). In January 2023, the inventory acquisition comprises of 400 units procured on 5 January at a unit cost of \$40, followed by an additional 300 units obtained on 16 January at a unit cost of \$60, and finally, 350 units acquired on 22 January at a unit cost of \$20.

### **Required:**

Compute the costs incurred for the materials allocated to job order No. (0022), as well as the cost of the ending inventory, utilizing the specific identification method. If you know, the ending inventory on January 31 is 100 units from units purchased on January 5 and 50 units from units purchased on January 16.

### Solution

- Cost of material issued to job order no (0022)  
= Units issued for period × Unit price  
 $= (300 \times \$40) + (250 \times \$60) + (350 \times \$20)$   
 $= \$12,000 + \$15,000 + \$7,000 = \$34,000.$
- Cost of Ending inventory  
= Units Ending inventory × Unit price.  
 $= (100 \times \$40) + (50 \times \$60)$   
 $= \$4,000 + \$3,000 = \$7,000.$

### **B. First in, first out (FIFO)**

This approach is particularly appropriate in cases when the components are voluminous, costly, and readily distinguishable on an individual basis inside the retail environment. This approach becomes advantageous in situations where the frequency of item reception is low and the market price for the item remains consistent and predictable.

The first-in, first-out (FIFO) technique of costing is advantageous due to its simplicity. The first-in, first-out (FIFO) technique operates on the assumption that materials that are issued are sourced from the inventory

of goods that have been in stock for the longest duration. Consequently, the materials are priced based on the costs incurred for the oldest materials. The utilization of the First-In, First-Out (FIFO) method in several organizations exhibits a strong correlation between the progression of prices and the actual movement of materials.

### Example (7):

On August 1, 2023, the Beginning inventory of materials on hand for WRS Company was 200 units at a unit price of \$4. The purchases and issues are outlined as follows:

Data	Purchased (units)	Issued (units)	Cost \$ (Per unit)
6/8	300	-	6
8/8	-	100	-
17/8	400	-	8
22/8	-	250	-
31/8	-	400	-

### Required:

Prepare a store ledger to compute the cost of material issued and the cost of ending inventory according to the first in, first out (FIFO) method.

## Solution

### A store ledger First In, first out (FIFO)

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
Aug 1							200	4	800
Aug 6	300	6	1800				200	4	800
							300	6	1,800
Aug 8				100	4	400	100	4	400
							300	6	1,800
Aug 17	400	8	3200				100	4	400
							300	6	1,800
							400	8	3,200
Aug 22				100	4	400	150	6	900
				150	6	900	400	8	3,200
Aug 31				150	6	900	150	8	1,200
				250	8	2,000			

Cost of material Issued = 750 units = \$4,600

Cost of Ending stock = 150 units = \$1,200

### C. Last In, first out (LIFO)

Using this approach, the most recently acquired item is prioritized for shipment. The fees are determined based on the most recent batch received and are continuously computed until further batches are received at the warehouse. This approach involves determining the price of an item by considering the purchase price of the most recent unit in the inventory.

The Last-In, First-Out (LIFO) technique of material pricing operates under the assumption that materials utilized in production are the most recently acquired materials, in accordance with its name. Consequently, the valuation of materials issued is based on the most current purchase prices, whereas the valuation of stockpiles at the end of the period is determined by the prices paid for the earliest purchases. The Last-In, First-Out (LIFO) technique of pricing is commonly employed in some sectors as it closely aligns with the actual physical movement of commodities.

### Example (8):

On October 1, 2023, the Beginning inventory of materials on hand for MAR Company was 100 units at a unit price of \$6. The purchases and issues are outlined as follows:

Data	Purchased (units)	Issued (units)	Cost \$ (Per unit)	Cost value
<b>6/10</b>	<b>200</b>	-	<b>8</b>	
<b>8/10</b>	-	<b>50</b>	-	
<b>17/10</b>	<b>300</b>	-	<b>?</b>	<b>3000</b>
<b>22/10</b>	-	<b>350</b>	-	
<b>31/10</b>	-	<b>80</b>	-	

### Required:

Prepare a store ledger to compute the cost of material issued and the cost of ending inventory according to the Last In, first out (LIFO) method.

### Solution

#### A store ledger Last In, first out (LIFO)

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
Oct 1							100	6	600
Oct 6	200	8	1600				100	6	600
							200	8	1,600
Oct 8				50	8	400	100	6	600
							150	8	1,200
Oct 17	300	10	3000				100	6	600
							150	8	1,200
							300	10	3,000
Oct 22				300	10	3,000	100	6	600
				50	8	400	100	8	800
Oct 31				80	8	640	100	6	600
							20	8	160

Cost of material Issued = 480 units = \$4,440

Cost of Ending stock = 120 units = \$760

### **D. Weighted average cost (WA):**

The system in question operates on a rolling weighted average methodology, wherein the issue price undergoes recalculation subsequent to each entry. This recalculation takes into account both the total quantity and the total cost, therefore determining the weighted average price.

This methodology has the tendency to mitigate price volatility and minimize computational requirements, as each instalment incurs a consistent fee until a fresh shipment of material is received.

In contrast to the FIFO and LIFO methods, this particular approach is characterized by its simplicity since it does not require specific identification of each batch. Nevertheless, this methodology introduces the additional administrative workload of calculating a fresh mean price for each subsequent batch that is acquired. An established issue price is rarely representative of an actual purchase price.

### Example (9):

On April 1, 2023, the Beginning inventory of materials on hand for FDS Company was 50 units at a unit price of \$8. The purchases and issues are outlined as follows:

Data	Purchased (units)	Issued (units)	Cost \$ (Per unit)
6/4	350	-	10
8/4	-	100	-
17/4	500	-	12
22/4	-	200	-
31/4	-	100	-

### Required:

Prepare a store ledger to compute the cost of material issued and the cost of ending inventory according to weighted average cost (WA) Method.

### Solution

#### A store ledger Weighted Average (WA)

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
Apr 1							50	8	400
Apr 6	350	10	3,500	975	9.75	3,900	400	9.75	3,900
Apr 8							300	9.75	2,925
Apr 17	500	12	6,000				800	11.16	8,925
Apr 22							600	11.16	6,693
Apr 31							500	11.16	5,577

i.e.: Weighted Average Cost per unit =  

$$\frac{(50 \times 8) + (350 \times 10)}{50 + 350} = \frac{3900}{400} = \$9.75$$

Cost of material Issued = 400 units = \$4,323

Cost of Ending stock = 500 units = \$5,577

### Example (10):

On January 1, 2023, the Beginning inventory of materials on hand for ABC Company was 100 units at a unit price of \$10. The purchases and issues are outlined as follows:

Data	Purchased (units)	Issued (units)	Cost \$ (Per unit)
8/1	160	-	25
14/1	300	-	30
20/1	-	250	-

### Required:

Prepare a store ledger to compute the cost of material issued and the cost of ending inventory according to:

- 1- First In, first out (FIFO) method.
- 2- Last In, first out (LIFO) method.
- 3- Weighted average cost (WA) Method.

## Solution

### **1- First In, first out (FIFO) method**

A- Cost of material Issued:

$$= (100 \times \$10) + (150 \times \$25) = \$4,750$$

B- Cost of Ending stock:

$$= (10 \times \$25) + (300 \times \$30) = \$9,250$$

### **2- Last In, first out (LIFO) method**

A- Cost of material Issued:

$$= 250 \times 30 = \$7,500$$

B- Cost of Ending stock:

$$= (100 \times \$10) + (160 \times \$25) + (50 \times \$30) = \$6,500$$

### **3- Weighted average cost (WA) method.**

#### **Weighted Average Cost per unit =**

$$\frac{\text{The Total cost available for Issue} (\text{Cost of Beginning units} + \text{Cost of Receipts units})}{\text{The Total units available for Issue} (\text{Beginning units} + \text{Receipts units})}$$

$$\begin{aligned} &= \frac{(100 \times 10) + (160 \times 25) + (300 \times 30)}{100 + 160 + 300} \\ &= \frac{1,000 + 4,000 + 90,00}{560} \\ &= \frac{14,000}{560} = \$25 \end{aligned}$$

A- Cost of material Issued =  $250 \times \$25 = \$6,250$

B- Cost of Ending stock =  $310 \times \$25 = \$7,750$

### Example (11):

On June 1, 2023, the Beginning inventory of materials on hand for MAS Company was 300 units at a unit price of \$10. The purchases and issues are outlined as follows:

Data	Purchased (units)	Issued (units)	Cost \$ (Per unit)	Cost value
5/6	400	-	?	4,800
9/6	-	150	-	
16/6	200	-	14	-
23/6	-	200	-	
31/6	-	50	-	

### Required:

Prepare a store ledger to compute the cost of material issued and the cost of ending inventory according to:

- 1- First In, first out (FIFO) method.
- 2- Last In, first out (LIFO) method.
- 3- Weighted average cost (WA) Method.

### Solution

#### A store ledger First In, first out (FIFO)

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
June 1							300	10	3,000
June 5	400	12	4,800				300	10	3,000
							400	12	4,800
June 9				150	10	1,500	150	10	1,500
							400	12	4,800
June 16	200	14	2,800				150	10	1,500
							400	12	4,800
							200	14	2,800
June 23				150	10	1,500	350	12	4,200
				50	12	600	200	14	2,800
June 31				50	12	600	300	12	3,600
							200	14	2,800

Cost of material Issued = 400 units = \$4,200

Cost of Ending inventory = 500 units = \$6,400

**A store ledger  
Last In, first out (LIFO)**

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
June 1							300	10	3,000
June 5	400	12	4,800				300	10	3,000
							400	12	4,800
June 9				150	12	1,800	300	10	3,000
							250	12	3,000
June 16	200	14	2,800				300	10	3,000
							250	12	3,000
							200	14	2,800
June 23				200	14	2,800	300	10	3,000
							250	12	3,000
June 31				50	12	600	300	10	3,000
							200	12	2,400

Cost of material Issued = 400 units = \$5,200

Cost of Ending inventory = 500 units = \$5,400

**A store ledger  
Weighted average cost (WA) Method**

Date	Receipts			Issues			Balance		
	Q	P	V	Q	P	V	Q	P	V
June 1							300	10	3,000
June 5	400	12	4,800				700	11.14	7,800
June 9				150	11.14	1,671	550	11.14	6,129
June 16	200	14	2,800				750	11.91	8,929
June 23				200	11.91	2,382	550	11.91	6,547
June 31				50	11.91	596	500	11.91	5,951

i.e.: Weighted Average Cost per unit

$$\frac{(300 \times 10) + (400 \times 12)}{300 + 400} = \frac{7,800}{700} = \$ 11.14$$

Cost of material Issued = 400 units = \$4,649

Cost of Ending inventory = 500 units = \$5,951

### Comparison of the three methods for pricing materials

	<b>FIFO</b>	<b>WA</b>	<b>LIFO</b>
Cost of material Issued (\$)	4,200	4,649	5,200
Cost of Ending inventory (\$)	6,400	5,951	5,400
The Total Cost Available for issue (\$)	10,600	10,600	10,600

Note that: the highest value to cost of material issued is \$5,200 according to the Last In, First Out (LIFO) method, and the lowest value to cost of material issued is \$4,200 according to the First In, First Out (FIFO) method, but the average weighted average cost (WA) method is \$4,649.

### (5) Material Loss in the Production Process:

Direct material cost includes scrap, waste, and predicted non-conforming units throughout manufacturing. These scenarios demonstrate when such expenditures are direct material costs:

- A. Steel parts are stamped or turned from castings to create final components. Normal scrap loss during manufacturing may be accurately predicted. Losses may occur due to evaporation, drying, degradation, shrinkage, or other factors. The amount of material lost throughout these procedures is typically predictable. Include the predicted lost material cost in the direct material cost.
- B. Accurate engineering estimates are created for expected fault percentages in each production step. Include estimated percent faulty material cost in finished production.
- C. Estimated net salvage value of scrap, trash, and defective units commonly reduces direct material costs. However, direct material prices should rise when costs exceed salvage value, as with chemical or radioactive wastes.

Direct material costs should not include unexpected scrap, trash, or damaged products. Manufacturing overhead must contain these amounts.

### (6) Just-in-Time Materials Control:

The just-in-time (JIT) inventory system, alternatively referred to as a lean production system, entails the delivery of goods to the factory right before their utilization in the manufacturing process. The implementation of a lean manufacturing system results in a notable reduction in inventory carrying costs through the adoption of a just-in-time delivery approach for raw materials, ensuring their timely integration into the production process.

Moreover, the integration of various production operations that were formerly carried out within separate departments in a conventional manufacturing system has resulted in the formation of consolidated work centers known as manufacturing cells.

The implementation of lean manufacturing techniques has the potential to decrease inventory levels, leading to enhanced processing speed and a consequent reduction in the production cycle time for each unit.

### **Questions, and Problems**

#### **A- Questions**

- 1) What are the primary objectives of materials control?
- 2) What are the key elements that management should take into account when making decisions about the level of investment in materials?
- 3) What is the definition of the word "order point"?
- 4) What types of information and data are required in order to determine the appropriate order point?
- 5) How can the concept of economic order amount be accurately characterized?
- 6) What kind of information and data are required for the computation of the economic order quantity?
- 7) When evaluating the cost of making an order, it is important to take into account many elements.
- 8) What are the costs related to inventory holding?
- 9) A corporation has the option to choose an inventory costing technique from a variety of frequently employed processes. In a concise manner, how

would you characterize each of the below methodologies?

- a. First-in, first-out.
  - b. Last-in, first-out.
  - c. Moving average.
- 10) What are the key differences between the just-in-time approach to production and the traditional approach?

### B- Problems

#### Problem (1):

Ratmo Company has projected a daily consumption rate of \$500 for the material Inca. Additionally, they have estimated a lead time of seven days for the procurement of this material. Furthermore, the company aims to maintain a safety stock of \$2,500.

#### Required:

- a. Compute the order point.
- b. Compute the number of dollars to be allocated from the safety stock in the event that the new order has a delay of four days.

### **Problem (2):**

According to Rimini Company's projections, an estimated quantity of 25,000 units of material is expected to be utilized throughout the course of the year. The anticipated daily consumption is projected to be 200 units, accompanied by a lead time of five days and a preferred safety stock level of 500 units. The anticipated cost of the material is projected to be \$5 per unit. Rimini projects an anticipated cost of \$50 per order placement. The yearly carrying cost amounts to \$0.10 per unit.

#### **Required:**

- a. Calculate the order point.
- b. Compute the most cost-effective order quantity by utilizing the EOQ formula.
- c. Compute the overall cost associated with both ordering and carrying inventory at the Economic Order Quantity (EOQ) point.

### **Problem (3):**

Durango Chemical, Inc. has an annual material need of 20,000 gallons. The company incurs a \$20 cost for

each order placed, while the carrying cost per gallon amounts to \$5 on an annual basis.

**Required:** Compute the Economic Order Quantity (EOQ) by considering hypothetical order quantities of 300, 400, 500, 600, 700, and 800 gallons.

### **Problem (4):**

According to the projections made by Eagle Company, it is anticipated that a total volume of 360,000 gallons of material will be used throughout the course of the year. The anticipated price for the material is projected to be \$5 per gallon. According to Eagle, the projected cost for placing each purchase is estimated to be \$72. The yearly cost of transportation is \$4 per gallon.

#### **Required:**

- a. Compute the most cost-effective order quantity by utilizing the EOQ formula.
- b. Compute the overall cost associated with both ordering and carrying inventory at the Economic Order Quantity (EOQ) point.

### Problem (5):

The subsequent material-related transactions took place during the month of February:

Feb. 1	Balance on hand, 1,200 unit @ \$2.76, \$3,312.00
5	Issued 60 unit to production.
11	Issued 200 unit.
14	Received 800 unit from a supplier, price \$2.80 per unit.
15	Issued 400 unit.
16	Returned to a supplier for credit, 90 unit purchased on February 14, which were found to be defective.
18	Received 1,000-unit, price \$2.83 per unit.
21	Issued 640 unit.

### Required:

Record the transactions on materials ledger accounts, under the assumption of employing a perpetual inventory system. Please round the unit pricing to four decimal places.

- 1- First In, first out (FIFO) method.
- 2- Last In, first out (LIFO) method.
- 3- Weighted average cost (WA) Method.

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### Part (2):

### Accounting for Direct Labor Costs

#### **INTRODUCTION**

Labors term is the human resources that may include staffs, workers, employees etc. It is a very important tool to manufacture a product or to perform a service. In production sense, labors also represent the operating power to transform raw materials into final products. Exertions of labors are required to be compensated. This compensation so paid either in cash or in kind and facility terms is known as wages.

Any business need to know how much to pay employees or workers. Cost of wages to workers is popularly known as the labor cost. The labor cost is the most important element of business costs after the material cost. It is contained the costs of wages and salaries of the business employees. Wage rates will dominate by demand and supply and are determined based on qualitative and quantitative factors such as required

skills, efficiency, work volume, etc. Therefore, it is mandatory to determine the appropriate wages that should achieve economy in cost and, effectiveness and efficiency in desired output.

### 1. LABOR (EMPLOYEE) COST

**Labor cost:** Benefits paid in cash or kind to the employees of a corporation, whether they are permanent or temporary for their exertions. Labor cost includes the following:

- (i) Wages and salary;
- (ii) Incentives;
- (iii) Overtimes premiums;
- (iv) Corporation's contribution to welfare and healthcare funds.
- (v) Services that are provided by the corporation and not related to the corporation activity such as; recreational trips, leave with pay, free meals, etc.

**Classification of labor cost:** Labor cost is classified into two main categories that are direct and indirect labor cost.

### **Direct labor cost:**

- It is benefits paid to employees that are directly engaged in the production process.
- It can be easily allocated to products, activities, contracts, processes, etc.
- It has a positive relationship with the volume of production.

### **Indirect labor cost:**

- It is benefits paid to employees that are not directly engaged in the production process.
- It is a portioned on a appropriate basis.
- It may be not vary with the volume of production.

## **2. ATTENDANCE & PAYROLL**

### **PROCEDURES**

The accounting system of labor cost performs according to three departments with certain functions:

**1- Time-keeping Department:** this department is concerned with two main functions.

- a) Maintenance of attendance records i.e. time keeping of time worked.
- b) Calculations of time spent by an employee on certain jobs i.e. time booking etc.

**2- Payroll Department:** is concerned with two functions.

- a) Payroll preparation of the employees.
- b) Disbursing salary and wage payments.

**3- Cost accounting Department:** is concerned with three functions.

- a) Accumulation and classification of employee costs.
- b) Allocation and analysis of costs to various cost objects
- c) Computing and recording earnings.

### 2.1 Attendance Procedure (Time-keeping)

Time-keeping is provide a record of the total time spent of each employee in the entity. It is very important procedure where payments of wages made based on time worked. Time worked of employee should be

recorded correctly to ensure discipline and adequate rate of production.

### **Objectives of time-keeping**

- I. Preparation of payrolls.
- II. Calculating overtime.
- III. Controlling employee cost.
- IV. controlling idle time.
- V. Ensuring discipline and adequate rate of production.
- VI. Minimizing the risk of fraudulent payments of wages.

### **Methods of Time-keeping:**

Time-keeping methods may be classified into manual and automated methods and the implementation of each method depends upon the requirements and policy of an entity.

## 1. Manual Methods/ Time card method

This method keeps an attendance record of arrival and leaving time of an employee. It is a simple method however, it suffers from some problems concerned about dishonest practice of some employees that recording wrong times in collusion with timekeeper. The following image shows an example of time card.



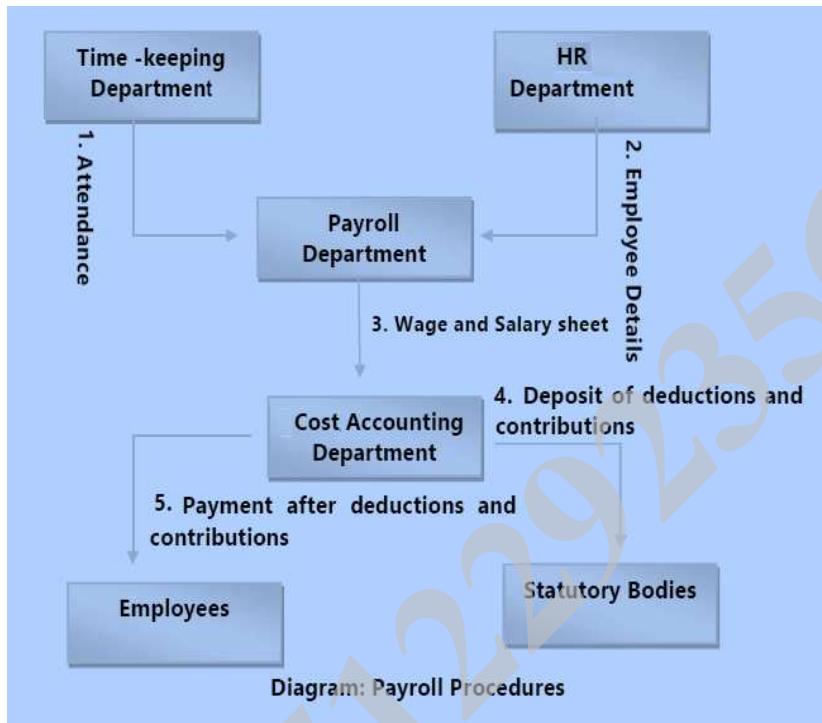
### 2. Automated Methods

Under this method, attendance is marked by recognizing an employee based on an employee's unique identity like fingerprint, face recognition etc. The databases of employees are kept in the attendance device for this purpose. This attendance system includes time and attendance tracking technology and reduces the risk of collisions and proxy attendance. Because of cost associated with set-up and maintenance this system, it may not be suitable for small corporations. The following image shows an example of biometric fingerprint/face recognition scanner.



## 2.2 Payroll Procedure

The following diagram presents the process of payroll procedure



### 1. Attendance details:

A time card/sheet includes weekly hours worked by each employee (in case of time-based payment) and number of units produced of work (in case of piece rate). This sheet plus incentives such as, overtime payment or bonus of employee

will be sent to the payroll department by the time keeping department.

### **2. Employees details:**

A list of employees which will be paid is sent by the HR department.

### **3. Computation of wages and other incentives:**

Payroll department based on details and information that provided by the time keeping department and HR department calculates wages and prepares pay slip for all employees and send it to the cost accounting department for complete the process according to applied deductions and payments.

### **4. Statutory liabilities:**

All statutory deducted from wages of the employees beside the contributions such as employee state insurance scheme (ESI) and Tax Deduction at Source (TDS) are paid to the respective statutory entities.

### 5. Payment to the employees:

Cost accounting department deduct all statutory deductions then, wages are paid to the employees.

Fair Labor Standards Act (FLSA) obligates firms that employees to be paid regular hourly rate for all time worked.

### Time booking

Time booking implies a record of breaking up time on various jobs in the entity.

### Idle time

Time keeping records the total time sent by an employee in the entity but it does not determine the time sent by an employee in a particular job. The idle time is the time during which the employee does not carry out any production but it is paid. Idle time is calculate as the difference between the time paid and the time booked and it is divided into two types:

a) Normal idle time: cannot be avoided or reduced such as:

- Time interval sent between a particular job and another.
- Time of setting up the machine.
- Time of rest and launch break.

The normal idle time should be discounted from total worked hours to calculate effective hours.

Effective hours = total worked hours - normal idle time

b) Abnormal idle time: cannot be controlled or dominated such as:

- Time sent because of power failure.
- Time sent because of breakdown of the machines.
- 

### **Example 12:**

A factory working five days in a week with eight hours daily, a worker is paid at the rate of \$20 per hour as a basic rate. He is allowed to take 26 minutes off during his hours shift for launch break and a 10 minutes recess

for rest. During a week, his time card showed that his time was chargeable to :

<b>Job X</b>	<b>12 hrs.</b>
<b>Job Y</b>	<b>15 hrs.</b>
<b>Job Z</b>	<b>8 hrs.</b>

Answer the following:

- 1- Calculate normal idle hours per week, determine abnormal and total idle hours per week.
- 2- Calculate effective hours in a week.
- 3- Calculate total wage of that worker for a week and the wage rate per hour.
- 4- State an allocation of wages for jobs in a week.

### Solution

- 1- Total idle hours = normal idle hours + abnormal idle hours.

Normal idle time/week = 20 min. (launch break)  
+ 10 min. (recess for rest) x 5 days (working days per week) = 180 min. = 180/60 = 3 hrs.

Abnormal idle time/week = total working hrs./std hrs. – time working recorded in time card  
$$= 5 \times 8 - (12+15+8) = 5 \text{ hrs.}$$

Total idle hrs./week =  $3 + 5 = 8 \text{ hrs.}$

- 2- Effective hours / week = total worked hours/week - normal idle time/week =  $5 \times 8 - 3 = 37 \text{ hrs.}$
- 3- Total wage/week = total worked hrs. x basic rate/hrs.

$$= 5 \times 8 \times 20 = \$ 800.$$

wage rate per hour = total wage/week ÷ effective hrs./week  
$$= 800/37 = \$21.62$$

### 4- allocation of wages for jobs in a week.

job	Working hrs. x wage rate /hrs.
x	$12 \times 21.62 = \$259.44$
y	$15 \times 21.62 = \$324.3$
z	$8 \times 21.62 = \$172.96$

**OVERTIME:** is working hours that done in excess of normal or regular working hours.

Overtime payment is an extra amount of wages paid for working hours in excess of normal working hours. It calculates as follows:

Overtime Payment = Wages paid for overtime hours at normal hour rate + ***Over time premium:*** (extra) payment for overtime hours.

Overtime time rate is usually higher than the normal time rate such as the over time rate of FLSA is equal to one and a half times of the regular hourly rate for all time worked in excess of 40 hours in any one work week. In some cases is at double the normal rates.

The extra amount per hour that paid over the normal hour rate is called overtime premium. For example, suppose that an employee with a regular hour rate of \$60 per hour works 49 hours during a week. Here overtime hours are 6 hours with overtime time rate subject to FLSA ( 150% times of regular time rate) then;

Overtime Payment = Wages paid for overtime hours at normal hour rate + ***Over time premium***

Overtime Payment =  $9 \times \$60 + \text{Over time premium}$

***Over time premium*** = number of overtime hours  $\times$   $50\% \times$  regular time rate =  $9 \times 50\% \times \$60 = \$270$

Then;

Overtime Payment =  $9 \times \$60 + 9 \times 50\% \times \$60 = \$810$

Thus, the employee's overtime payment for 9 hours of overtime is \$810 ( $\$60 \times 150\% \times 9$  hours), of which \$540 ( $\$60 \times 100\% \times 9$  hours) is the regular rate and \$270 ( $\$60 \times 50\% \times 9$  hours) is the ***overtime premium***.

### Example 13:

Three employees A, B & C with the following particulars for a month

	A	B	C
Basic wage	\$10,400	\$12,000	\$15,200
Contribution of Social security tax (on basic wages)	6%	6%	6%
Contribution to Employee's State Insurance (on basic wages)	2%	2%	2%
Overtime (Hours)	20	15	-

Overtime was done on job X. The regular working hours per month are 160 hrs. Overtime is paid at two times of regular wage rate. The following table shows the proportion of jobs X, Y & Z of the three employees.

jobs	X	Y	Z
Employee A	50%	30%	20%
Employee B	40%	30%	30%
Employee C	10%	60%	30%

Answer the following:

- 1- Construct a Statement showing Earnings of Workers to calculate the **net wages earned** of each employee.
- 2- Construct a statement of Employee to calculate cost **ordinary wages rate per hour**.
- 3- Construct a statement Showing Allocation of Wages to Jobs.

**Solution****Statement showing Earnings of Workers**

	A(\$)	B(\$)	C(\$)
Basic wages	10400	12000	15200
Overtime wages (Refer to Working Note 1)	1300	1125	-
Gross wages earned	11700	13125	15200
Less: Contribution to Provident fund	(624)	(720)	(912)
Less: Contribution to ESI	(208)	(240)	(304)
<b>Net wages earned</b>	<b>10868</b>	<b>12165</b>	<b>13984</b>

$$\text{Wage/hrs. of worker A} = \frac{\text{Basic wage/month}}{\text{std.hrs./month}} =$$

$$\frac{10400}{160} = \$65/\text{hrs.}$$

$$\text{Wage/hrs. of worker B} = \frac{\text{Basic wage/month}}{\text{std.hrs./month}} =$$

$$\frac{12000}{160} = \$75/\text{hrs.}$$

**Overtime wage of worker A = wage/hrs. of  
A × overtime hrs. of A**

**Overtime wage of worker A =  $65 \times 20 = \$1300$**

**Overtime wage of worker B = wage/hrs. of B ×  
overtime hrs. of B**

**Overtime wage of worker B =  $75 \times 15 = \$1125$**

## Statement of Employee Cost

	A(\$)	B(\$)	C(\$)
Gross wages (excluding overtime)	10400	12000	15200
Add: Employer's Contribution to PF	$6\% \times$ 10400 = 624	$6\% \times$ 12000 = 720	$6\% \times$ 15200 = 412
Add: Employer's Contribution to ESI	$2\% \times$ 10400 = 208	$2\% \times$ 12000 = 240	$2\% \times$ 15200 = 304
Gross wages earned	11232	12960	16416
Normal Working hours	160	160	160
<b>Ordinary Wages rate per hour Gross wages earned/std.hrs.</b>	11232/160 = 70.20	12960/160 = 81	16416/160 = 102.6

### Statement Showing Allocation of Wages to jobs

	Total Wages (\$)	Jobs		
		X(\$)	Y(\$)	Z(\$)
Worker A :				
- Ordinary Wages (5:3:2)	11232	5616	3369.6	2246.4
- Overtime	1300	1300		
Worker B :				
- Ordinary Wages (4:3:3)	12960	5184	3888	3888
- Overtime	1125	1125		
Worker C :				
- Ordinary Wages (1:6:3)	16416	1641.6	9849.6	4924.8
	43033	14866.6	17107.2	11059.2

### 2.3 METHODS OF WAGE PAYMENT AND INCENTIVES:

There exist several methods of employee wage payment and incentives, which can be classified under the following heads:

#### 1 . Time based (Time Rate System)

Under this system, the payment of employees are paid on time basis and includes three types of time basis methods.

- **Basic rate.**

Payment = worked/standard time × standard rate

- **High day rate.**

Payment = worked/standard time × High day rate  
for an employee who produced more than standard units.

- **Common bonus rate.**

Payment = worked/standard time × common bonus rate  
for an employee who produced more than standard units.

### 2. Output Based (Piece Rate System)

- **Straight piecework.**

Payment = Number of units produced ×  
*piecework cost*

*Piecework cost* = standard rate per hour ×  
standard time per unit.

- **Differential piecework.**

Payment = Number of units produced ×  
differential piecework rate.

### 3. Premium Bonus Method

Payment = (worked/standard time × standard  
rate) + (bonus percentage × time saved ×  
standard rate)

### Example 14:

A factory works a total standard time 40 hours per week for 5 working days. The standard wage rate called basic or flat rate is subject to FLSA of \$10/hr. The standard time of produced unit of that factory is 20 minutes per unit. The following table presents the number of units produced in a certain week by three workers in that factory:

Worker	No. of units produced/week
A	150
B	120
C	90

Calculate the weekly wages for each worker under all methods of wage payment and incentives.

Given that:

- 1- When using the high day rate methods, the rate per hour \$15 for those who produced more than standard units.

2- When using the common bonus, the bonus rate per unit is \$20 for workers that produced more than standard units per week.

3- Premium Bonus rate = 100%

4- When using the differential piecework, the following table shows the differential piecework rate concerned with No. of units produced/week:

No. of units produced/week	differential piecework rate
Less than or equal 120 units / week	\$10
From 120 units/week up to 135 units/week	\$15
From 136 units/week up to 155 units/week	\$20

## Solution

### 1 . Time based (Time Rate System)

- **Basic rate.**

Payment = worked/standard time × standard rate

Payment of A =  $40 \times 10 = \$400$

Payment of B =  $40 \times 10 = \$400$

Payment of C =  $40 \times 10 = \$400$

- **High day rate.**

standard units = std. hrs. / standard time of produced

unit =  $(40 \times 60 \text{ min.}) / 20 \text{ min.} = 120 \text{ units / week}$

Payment = worked/standard time × High day rate  
for an employee who produced more than standard  
units.

Payment of A =  $40 \times 15$  ( A produced 150 unites) =  
\$600

Payment of B =  $40 \times 10$  ( B produced 120 unites) =  
\$400

Payment of C =  $40 \times 10$  ( C produced 90 unites) =  
\$400

- **Common bonus rate.**

Payment = worked/standard time × common bonus rate for an employee who produced more than standard units.

Payment of A =  $40 \times 10$  (A produced 150 unites) +  $(30 \times 20)$  = \$1000

Payment of B =  $40 \times 10$  (B produced 120 unites) = \$400

Payment of C =  $40 \times 10$  (C produced 90 unites) = \$400

## 2. Output Based (Piece Rate System)

- **Straight piecework.**

Payment = Number of units produced × *piecework cost*

*Piecework cost* = standard rate per hour × standard time per unit.

$$\text{Piecework cost} = 10 \times \frac{20}{60} = \$3.33$$

Payment of worker A =  $150 \times 3.33 = \$499.5$

Payment of worker B =  $120 \times 3.33 = \$399.6$

Payment of worker C =  $90 \times 3.33 = \$299.7$

- **Differential piecework.**

Payment = Number of units produced × differential piecework rate

Payment of worker A =  $150 \times 20 = \$3000$

Payment of worker B =  $120 \times 15 = \$1800$

Payment of worker C =  $90 \times 10 = \$900$

### 3. Premium Bonus Method

Payment = (worked/standard time × standard rate) +  
(bonus percentage × time saved × standard rate)

Time saved	Equivalent time No. of units produced × standard time per unit	Std. time	Time saved
A	$150 \text{ unit} \times 0.33\text{hrs} = 50$ hrs.	40	10 hrs.
B	$120 \text{ unit} \times 0.33\text{hrs} = 40$ hrs.	40	-
B	$90 \text{ unit} \times 0.33\text{hrs} = 30$ hrs.	40	-

$$\begin{aligned}\text{Payment of worker A} &= 40 \times 10 + 100\% \times 10 \times 10 \\ &= \$500\end{aligned}$$

$$\text{Payment of worker B} = 40 \times 10 \$400$$

$$\text{Payment of worker C} = 40 \times 10 = \$400$$

### 4. Exercises

1- A total standard time of an organization is 48 hours per week. The standard wage rate called basic of \$20/hr. The standard time of produced unit of that factory is 2 hrs. per unit. The following table presents the number of units produced in a certain week by two workers in that factory:

Worker	No. of units produced/week
A	24
B	28

**Calculate the weekly wages for each worker under methods of basic rate, common bonus rate and straight piecework.**

**Given that:**

When using the common bonus, the bonus rate per unit is \$30 for workers that produced more than standard units per week.

2- Three employees A, B & C with the following particulars for a month

	A	B	C
<b>Basic wage</b>	\$14,000	\$10,000	\$25000
<b>Contribution of Social security tax (on basic wages)</b>	8%	8%	8%
<b>Contribution to Employee's State Insurance (on basic wages)</b>	1.5%	1.5%	1.5%
<b>Overtime (Hours)</b>	-	10	-

Overtime was done on job Z. The regular working hours per month are 100 hrs. Overtime is paid at two times of regular wage rate. The following table shows the proportion of jobs X, Y & Z of the three employees.

jobs	X	Y	Z
Employee A	30%	30%	40%
Employee B	50%	40%	10%
Employee C	20%	50%	30%

### Answer the following:

- I. Construct a Statement showing Earnings of Workers to calculate the **net wages earned** of each employee.
  - II. Construct a statement of Employee to calculate cost **ordinary wages rate per hour**.
  - III. Construct a statement Showing Allocation of Wages to Jobs.
- 3- A factory working six days in a week with eight hours daily, a worker is paid at the rate of \$25 per hour as a basic rate. He is allowed to take 30 minutes off during his hours shift for lunch break and a 10 minutes recess for rest. During a week, his time card showed that his time was chargeable to :

<b>Job X</b>	<b>15 hrs.</b>
<b>Job Y</b>	<b>20 hrs.</b>
<b>Job Z</b>	<b>5 hrs.</b>

### Answer the following:

- 1- Calculate normal idle hours per week, determine abnormal and total idle hours per week.

- 2- Calculate effective hours in a week.
- 3- Calculate total wage of that worker for a week and the wage rate per hour.
- 4- State an allocation of wages for jobs in a week.

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## **Chapter Five:**

## **Accounting for Overheads**

### **Lecture Notes**

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## **Learning objectives**

**This chapter aims to provide the student with a sufficient and appropriate amount of information on the following points:**

**Discuss the Meaning of Overheads – Manufacturing , Marketing and Administrative?**

**Accounting for Manufacturing Overheads.**

**Accounting for Marketing Overheads.**

**Accounting for Administration Overheads.**

## **5/1.Introduction**

The general understanding is that overhead costs are similar to indirect Costs. But overhead actually has a wider meaning, which Overhead costs are those that are not related directly to the production activity and are therefore considered indirect costs that have to be paid even if there is no production.

Overhead Cost refers to the cost of indirect material, indirect labor, and other indirect expenses, which are associated with the typical day-to-day running of the business but cannot be conveniently charged directly to any specific product or service, or cost center. They are Indirect and need to be shared among the cost units as precisely as possible. In other words, it is the cost incurred on labor, material, or services that cannot be economically identified with a specific saleable cost of goods or services per unit of the business.

A business needs to keep a close watch on this cost, and efforts should be made to keep it low as that gives the business the ability to price its products more efficiently so that it remains competitively superior to its competitors.

**This chapter includes presentation, discussion, and analysis of the following points:**

5/2.What is Overhead?

5/3.Accounting for Manufacturing Overheads.

5/4.Accounting for Selling and Distribution (Marketing) Overheads.

5/5.Accounting for Administration Overheads.

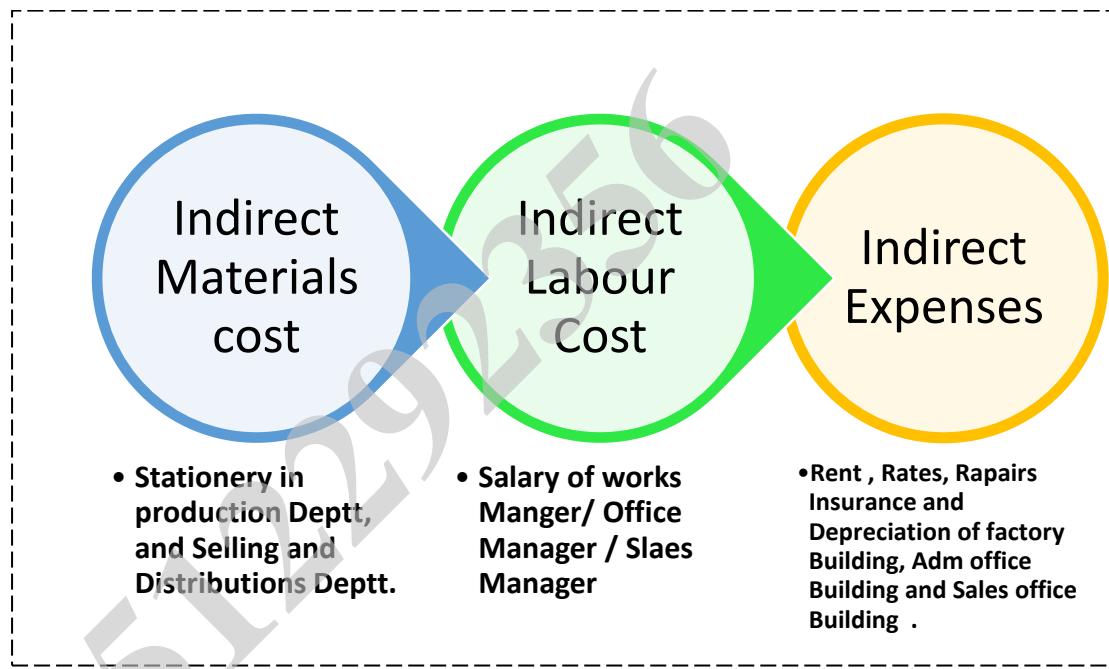
5/6. Questions & Exercises.

## **5/2.What is Overhead?**

### **5/2/1.Meaning of Overhead**

Overhead is the aggregate of indirect materials cost, indirect labor cost and indirect expenses which cannot be conveniently identified with and directly allocated to a particular cost Centre or cost object in an economically feasible way. It is also indirect cost, burden or on cost.

### **5/2/2.Examples of Overhead**



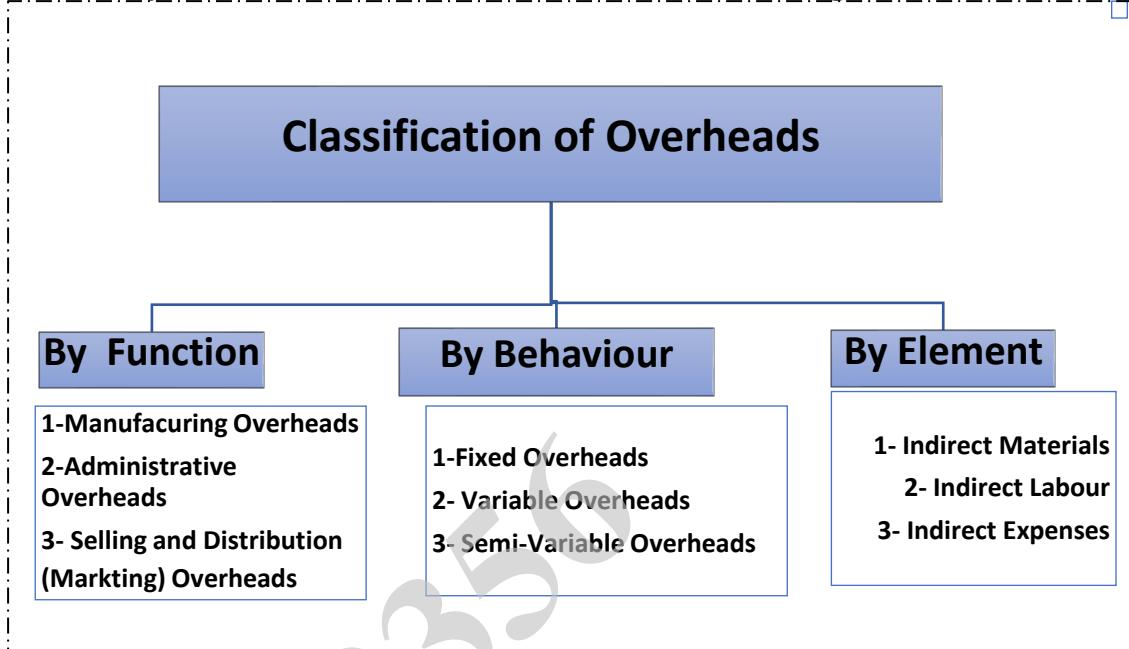
### **5/2/3.Classification of Overheads**

Classification of Overheads is the process of grouping the various items of Overheads into distinct class/group on the basis of some common Characteristics.

**The classification of overheads depends upon:**

- Nature of Business
- Size of Business
- Nature of product produced/service rendered.

**Generally, Overheads are Classified on the following basis:**



### 5/2/3/1. Classification of Overheads by Function

#### (A) Manufacturing Overheads

**Meaning:** Manufacturing Overheads represent all the indirect costs incurred in connection with the production of product or service.

These represent the aggregate of indirect materials cost, indirect labor cost and indirect expenses incurred by production department.

**Example:**

##### (a) Indirect Materials Cost:

- Cost of consumable stores and supplies like cotton waste, lubricating oil etc.
- Cost of Priting, postage & stationary used in production Deptt.

##### (b) Indirect Labor Cost:

- Salary of supervisor works manger and departmental superintendents.
- Contribution to ESI, P. F., leave Pay maternity pay of above staff.

##### (c) Indirect Expenses:

- Rent, rates & taxes of factory building.
- Repairs, insurance & depreciation of factory building, plant & machines and furniture.
- Factory telephone expenses.

- Lighting, heating & cleaning of factory.

## **(B)Administration Overheads**

**Meaning:** Administration overheads represent the cost of formulating the policy, directing the organization and controlling the operations of an undertaking which is not related directly to production, selling, distribution, research or development activity or function.

### **(a) Materials Cost**

- Cost of printing, postage & stationery used in Administration department.
- Cost of Dusters, brushes etc. for cleaning.

### **(b) Labor cost**

- Salary of managing director, who time director, general manager, accounts manager, secretary, legal manager and other staff working in administration department.
- Remuneration of internal & statutory cost & financial auditors, legal advisors.

### **(c) Expenses**

- Rent, Rates & taxes of office building.
- Repairs, insurance & depreciation of office building, equipment, and furniture.
- Administration office telephone expenses.
- Lighting, heating & cleaning of administration office.

### (C)Selling and Distribution Overheads

**Selling overheads:** represent the cost of seeking to create and stimulate demand and securing order.

Thus, expenses related to sale of products and include all indirect expenses in sales management for the organization.

**Distribution overhead:** cost incurred on making product available for sale in the market.

#### (a)Material cost

- Cost of printing, postage & stationery used in sales department.
- Cost of catalogues, list prices etc.

#### (b)Labor cost

- Salary of sales director, sales manager, sales officers, salesman and other staff working in sales department.
- Commission to selling agents,

#### (c) Expenses

- Rent, rates & taxes of sales office Showroom.
- Advertising, Bad Debts, Debt Collection Charge's, Salesmen's travelling expenses.

## 5/2/3/2.Classification of Overheads by Behavior/Variability

### (A)Fixed Overheads

**Fixed Overheads:** are those costs which do not vary with the change in the volume of production up to a given range.

**Example:** Rent and Insurance of Building, Plant & Machinery & Furniture, Salary of manager etc.

**Fixed Overheads have two characteristics:**

- Total fixed overheads do not vary with the change in volume of production up to a given range.
- Fixed overheads per unit varies with change in the volume of production i.e., fixed overheads per unit decreases as the production increase and vice versa.

<b>(B) Variable Overheads</b>	<p><b>Variable Overheads:</b> are those costs which vary in direct proportion to the volume of production.</p> <p><b>Example:</b> Consumable Stores and Supplies, Sales Commission.</p> <p><b>Variable Overheads have two characteristics:</b></p> <ul style="list-style-type: none"> <li>- Total variable overheads vary in direct proportion to the volume of production i.e. total variable overheads decrease as the production decreases and vice versa.</li> <li>- Variable overheads per unit remains fixed.</li> </ul>
<b>(C) Semi-Variable Overheads</b>	<p><b>Semi-Variable Overheads:</b> are those costs which one part remain fixed upto a give rang and the other part varies with the change in the volume of production but not in the same production. <b>For example:</b> an expense may not change if output is upto 50% capacity but may increase by 2% for every 10% increase in output over 50% capacity but upto 70%.</p> <p><b>Example:</b> Telephone expenses of which hire part is fixed and fee for calls is variable, depreciation, repairs &amp; maintenance, delivery van expenses.</p>

### 5/2/3/3. Classification of Overheads by Element

<b>(A) Indirect Materials Costs</b>	<p><b>Indirect Material costs:</b> are those material cost which cannot conveniently be identified with and directly allocated to a Particular cost Centre or cost object in an economically feasible way.</p> <p><b>Example:</b> Consumable stores and supplies, lubricants.</p>
<b>(B) Indirect Labor Costs</b>	<p><b>Indirect Labor Costs:</b> are those labor cost which cannot conveniently be identified with and directly allocated to a Particular cost Centre or cost object in an economically feasible way.</p> <p><b>Example:</b> salary of security staff, salary of general manager.</p>
<b>(C) Indirect Expenses</b>	<p><b>Indirect Expenses:</b> are those expenses other than indirect material or indirect labor, which cannot conveniently be identified with and directly allocated to particular cost center or cost object in an economically feasible way. <b>Example:</b> rent, repairs, insurance and depreciation of building.</p>

## **5/3.Accounting for Manufacturing Overheads**

### **5/3/1.Manufacturing overheads Concepts**

Manufacturing overhead cost is the sum of all the indirect costs which are incurred while manufacturing a product. It is added to the cost of the final product along with the direct material and direct labor costs. Usually manufacturing overhead costs include depreciation of equipment, salary and wages paid to factory personnel, Rent, Repairs, insurance, depreciation of factory building, plant, depreciation of machines and furniture, Factory telephone expenses, Cost of Printing, postage & stationary used in production and electricity used to operate the equipment.

Manufacturing overhead does not include any of the selling or administrative functions of a business. Thus, the costs of such items as corporate salaries, audit and legal fees, and bad debts are not included in manufacturing overhead.

According to GAAP (generally accepted accounting principles), manufacturing overhead should be included in the cost of finished goods in inventory and work in progress inventory on a manufacturer's balance sheet and in the cost of goods income statement.

Manufacturing overhead costs are called indirect costs because it's hard to trace them to each product. These costs are applied to the final product based on a pre-determined overhead absorption rate. Overhead absorption rate is the manufacturing overhead costs per unit of the activity (also called as the cost driver) like labor costs, labor hours and machine hours.

## **5/3/2. Steps for the Distribution and Appling Manufacturing Overheads**

### **Steps for the Distribution and Appling Manufacturing Overheads**

**Collection of Overheads as follows:**

**Step 1:** Estimate and Collection manufacturing Overheads for various production and services production departments

**Step 2:** Distribution manufacturing overheads of services production department to production department

**Step 3:** Compute the Absorbing of Overheads (manufacturing overheads rates)

### **5/3/2/1. Estimate and Collection manufacturing Overheads for various production and services production departments.**

**Manufacturing overheads for each department divided to:**

- a) Special manufacturing overheads.
- b) General manufacturing overheads.

**Following distribution basis of different items of manufacturing overheads:**

<i>Examples</i>	<i>Base</i>
Power	Horse power hours.
Depreciation of Fixed Assets	Value of Fixed Assets
Maintenance	Maintenance hours or No. of Machines
Labor welfare expenses— supervision —Personal office-Time Keeping	No. of Workers
Lighting expenses	No. of Kilowatt hours or No. of Lumps Or Floor area or Volume department
Compensation to workers- Holiday Pay- ESI and DF contribution – Perquisites	Direct wages
Materials handling – Stores overhead - Freight in	Volume or unit of Materials
Insurance plants	Value of plants.
Factory rent - Depreciation of building-Building repairs- Air conditioning –Fire precaution	Floor area or Volume department

## Example 1:

S & H, A company has 2 production departments. (P& S) and 2 services departments (M& F).

**Relevant cost and operating data are as follows:**

Costs and data	Production department		Service department	
	P	S	M	F
<b>Special Costs</b>				
<b>Indirect Material</b>	40000	600000	20000	14000
<b>Indirect Labor</b>	24000	30000	16000	20000
<b>Depreciation</b>	18000	12000	10,000	8000
<b>Floor Area.</b>	750	1000	200	300
<b>Kilowatt hours</b>	500	400	200	200
<b>Maintenance hours</b>	350	350	-	50
<b>Cost of Plant</b>	100000	160000	140000	100000

**General overheads:** Rent 18000 – insurance Plant 50000 – Light 2600- Maintenance 6000.

**Required:** Prepare a distributing of manufacturing overheads sheet.

## SOLUTION

### (A) Distribution rent cost 18000 (depends on Floor area)

- Department (P) =  $18000 \times 750/2250 = 6000$
- Department (S) =  $18000 \times 1000/2250 = 8000$
- Department (M) =  $18000 \times 200/2250 = 1600$
- Department (F) =  $18000 \times 300/2250 = 2400$

### (B) Distribution Insurance cost 50.000 (depends on Plant Cost)

- Department (P) =  $50.000 \times 100.000/500.000 = 10000$
- Department (S) =  $50.000 \times 160.000/500.000 = 16000$
- Department (M) =  $50.000 \times 140.000/500.000 = 14000$

- Department (F) =  $50.000 \times 100.000 / 500.000 = 10000$

### (C) Distribution Light cost 2600 (depends on Kilowatt hours)

- Department (P) =  $2600 \times 500 / 1300 = 1000$
- Department (S) =  $2600 \times 400 / 1300 = 800$
- Department (M) =  $2600 \times 200 / 1300 = 400$
- Department (F) =  $2600 \times 200 / 1300 = 400$

### (D) Distribution Maintenance cost 6000 (depends on Maintenance hours)

- Department (P) =  $6.000 \times 350 / 750 = 2800$
- Department (S) =  $6.000 \times 350 / 750 = 2800$
- Department (F) =  $6.000 \times 50 / 750 = 400$

### Distributing of manufacturing overheads sheet

	Production department		Service department	
Costs and data	P	S	M	F
<b>Special Costs</b>				
Indirect Material	40000	60000	20000	14000
Indirect Labor	24000	30000	16000	20000
Depreciation	18000	12000	10,000	8000
<b>Total Special cost</b>	<b>82000</b>	<b>102000</b>	<b>46000</b>	<b>42000</b>
<b>General cost</b>				
Rent	6000	8000	1600	2400
Insurance Cost	10.000	16000	14000	10000
Light	1000	800	400	400
Maintenance	2800	2800	-	400
<b>Total general cost</b>	<b>19800</b>	<b>27600</b>	<b>16000</b>	<b>13200</b>
<b>Total Overheads</b>	<b>101800</b>	<b>129600</b>	<b>62000</b>	<b>55200</b>

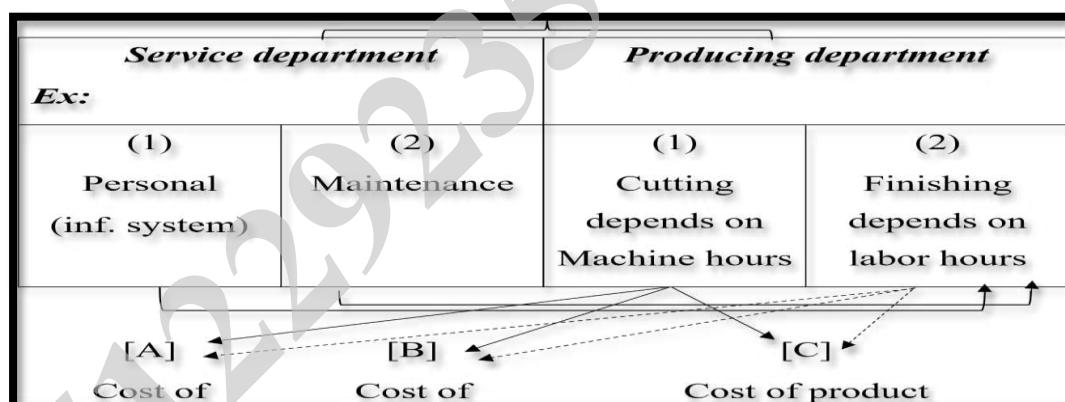
## 5/3/2/2.Distribution manufacturing overheads of services production departments to production departments.

All costs incurred in the service department must be allocated to production department, as service department help the production department in producing products. There are many Methods have been used for distribution of service departments (centers) manufacturing to production department as follows:

A-Direct Method.

B-Step Method.

C-Two-step direct method



### *Examples on service department*

- 1- Maintenance
- 2- Computer
- 3- Personal information system
- 4- Shipping
- 5- Cafeteria
- 6- Medical handling
- 7- Purchasing
- 8- storage cost
- 9- Power
- 10-Securit
- 11- Receiving and inspection
- 12- Utilities

### *Examples on production department*

- 1- Cutting
- 2- Assembly
- 3- Finishing
- 4- Canning
- 5- Platting
- 6- Machining
- 7- Mixing
- 8- Development
- 9- Refining
- 10- Cooking

## **HOW TO DISTRIBUTION (ALLOCATE) MANUFACTURING OVERHEAD COST OF SERVICE DEPARTMENT TO PRODUCTION DEPARTMENT?**

**A-Direct Method** (Allocate service department cost directly to production Department).

**B-Step Method** (Allocate service department cost to other service department as well as to producing department)

### **C-Two-step direct method**

**Step one:** Each service department-cost is allocated to every other department (service & producing)

**Step two:** Then the costs that have been allocated to a service department are allocated directly to production department.

**Note: in allocation the cost-of-service department to production we must use base in allocation.**

Cost of Service Department	Base
Personal (Factory supervises)	No. of workers in each department
Cafeteria	No. of workers in each department
Medical	No. of workers in each department
General factory Expense	No. of workers in each department
Maintenance	Machine hours of each department.
Power	Machine hour of each department.
Purchase	No. of Purchases Order or value Materials
Depreciation Computer	Computer hours of each department.
Depreciation equipment	value of equipment in each department.
Product engineering	Labor hours worked in each department

## Example 2:

Baker company divided into two service department (personal & Maintenance) & two producing departments. (cutting & finishing).

<i>Costs and data</i>	<b>Personal</b>	<b>Maintenance</b>	<b>Cutting</b>	<b>Finishing</b>
<i>Overhead cost</i>	9,000	11,100	18,000	21,000
<i>Number of workers</i>	100	150	350	400
<i>Machine hours</i>	-	20h	300h	120h
<i>Direct labor hours</i>	-		200h	400h

### Required:

1. Allocate service department cost to the production department use direct & step method.
2. Determine the overhead rate.
3. Determine overhead allocation rate (Cutting Depends on machine hours, Finishing Depends on Labor hours).

## SOLUTION

### (1) Direct Method:

<i>Costs and data</i>	<b>Personal</b> (S <sub>1</sub> )	<b>Maintenance</b> (S <sub>2</sub> )	<b>Cutting</b> (P <sub>1</sub> )	<b>Finishing</b> (P <sub>2</sub> )
<i>Overhead cost</i>	9,000	11,100	18,000	21,000
<i>Personnel</i>	(9,000)		4,200	4,800
<i>Maintenance</i>		(11,100)	7,928	3,172
	0	0	30,128	28,972

(A) Personnel 9,000 (depends on No. of workers)

$$\text{Cutting} = 9,000 \times 350/750 = 4,200$$

$$\text{Finishing} = 9,000 \times 400/750 = 4,800$$

**(B) Maintenance 11,100 (depends on Machine hours)**

$$\text{Cutting} = 11,100 \times 300/420 = 7,928$$

$$\text{Finishing} = 11,100 \times 120/420 = 3,172.$$

2) **Cutting department rate** =  $30,128/300\text{h} = \$ 100.4/\text{Machine hour.}$

**Finishing department rate** =  $28,972/400\text{h} = \$ 72.4/\text{labor hour.}$

**2- Step Method:**

*Costs and data*

	Personal (S <sub>1</sub> )	Maintenance (S <sub>2</sub> )	Cutting (P <sub>1</sub> )	Finishing (P <sub>2</sub> )
<i>Overhead cost</i>	9,000	11,100	18,000	21,000
<i>Personnel</i>	(9,000)	1,500	3,500	4,000
<i>Maintenance</i>		(12,600)	9,000	3,600
	0	0	30,500	28,600

**(A) Personal (9,000) Depends on no. of Workers:**

$$\text{Maintenance} = 9,000 \times 150/900 = 1,500$$

$$\text{Cutting} = 9,000 \times 350/900 = 3,500$$

$$\text{Finishing} = 9,000 \times 400/900 = 4,000$$

**(B) Maintenance (126,000) depends on Machine hours**

$$\text{Cutting} = 12,600 \times 300/420 = 9,000$$

$$\text{Finishing} = 12,600 \times 120/420 = 3,600$$

2) **Cutting Department rate** =  $30,500/300 \text{ hr} = \$ 101.67/\text{Machine hr.}$

**Finishing Department rate** =  $28,600/400 = \$ 71.5/\text{Direct labor hr.}$

### Example 3:

ABC Company uses the two-steps direct method for allocating its three service department costs to two production departments. Relevant cost and operating data are as follows:

<b>Costs and data</b>	<b>Personal</b>	<b>Cafeteria</b>	<b>Computer</b>	<b>Development</b>	<b>Assembly</b>
<b>Overhead costs</b>	10,000	3,000	40,000	110,000	112,000
<b>Computer hours used</b>	100	00	1,500	1,800	100
<b>Number of employees</b>	40	10	25	40	25

#### Required:

Determined total overhead costs of production departments (Development and Assembly).

#### SOLUTION

<b>Two-steps direct method</b>					
	<b>Personal</b>	<b>Cafeteria</b>	<b>Computer</b>	<b>Development</b>	<b>Assembly</b>
<b>Overhead costs</b>	10,000	3,000	40,000	110,000	112,000
<b>Personal</b>	(10,000)	1,000	2,500	4,000	2,500
<b>Cafeteria</b>	923	(3,000)	577	923	577
<b>Computer</b>	2,000		(40,000)	36,000	2,000
<b>Personal</b>	(2,923)			1,799	1,124
<b>Cafeteria</b>		(1,000)		615	385
<b>Computer</b>			(3,077)	2,915	162
<b>Total costs</b>	0	0	0	156,252	118,748

- Allocation of \$10,000 personal (based on No. of Employees):

Cafeteria	Computer	Development	Assembly	Total
10	25	40	25	100
1,000	2,500	4,000	2,500	\$10,000

- Allocation \$3,000 cafeteria (based on No. of Employees):

Personal	Computer	Development	Assembly	Total
40	25	40	25	130
923	577	923	577	3,000

- Allocation of \$ 40,000 computer (based on comp. hours):

Personal	Development	Assembly	Total
100	1,800	100	2,000
\$ 2,000	36,000	2,000	40,000

- Allocation  $(2,000 + 923) = \$ 2,923$  of personal directly:

No. of Employees	Development	Assembly	Total
	40	25	65
	1,799	1,124	
			2,923

- Allocate \$1,000 of cafeteria directly:

No. of Employees	Develop.	Assembly	Total
	40	25	65
	615	385	\$ 1,000

- Allocate  $(2,500 + 577)$  of computer directly:

Computer hours	Develop.	Assembly	Total
	1,800	100	1,900
	\$2,915	162	3,077

## Example 4:

A, B & C, A company has 3 services departments. (Personal, storage & power) and 3 production departments (Machine, Assembly, & Finishing).

**Relevant cost and operating data are as follows:**

	Service department			Production department		
<i>Costs and data</i>	Personal	Storage	Power	Machine	Assembly	Finishing
<i>Estimated OH</i>	8,550	5,050	3,550	13,800	8,350	7,700
<i>No. of workers</i>	50	50	50	300	250	300
<i>Machine hours</i>	-	1,000	9,000	10,000	6,000	4,000
<i>Direct labor hours</i>	-	-	-	4,000	8,000	3,000
<i>No. of Material order</i>	100	-	100	200	150	100

**Required:**

1. Allocate service department cost to production department using direct method compute overhead rate & step method & two step method.
2. Find OH rate, assume that machine depends on machine hours and Assemble & Finishing on labor hours?

## SOLUTION

Costs and data	Service department			Production department		
	Personal	Storage	Power	Machine	Assembly	Finishing
<b>OH cost</b>	8,550	5,050	3,550	13,800	8,350	7,700
<b>Allocation of personnel</b>	(8,550)			3,018	2,514	3,018
<b>Allocation of storage</b>		(5,050)		2,245	1,683	1,122
<b>Allocation of power</b>			(3,550)	1,775	1,065	710
<b>Total OH cost</b>	0	0	0	20,838	13,612	12,550
<b>MH</b>				÷	÷	÷
<b>LH</b>				10,000	8,000	3,000
<b>OH Rate</b>				2.0838	1.7015	4.183

**(1) Allocation of personal department to ABC using no. of workers as base:**

	A	B	C	Total
<b>No. of workers</b>	300 : 250 : 300			850
	3,018	2,514	3,018	8,550

**(2) Allocation of storage Based on no. of orders made of material:**

	A	B	C	Total
<b>No. of order</b>	200 : 150 : 100			45
	2,245	1,683	1,122	5,050

**(3) Allocation of power using MH as a base:**

	A	B	C	Total
<b>MH</b>	10,000 : 6,000 : 4,000			20,000
	1,775	1,065	710	3,550

### Example 5:

Mizo Manufacturing Company has 2 production depts, assembly & finishing, and 3 service depts., cafeteria, personal, power. **The following information for the year ended 31, December 2020.**

<i>Items</i>	Cafeteria	Personal	Power	Assembly	Finishin g
<i>IND. Material Costs</i>	100	180	610	3,400	4,100
<i>IND. Labor Costs</i>	480	620	2,000	6,100	9,200
<i>M. overhead cost</i>	220	300	390	2,500	2,700
<i>NO. of employees</i>	30	100	200	600	1,000
<i>MH</i>				1,000	600
<i>DLH</i>				500	2,000

The company selects step methods to distribute service departments, Machine hours as a base for assembly department factory overhead rate, and direct labor hours as a base for finishing department factory overhead rate, product “A” used 200 machine hours in assembly department & 350 direct labor hours in finishing department.

**Required:** Determine the Manufacturing Overhead Cost of product “A”.

### SOLUTION

#### (1) Direct Method:

<i>Costs and data</i>	Service department			Production department	
	Personal	Maintenance	Power	Assembly	Finishing
<i>T.C.</i>	18,000	19,000	38,000	673,000	145,000
<i>Allocation personal</i>	(18,000)			108,000	7,200
<i>Allocation Maintenance</i>		(19,000)		10,000	9,000
<i>Allocation Power</i>			(38,000)	20,000	18,000
				<b>713,800</b>	<b>179,200</b>

**(A)-Allocation of personal \$18,000**

	<b>A</b>	<b>F</b>	<b>Total</b>
	3,000	2,000	5,000
			18,000
<b>No. of Workers</b>	10,800	7,200	

**(B)-Allocation of Maintenance \$19,000**

	<b>A</b>	<b>F</b>	<b>Total</b>
Machine hours	10,000	9,000	19,000

**(C)-Allocation of power: \$38,000**

	<b>A</b>	<b>F</b>	<b>Total</b>
Machine hours	10,000	9,000	19,000
	20,000	18,000	38,000

**2- Step Method:**

*Costs and data*

**Service department**

**Production  
department**

	<b>Personal</b>	<b>Maintenance</b>	<b>Power</b>	<b>Assembly</b>	<b>Finishing</b>
<i>TC</i>	18,000	19,000	38,000	673,000	145,000
<i>Personal</i>	(18,000)	2,100	900	9,000	6,000
<i>Maintenance</i>		(21,100)	2,100	10,000	9,000
<i>Power</i>			(41,000)	21,579	19,241
	0	0	0	713,579	179,421
				÷ 10,000	÷ 4,000
				71.36	44.85

### (A)-Allocation of personal \$18,000

Maintenance: Power: Assembly : Finishing Total

700 : 300 : 3,000 : 2,000 6,000

2,100: 900 : 9,000 6,000 18000\$

### (B)-Allocation of Maintenance $19,000 + 2,100 = 21,100$

Power : Assembly : Finishing Total

2,100 : 10,000 : 9,000 21,100

### (C)-Allocation of power \$ 41,000

Assembly :	Finishing	Total
10,000	: 9,000	19,000
21,579	19,421	\$ 41,000

### 3-Two-step direct Method

	<b>Personal</b>	<b>Maintenance</b>	<b>Power</b>	<b>Assembly</b>	<b>Finishing</b>
TC	18,000	19,000	38,000	673,000	145,000
Allocation personal	(18,000)	2,100	900	9,000	6,000
Allocation maintenance		(19,000)	1,891	9,005	8,104
Allocation power			(38,000)	20,000	18,000
Allocation of 2100 maintenance		(2,100)		1,105	995
Allocation (900 + 1,891)			(2,791)	1,469	1,322
	0	0	0	713,579	179,421

**(A)-Allocation of personal \$ 18,000**

	Maintenance:	Power:	Assembly:	Finishing	Total
No of workers	700:	300	3,000	2,000	6,000
	2100	900	9000	6000	\$18,000

**(B)- Allocation of Maintenance 19,000**

Power	:	Assembly	:	Finishing	Total
2,100	:	10,000	:	9,000	21,100
1891	:	9005		8104	19,000

**(C)-Allocation of power \$ 38,000**

	Assembly	:	Finishing	Total
MH	10,000	:	9,000	19,000
	20000	:	18000	38,000

**-Allocation of Maintenance Direct 2,100**

	Assembly	:	Finishing	Total
MH	10,000	:	9,000	19,000
	1105		995	2,100

**-Allocation of power 900 + 1,841 = 2,791**

	Assembly:	Finishing	Total
MH	10,000	:	9,000
	1469		1332

### **5/3/3. Compute the Absorbing of Overheads (Manufacturing Overheads Rates)**

Absorption of overheads is charging overheads from cost department to Product or services by means of absorption rate which is calculated as follows:

**Total Overheads of the cost Department**

**Manufacturing Overhead Rate =** \_\_\_\_\_

**Total Quantum of the Base**

#### **Methods OF Absorbing Overheads Rates:**

**the various methods of absorption overheads include the following:**

1. Percentage of Direct Material Cost
2. Percentage of Direct Labor Cost
3. Percentage of Prime Cost
4. Direct Labor Hour Rate
5. Machine Hour Rate
6. Rate Per unit of Production

#### **5/3/3/1. Percentage of Direct Material Cost**

**Percentage of Direct Material Cost**

<b>Meaning</b>	<ul style="list-style-type: none"><li>▪ Under this method, the cost of direct material consumed is the base for calculating the amount of overhead absorbed. This overhead rate is computed by the following formula:</li></ul>
<b>Overhead Rate =</b>	$\frac{\text{Total Manufacturing Overheads of Department}}{\text{Cost of Direct Material Used}} \times 100$
<b>Suitability</b>	<p><b>This method is suitable in the following cases:</b></p> <ul style="list-style-type: none"><li>▪ Where the prices of materials don not fluctuate much.</li></ul>

	<ul style="list-style-type: none"> <li>▪ Where the output is uniform only one kind of product is produced.</li> <li>▪ Where the promotion of overheads to total cost is insignificant.</li> </ul>
<i>Advantages</i>	<ul style="list-style-type: none"> <li>▪ It is simple to understand and easy to adopt.</li> <li>▪ It is suitable where the output is uniform.</li> <li>▪ It is suitable where the prices of materials do not calculate.</li> </ul>
<i>Disadvantages</i>	<ul style="list-style-type: none"> <li>▪ It ignored the time factor while most fixed manufacturing overheads vary with time.</li> <li>▪ It is not suitable where materials priced fluctuate widely.</li> <li>▪ It ignores the distinction between jobs done by labor and those done by machines.</li> </ul>
<i>Practical Example</i>	<ul style="list-style-type: none"> <li>▪ If the Manufacturing Overheads for department 'A' for a particular period amount to 24.000 EGP and the direct materials cost 100.000 EGP, Calculate Overhead Rate.</li> </ul> <p><b>Overhead Rate= <math>(24000 / 100.000) \times 100 = 24\%</math>.</b></p>

### 5/3/3/2. Percentage of Direct Labor Cost

#### *Percentage of Direct Labor Cost*

<i>Meaning</i>	<ul style="list-style-type: none"> <li>▪ Under this method, the cost of direct Labor consumed is the base for calculating the amount of overhead absorbed. This overhead rate is computed by the following formula:</li> </ul> <p><b>Overhead Rate =</b></p> $\frac{\text{Total Manufacturing Overheads of Department}}{\text{Cost of Direct Labor Used}} \times 100$
<i>Suitability</i>	<p><b>This Methods is suitable in the following cases:</b></p> <ul style="list-style-type: none"> <li>▪ Where labor is the major factor of production.</li> <li>▪ Where labor rates do no fluctuate widely.</li> <li>▪ Where both labors employed, and work done are of uniform type.</li> </ul>

<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ The method is simple and economical to apply.</li> <li>▪ The time factor is given recognition even if indirectly.</li> <li>▪ Total expenses recovered will not differ much from the estimated figure since total wages paid are not likely to fluctuate much.</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>▪ It gives rise to certain inaccuracies due to the time factor not being given full importance.</li> <li>▪ Where machinery is used to some extent in the process of manufacture, an allowance for such a factor is not made.</li> <li>▪ It does not provide for varying skills of workers</li> </ul>
<b>Practical Example</b>	<p>If the Manufacturing Overheads for department 'B' for a particular period amount to 6.000 EGP and the direct labor cost 50.000 EGP, Calculate Overhead Rate.</p> <p><b>Overhead Rate = <math>(6000 / 50.000) \times 100 = 12\%</math>.</b></p>

### 5/3/3.Percentage of Prime Cost

#### *Percentage of Prime Cost*

<b>Meaning</b>	<p>This method is based on the fact that both materials as well as labor contribute to raising factory overheads. Hence, the total of the two i.e. Prime cost should be taken as base for absorbing the factory overhead. The overhead rate in this method is computed by the following formula.</p> <p><b>Overhead Rate =</b></p> $\frac{\text{Total Manufacturing Overheads of Department}}{\text{Prime Cost}} \times 100$
<b>Suitability</b>	<p><b>This method is suitable in the following cases:</b></p> <ul style="list-style-type: none"> <li>▪ Where output is uniform.</li> <li>▪ Where both the quantity of direct materials and direct labor hours are constant.</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ It is simple to understand and easy to adopt.</li> <li>▪ It takes into account both direct materials cost and direct labor cost which give rise to overhead expenses.</li> </ul>

***Disadvantages***

- It has the same disadvantage as the first two methods have.
- In fact, the results are liable to be more misleading because of the cumulative error of using both the labor and material cost as the basis of allocation of overhead expenses, on neither of which they are already dependent.

***Practical Example***

If the Manufacturing Overheads for department 'C' for a particular period amount to 600.000 EGP and the Prime cost 60.000 EGP, Calculate Overhead Rate.

$$\text{Overhead Rate} = (60.000 / 6.0.000) \times 100 = 10\%.$$

**5/3/3/4. Direct Labor Hour Rate*****Direct Labor Hour Rate******Meaning***

- This method is an improvement on the percentage of direct wage basis, as it fully recognizes the significance of the element of time in the incurring and absorption of manufacturing overhead expenses. This overhead rate is computed by the following formula:

$$\text{Overhead Rate} =$$

$$\frac{\text{Tota Manufacturing Overheads of Department}}{\text{Direct Labor Hour}}$$

***Suitability***

- This method is admirably suited to operations which do not involve any large use of machinery

***Advantages***

- It is simple to understand and easy to adopt.
- It takes into account factor.
- It is suitable where manual labor is a dominant factor of production.

***Disadvantages***

- It ignores the distinction between the jobs done by skilled workers and those done by unskilled workers.
- It ignores the distinction between the job done by manual labor and those done by machines.
- It requires the detailed records of labor.

**Practical  
Example**

- If the Manufacturing Overheads for department 'd' for a particular period amount to 88.000 EGP and the Direct labor hours 8000 hours, Calculate Overhead Rate.

**Overhead Rate=  $(880.000 / 8000) = 11$  EGP per direct labor hour.**

### **5/3/3/5. Machine Hour Rate**

#### **Machine Hour Rate**

**Meaning**

- Machine hours rate is the cost of running a machine for one hour. Under this method machines hours are used as basis for production overhead absorption. This overhead rate is computed by the following formula:

**Overhead Rate =**

$$\frac{\text{Tota Manufacturing Overheads of Department}}{\text{Machine Hour}}$$

**Suitability**

- This method is suitable where major portion of production is performed by machinery.

**Advantages**

- It takes into account time factor.
- It is suitable when major portion of production is performed by machines.
- It facilitated the ascertainment of accurate and reliable cost.

**Disadvantages**

- It is difficult to understand and calculate.
- It is quite difficult to estimate machine hours in advance.
- It requires the detailed records of machines for each job or operation.

**Practical  
Example**

- If the Manufacturing Overheads for department 'E' for a particular period amount to 70.000 EGP and the Direct labor hours 5000 hours, Calculate Overhead Rate.

**Overhead Rate=  $(70.000 / 5000) = 14$  EGP per machine hour.**

## 5/3/3/6. Rate Per unit of Production

### ***Rate Per unit of Production***

<b><i>Meaning</i></b>	<ul style="list-style-type: none"><li>▪ This method is the simplest of all the methods. In this method overhead rate is determined by the following formula: <b>Overhead Rate =</b> <b>Tota Manufacturing Overheads of Department</b></li></ul>
<b><i>Suitability</i></b>	<ul style="list-style-type: none"><li>▪ This method is suitable where output is uniform i.e., only single product or few grades of the same product are produced.</li></ul>
<b><i>Advantages</i></b>	<ul style="list-style-type: none"><li>▪ It is simple to understand and easy to adopt.</li><li>▪ It is suitable where output is uniform.</li></ul>
<b><i>Disadvantages</i></b>	<ul style="list-style-type: none"><li>▪ It is ignores the time factor.</li><li>▪ It is ignores the distinction between the jobs done by skilled workers and those done by unskilled workers.</li><li>▪ It ignores the distinction between the jobs done by manual labor and those done by machine.</li></ul>
<b><i>Practical Example</i></b>	<ul style="list-style-type: none"><li>▪ If the Manufacturing Overheads for department 'S' for a particular period amount to 21.000 EGP and the units produced 3000 units, <b>Overhead Rate per unit amount 7 EGP = (21.000 /3000)</b></li></ul>

### **Example 6:**

**The following information related to the manufacturing department for certain period in a factory:**

- Direct Material 150.000EGP
- Direct Wages 100.000EGP
- Manufacturing Overheads 300.000 EGP

- Labor Hours                            15000 hours
- Machine Hours                        20000 hours

**For one Order No (555) carried out in the department during the period, the relevant data was:**

- Direct Material                        20.000EGP
- Direct Wages                         10.000EGP
- Labor Hours                            1700 hours
- Machine Hours                        2000 hours

**Required:** Prepare a comparative statement of cost of this order by using the following methods: Direct materials Cost – Direct labor Cost – Prime Cost – Labor Hours Rate – Machine Hours Rate.

## SOLUTION

### 1- Compute of Manufacturing Overhead Rate

- **Direct Material Cost Percentage** = (Manufacturing Overheads / Direct Material Cost) x 100 =  $(300.000 / 150.000) \times 100 = 200\%$
- **Direct Labor Cost Percentage** = (Manufacturing Overheads / Direct Labor Cost) x 100 =  $(300.000 / 100.000) \times 100 = 300\%$
- **Direct Prime Cost Percentage** = (Manufacturing Overheads / Direct Prime Cost) x 100 =  $(300.000 / 250.000) \times 100 = 120\%$
- **Labor Hour Rate** = (Manufacturing Overheads / Direct labor hours) =  $(300.000 / 15.000) = 20$  per labor hour
- **Machine Hour Rate** = (Manufacturing Overheads / Machine hours) =  $(300.000 / 20.000) = 15$  per labor hour

## 2- Comparative Statements of Cost of Order No(555).

	D M C	D L C	P C	D L H R	M L H R
<b>Direct Material Cost</b>	20.000	20.000	20.000	20.000	20.000
<b>Direct Labor Cost</b>	10.000	10.000	10.000	10.000	10.000
<b>Prime Cost</b>	<b>30.000</b>	<b>30.000</b>	<b>30.000</b>	<b>30.000</b>	<b>30.000</b>
<b>Manufacturing Cost</b>					
<b>200% of D M C</b>	40.000				
<b>300% of D L C</b>		30.000			
<b>120% of P C</b>			36000		
<b>20 per D L Hour</b>				34000	
<b>15 per M L hour</b>					30.000
<b>Total Cost</b>	<b>70.000</b>	<b>60.000</b>	<b>66000</b>	<b>64000</b>	<b>60.000</b>

### 5/3/3/7.Requisites of Good Methods of Absorption of production overheads

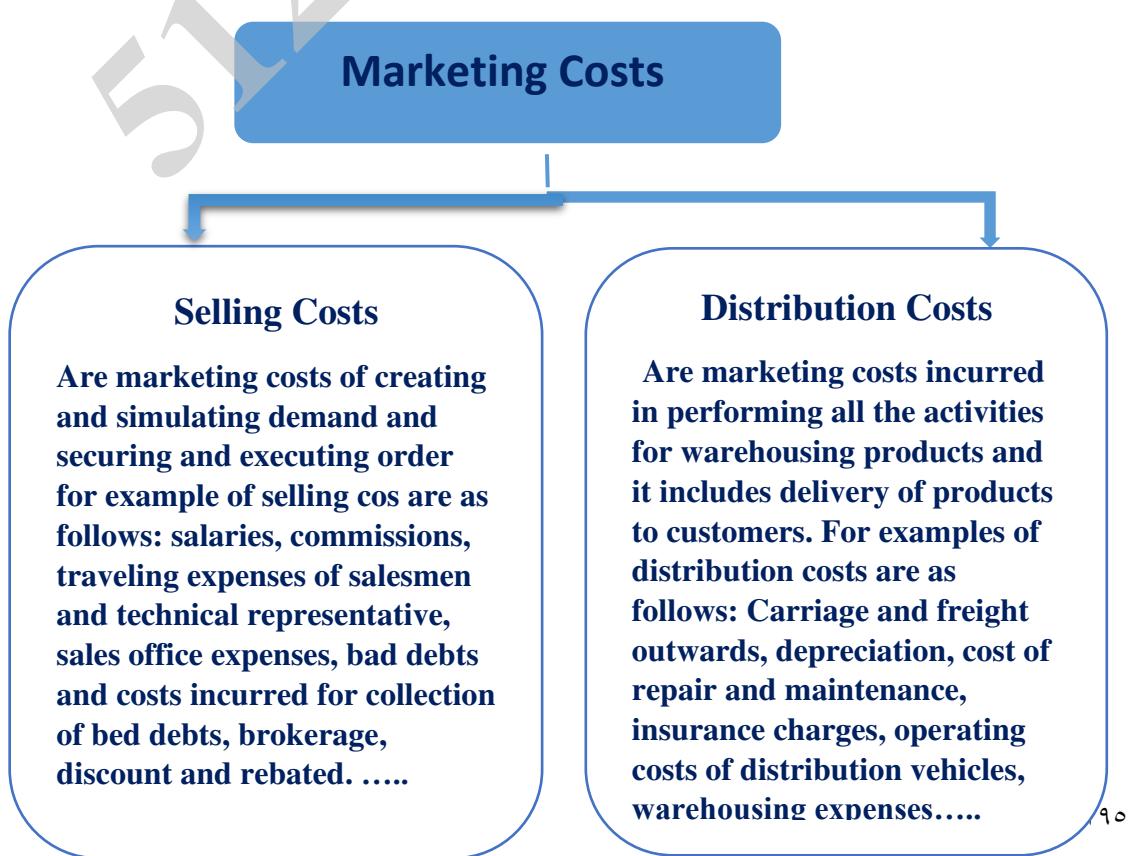
A good method of Absorption of production overheads should possess the following characteristics:

1. It should be simple to understand and easy to adopt.
2. It should take into consideration the time factor.
3. It should be economical to use.
4. It should be distinguished between the work done by manual labor and the work done by machine.
5. It should distinguish between the work done by skilled workers and work done by unskilled workers.

## 5/4.Accounting For Marketing Overheads

**Selling cost** or overhead expenses are the expenses incurred for the purpose of promoting the marketing and sales of different products.

**Distribution Cost**, on the other hand, are expenses relating to delivery and dispatch of goods sold. Examples of selling and distribution expenses have been considered earlier in this booklet. From the definitions it is clear that the two types of expenses represent two distinct types of functions. Some concerns group together these two types of overhead expenses into one composite class, namely, selling and distribution overhead, for the purpose of Cost Accounting. And according to (ICMA) London marketing costs define as the costs incurred in publicizing and presenting to customers the products of the undertaking in suitably attractive forms and at acceptable prices together with the costs of all relevant research work, the securing of orders and usually delivery of goods to customers.



## **5/4/1.Accounting of selling and distribution (Marketing) overheads**

The collection and accumulation of each expense is made by means of appropriate standing order numbers in the usual way. Where it is decided to apportion a part of the administrative overhead to the selling division the same should also be collected through appropriate standing order numbers. As in the case of administrative overheads, it is not easy to determine an entirely satisfactory basis for computing the overhead rate for absorbing selling overheads.

**The bases usually adopted are:**

- a) Sales value of goods;
- b) Cost of goods sold;
- c) Gross Profit on sales; and
- d) Number of orders or units sold.

It is considered that the sale value is ordinarily the most logical basis, there being some connection between the amount of sales and the amount of expenses incurred to achieve them. The cost of production, however, is not as satisfactory on basis as it may not have any direct relationship with the selling and distribution cost.

The basis of gross profit on sales results in a larger share of the selling overhead being applied to goods yielding a large margin of profit and vice versa. The basis therefore follows the principle of ‘ability to pay, it may not reflect costs or incurred efforts.

An estimated amount per unit - The best method for absorbing selling and distributing expenses over various products is to separate fixed expenses from variable expenses. Apportion the fixed expenses

according to the benefit derived by each product and thus ascertaining the fixed expenses per unit.

**We give below some of the fixed expenses and the basis of apportionment:**

<b>Expenses</b>	<b>Basis</b>
<b>Salaries in the Sales Department and of the salesmen</b>	Estimated time devoted to the sale of various products.
<b>Advertisement</b>	Actual amount incurred for each product since these days it is usual to advertise each product separately; common expenses, such as in an exhibition, should be apportioned on the basis of advertisement expenditure on each product. Sales value.
<b>Show Room expenses</b>	Average space occupied by each product.
<b>Marketing Research costs</b> <b>Marketing management costs</b> <b>Other marketing costs</b>	Sales value
<b>Salesmen bonus</b>	Number of salespeople or salesperson salary or sales
<b>Storage costs</b> <b>Packaging costs</b> <b>Collection expenses</b>	Space allocated to store weight, quantity or value sales, number of invoices, or number of customers.
<b>Rent of finished goods godowns and Expenses on own delivery vans</b>	Average quantities delivered during a period.

If a suitable basis for apportioning expenses does not exist, it may be apportioned in the proportion of sales of various products.

The total of fixed expenses apportioned in this manner, divided by the number of units sold or likely to be sold, will give the fixed expenses per unit. To this should be added the variable expenses which will be different for each product.

These expenses are, packaging, freight outwards, insurance in transit, commission payable to salesmen, rebate allowed to customers, etc. All these items will be worked out per unit for each product separately. These items added to fixed expenses per unit will give an estimated amount of the selling and distribution expenses per unit.

## **5/4/2. Control of selling and distribution (Marketing) overheads**

**Control of selling and distribution expenses is a difficult task. The reasons for this are as follows:**

1. The incidence of selling and distribution overheads depends mainly on external factors, such as distance of market, extent and nature of competition, terms of sales, etc. which are beyond the control of management.
2. These overheads are dependent upon the customers, behavior, their liking and disliking, tastes etc. Therefore, as such control over the overheads may result in loss of customers.
3. These expenses being of the nature of policy costs, are not amenable to control.

**In spite of the above difficulties, the following methods may be used for controlling them.**

- ❖ **Comparison with past performance - According to this method,** selling and distribution overheads are compared with the figures of the previous period. Alternatively, the expenses may be expressed as a percentage of sales, and the percentages may be compared with those of the past period. This method is suitable for small concerns.
- ❖ **Budgetary Control** - A budget is set up for selling and distribution expenses. The expenses are classified into fixed and variable. If necessary, a flexible budget may be prepared indicating the expenses

at different levels of sales. The actual expenses are compared with the budgeted figures and in the case of variances suitable actions are taken.

- ❖ **Standard Costing** - Under this method standards are set up in relation to the standard sales volume. Standards may be set up for salesmen, territories, products etc. Once the standards are set up, comparison is made between the actuals and standards: variances are enquired into and suitable action taken.

### Example 7:

A company which sells four products, some of them unprofitable, proposes discontinuing the sale of one of them. **The following information is available regarding income, costs and activity for the year ended 31st March 2019.**

Data and Cost	Products			
	A	B	C	D
Sales	30,00,000	50,00,000	25,00,000	45,00,000
Cost of sales	20,00,000	45,00,000	21,00,000	22,50,000
Area of storage (Sq.ft.)	50,000	40,000	80,000	30,000
Number of parcels sent	1,00,000	1,50,000	75,000	1,75,000
Number of invoices sent	80,000	1,40,000	60,000	1,20,000

	Data and Cost	Basis
<b>Fixed Costs</b>		
Rent & Insurance	3,00,000	Square feet
Depreciation	1,00,000	Parcel
Salesmen's salaries & expenses	6,00,000	Sales Volume
Administrative wages and salaries	5,00,000	No. of invoices
<b>Variable Costs:</b>		
Packing wages & materials	2 per parcel	
Commission	4% of sales	
Stationery	1 per invoice	

**Required:** You are required to Prepare Costing Profit & Loss Statement, showing the percentage of profit or loss to sales for each product.

## SOLUTION

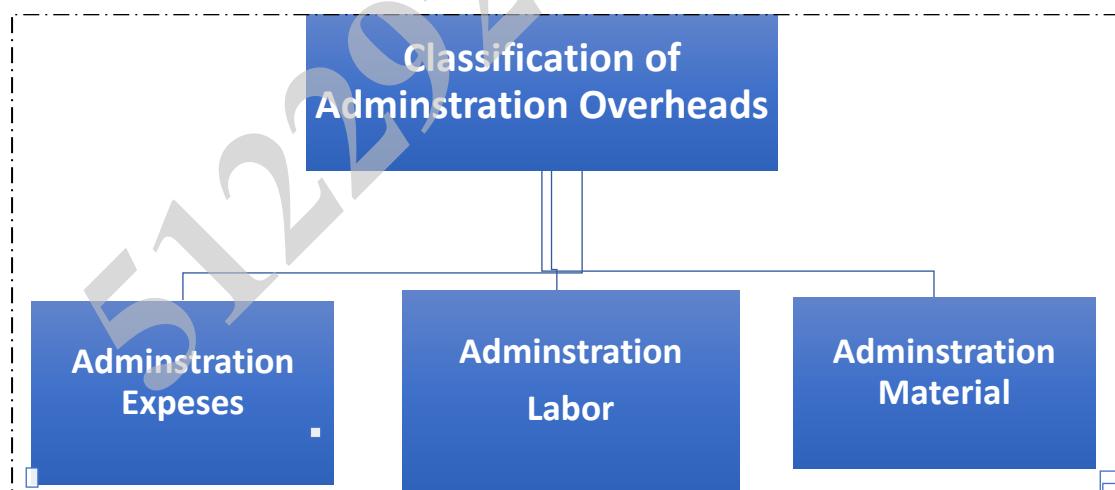
### Statement of Profit or Loss on Various Products during the year ended March 31, 2019.

	<b>Total</b>	<b>Products</b>			<b>D</b>
		<b>A</b>	<b>B</b>	<b>C</b>	
<b>Sales</b>	1,50,00,000	30,00,000	50,00,000	25,00,000	45,00,000
<b>Variable costs:</b>					
<b>Cost of sales</b>	1,08,50,000	20,00,000	45,00,000	21,00,000	22,50,000
<b>Commissions 4% of sales</b>	6,00,000	1,20,000	2,00,000	1,00,000	1,80,000
<b>Packing wages &amp; materials @ 2 per parcel</b>	10,00,000	2,00,000	3,00,000	1,50,000	3,50,000
<b>Stationery @ 1 per invoice</b>	4,00,000	80,000	1,40,000	60,000	1,20,000
<b>Total variable costs</b>	1,28,50,000	24,00,000	51,40,000	24,10,000	29,00,000
<b>Contribution (Sales – variable cost)</b>	21,50,000	6,00,000	(1,40,000)	90,000	16,00,000
<b>Fixed Costs:</b>					
<b>Rent &amp; Insurance (5:4:8:3)</b>	3,00,000	75,000	60,000	1,20,000	45,000
<b>Depreciation (4:6:3:7)</b>	1,00,000	20,000	30,000	15,000	35,000
<b>Salesmen's salaries &amp; expenses (6:10:5:9)</b>	6,00,000	1,20,000	2,00,000	1,00,000	1,80,000
<b>Administrative wages &amp; salaries (4:7:3:6)</b>	5,00,000	1,00,000	1,75,000	75,000	1,50,000
<b>Total Fixed costs</b>	15,00,000	3,15,000	4,65,000	3,10,000	4,10,000
<b>Profit or Loss (Contribution–fixed Costs)</b>	6,50,000	2,85,000	(6,05,000)	(2,20,000)	11,90,000
<b>Percentage of profit or Loss on sales (%)</b>	4.33	9.50	(12.10)	(8.80)	26.4

## 5/5.Accounting of Administrative Overheads

Definition - According to CIMA Terminology, Administrative overhead is defined as “The sum of those costs of general management and of secretarial accounting and administrative services, which cannot be directly related to the production, marketing, research or development functions of the enterprise.” According to this definition, administrative overhead constitutes the expenses incurred in connection with the formulation of policy directing the organization and controlling the operations of an undertaking. These overheads are also collected and classified in the same way as the factory overheads.

**We can classify administration overheads accounting elements of cost as the following.**



- **Administration Expenses:** such as Office rent, Insurance, Postage telegrams, telephones, repairs and maintenance of office buildings furniture, band charges, and general Administration expenses.
- **Administration Labor:** such as Salaries of Administrative staff, Accounts and secretariat costs, and Audit and legal fees.
- **Administration Material:** such as material for public administration, printing and stationery material, cleaning material.

## **5/5/1.Accounting of Administrative Overheads**

**There are three distinct methods of accounting of administrative overheads, which are briefly discussed below:**

### **(a)-Apportioning Administrative Overheads between Production and Sales Departments:**

**According to this method administrative overheads are apportioned over production and sales departments.** The reason for the apportionment of overhead expenses over these departments, recognises the fact that administrative overheads are incurred for the benefit of both of these departments. Therefore, each department should be charged with the proportionate share of the same. When this method is adopted, administrative overheads lose their identity and get merged with production and selling and distribution overheads.

#### **Disadvantages:**

1. It is difficult to find suitable bases of administrative overhead apportionment over production and sales departments.
2. Lot of clerical work is involved in apportioning overheads.
3. It is not justified to apportion total administrative overheads only over production and sales departments when other equally important department like finance is also there.

**(b)-Charging to Profit and Loss Account:** According to this method administrative overheads are charged to Costing Profit & Loss Account. The reason for charging to Costing Profit & Loss are firstly; the administrative overheads are concerned with the formulation of policies and thus are not directly concerned with either the production or the selling and distribution functions. Secondly, it is difficult to determine a suitable basis for apportioning administrative overheads over production and sales departments. Lastly, these overheads are the

fixed costs. In view of these arguments, administrative overheads should be charged to Profit and Loss Account.

### **Disadvantages:**

1. Cost of products is understated as administrative overheads are not charged to costs.
2. The exclusion of administrative overheads from cost of products is against sound accounting principle.

### **(c)-Treating Administrative Overheads as a separate addition to**

**Cost of Production/ Sales:** This method considers administration as a separate function like production and sales and, as such costs relating to formulating the policy, directing the organization and controlling the operations are taken as a separate charge to the cost of the jobs or a product, sold along with the cost of other functions.

**The basis which are generally used for apportionment are:**

1. Works cost.
2. Sales value or quantity.
3. Gross profit on sales.
4. Quantity produced.
5. Conversion cost, etc.

### **5/5/2. Control of Administrative Overheads**

Mostly administrative overheads are of fixed nature, and they arise as a result of management policies. These fixed overheads are generally non-controllable. But at the same time these overheads should not be allowed to grow disproportionately. Some degree of control has to be exercised over them.

## **The methods usually adopted for controlling administrative overheads are as follows:**

❖ **Comparison with Previous Period:** Classification and analysis of overheads by administrative departments according to their functions, and a comparison with the accomplished results: According to this method the expenses incurred by each administrative department are collected under standing order numbers for each class of expenditure. These are compared with similar figures of the previous period in relation to accomplishment. Such a comparison will reveal efficiency or inefficiency of the concerned department.

However, this method provides only a limited degree of control and comparison does not give useful results if the level of activity is not constant during the periods under comparison.

To overcome this difficulty, overhead absorption rates may also be compared from period to period; the extent of over or under absorption will reveal the efficiency or otherwise of the department. It may be possible to compare the cost of a service department with that of similar services obtainable from outside and a decision may be taken whether it is economical to continue the department or entrust the work to outsiders.

❖ **Control through Budgets** - According to this method, administration budgets (monthly or annually) are prepared for each department. The budgeted figures are compared with actual ones to determine variances.

The variances are analysed and responsibility assigned to the concerned department to control these variances.

❖ **Control through Standard** - Under this method, standards of performance are fixed for each administrative activity, and the actual performance is compared with the standards set. In this way, standards serve not only as yardstick of performance but also facilitate control of costs.

### **Example 8:**

**The company has furnished the following data relating to two jobs undertaken by it in a period:**

<i>Data and cost</i>	<i>Job 101</i>	<i>Job 102</i>
<i>Direct materials</i>	54,000	37,500
<i>Direct wages</i>	42,000	30,000
<i>Selling price</i>	1,66,650	1,28,250
<i>Profit percentage on Total Cost</i>	10%	20%

### **Required:**

1. Computation of percentage recovery rates of Manufacturing overheads and administrative overheads.
2. Calculation of the amount of Manufacturing overheads, administrative overheads, and profit for each of the two jobs.
3. Using the above recovery rates FIX the selling price of job 103.

### **The additional data being:**

- Direct materials 24,000
- Direct wages 20,000
- Profit percentage on selling price      12-½%

## SOLUTION

Let Manufacturing overhead recovery rate, as percentage of direct wages be F and administrative overheads recovery rate, as percentage of Manufacturing cost be A.

### Manufacturing Cost of Jobs:

$$\text{Job 101} = 96000 + 42000 F$$

$$\text{Job 102} = 67500 + 30000 F$$

### Total Cost of Jobs

$$\text{Job 101} = (96000 + 42000 F) + (96000 + 42000 F) A = 151500$$

$$\text{Job 102} = (67500 + 30000 F) + (67500 + 30000 F) A = 1,06,875$$

### (Refer to working note)

On solving above relations:  $F = 0.60$  and  $A = 0.25$

Hence, percentage recovery rates of Manufacturing overheads and administrative overheads are 60% and 25% respectively.

### Working note:

Total Cost

**Job 101 = 151500**

**Job 102 = 106875**

Selling Price / (100% + percentage of Profit)  $1666650/110\% = 128250/120\%$

**Statement of jobs, showing amount of Manufacturing overheads, administrative overheads, and profit**

<i>Data and Cost</i>	<i>Job 101</i>	<i>Job 102</i>
<i>Direct materials</i>	54,000	37,500
<i>Direct wages</i>	<u>42,000</u>	<u>30,000</u>
<i>Prime cost</i>	<u>96,000</u>	<u>67,500</u>
<i>Manufacturing overheads</i>		
<i>60% of direct wages</i>	25,200	18,000
<i>Manufacturing cost</i>	<u>1,21,200</u>	<u>85,500</u>
<i>Administrative overheads</i>		
<i>25% of factory cost</i>	<u>30,300</u>	<u>21,375</u>
<i>Total cost</i>	1,51,500	1,06,875
<i>Profit</i>	<u>15,150</u>	<u>21,375</u>
<i>Selling price</i>	<u>1,66,650</u>	<u>1,28,250</u>

**Selling price of Job 103**

<i>Direct Materials</i>	<u>24000</u>
<i>Direct wages</i>	<u>20,000</u>
<i>Prime cost</i>	<u>44,000</u>
<i>Factory overheads (60% of Direct Wages)</i>	<u>12,000</u>
<i>Factory cost</i>	<u>56,000</u>
<i>Administrative overheads</i>	<u>14,000</u>
<i>(25% of factory cost)</i>	—
<i>Total cost</i>	<u>70,000</u>
<i>Profit margin (balancing figure)</i>	<u>10,000</u>
<i>Selling price □ Total Cost</i>	<u>80,000</u>
<i>87.5%</i>	

## **5/6. Questions & Exercises**

### **Test Your Knowledge**

#### **A. Theoretical Part**

##### **Question No.1**

1. What is Meaning Overhead?
2. What are Examples of Overhead?
3. Talk about Classification of Overheads?
4. Discuss the Classification of Overheads by Function?
5. What are the Basic Characteristics of Fixed Overheads?
6. Explain the Basic Characteristics of Variable Overheads?
7. What are Examples of Fixed Overhead?
8. What are Examples of Administration Overhead?
9. Talk about Marketing Overheads?
10. Talk about Classification of Overheads by Element?
11. What is the difference between direct and indirect costs?
12. Explain what the methods of accounting are of administrative overheads?
13. Talk about Methods of Distribution manufacturing overheads of services production department to production department.
14. What are Methods of Calculated Manufacturing Overhead Rate?

##### **Question No.2: True (T) and false (F) Questions**

- 1- Manufacturing Overheads represent all the indirect costs and direct costs. ( )
- 2- Selling overheads represent the cost of seeking to create and stimulate demand and securing order. ( )

- 3- Variable Overheads are those costs which do not vary with the change in the volume of production up to a give range. ( )
- 4- Administration overhead is no related directly to production, selling, and distribution cost ( )
- 5- Salary of supervisor works manger is an example of Direct Labor Cost. ( )
- 6- Rent is an example of Fixed Overheads. ( )
- 7- Salary of managing director is an example of Administration Overheads. ( )

### Question No.3 Multiple Choice Questions

1-The classification of overheads depends upon....

- A- Nature of Business
- B- Size of Business
- C- Nature of product produced/service rendered.
- D- All above

2 -..... represent all the indirect costs incurred in connection with the production of product or service.

- A- Selling Overheads
- B- Manufacturing Overheads
- C- Indirect Labor Cost
- D- All of the above

3 - ..... represent the cost of formulating the policy, directing the organization and controlling the operations.

- A- Distribution Overheads.
- B- Administration Overheads.
- C- Direct cost.

D- None of the above

4-..... represent the cost of seeking to create and stimulate demand and securing order.

A- Marketing Overheads.

B- Manufacturing Overheads.

C- Direct Materials cost.

D- None of the above.

5-..... are those costs which do no vary with the change in the volume of production upto a give range.

A- Variable Overheads.

B- Fixed Overheads.

C- Sami-Variable Overheads

D- None of the above

6-..... are those costs which vary in direct proportion to the volume of production.

A- Fixed Overheads.

B- Selling Overheads.

C- Sami-Variable Overheads

D- None of the above

7 - ..... are those costs which one part remain fixed upto a give rang, and the other part varies with the change in the volume of production but not in the same production.

A- Sami-Variable Overheads

B- Administrations Overheads

C- Fixed Overheads.

D- None of the above

8- ..... are those material cost which cannot conveniently be identified with and directly allocated to a Particular cost Centre.

- A- Direct Materials Costs
- B- Indirect Materials Costs
- C- Fixed Overheads.
- D- None of the above

9-Which of the following is not a Manufacturing overhead?

- A- Rent Factory Building
- B- Salary of Legal Manager
- C- Insurance of Factory Building.
- D- None of the above

10-Which of the following is an example of Administration Overheads?

- A- Cost of printing used in Administration department.
- B- Factory telephone expenses.
- C- Advertising.
- D- None of the above

11-Which of the following is not a Marketing overhead?

- A- Salary of Sales Director
- B- Commission to selling agents.
- C- Legal advisors.
- D- None of the above

12-Which of the following is an example of Variable Overheads?

- A- Sales Commission.
- B- Salary of Manager.
- C- Rent and Insurance of Building.

D- None of the above

13-Power Cost can be allocated on the basis of .....

- A- No of workers
- B- Machine hours
- C- Computer hours.
- D- None of the above

14-Factory supervises Cost can be allocated on the basis of .....

- A- No of orders.
- B- Machine hours
- C- Computer hours.
- D- None of the above

15-Factory supervises Cost can be allocated on the basis of .....

- A- No of orders.
- B- Machine hours
- C- Computer hours.
- D- None of the above

16-Product engineering Cost can be allocated on the basis of .....

- A- No of workers
- B- Computer hours.
- C- Labor hours worked.
- D- None of the above

17- A good method of Absorption of production overheads....

- A. It should be simple to understand and easy to adopt.
- B. It should take into consideration the time factor.
- C. It should be economical to use.

D. All of the above

18- Under this method, the cost of direct material consumed is the base for calculating the amount of overhead absorbed.

A- Percentage of Direct Labor Cost

B- Percentage of Prime Cost

C- Direct Labor Hour Rate

D- None of the above

## B-Practical Part

### Exercise 1:

Elfaramawy A company has 2 production departments. (M& N) and 2 services departments (S& SH).

**Relevant cost and operating data are as follows:**

Costs and data	Production department		Service department	
	M	N	S	SH
<i>Special Costs</i>				
Indirect Material	10000	150000	5000	3500
Indirect Labor	6000	15000	4000	5000
Depreciation	4500	3000	2500	2000
Floor Area. meters	750	1000	200	300
Kilowatt hours	125	100	50	50
Maintenance hours	175	175	-	25
Cost of Plant	25000	40000	35000	25000

**General overheads:** Rent 36000 – insurance Plant 100000 – Light 5200- Maintenance 12000.

**Required:** Prepare a distributing of manufacturing overheads sheet.

## Exercise 2:

QNP company divided into two service department (personal & Maintenance) & two producing departments. (cutting & finishing).

<i>Costs and data</i>	<b>Personal</b>	<b>Maintenance</b>	<b>Cutting</b>	<b>Finishing</b>
<b>Overhead cost</b>	18,000	22,200	36,000	24,000
<b>Number of workers</b>	50	75	175	200
<b>Machine hours</b>	-	100hours	150hours	60hours
<b>Direct labor hours</b>	-		100hours	200hours

### Required:

1. Allocate service department cost to the production department use direct & step method.
2. Determine the overhead rate.
3. Determine overhead allocation rate (Cutting Depends on machine hours, Finishing Depends on Labor hours).

## Exercise 3:

Bakr Art Company uses the two-steps direct method for allocating its three service department costs to two production departments. Relevant cost and operating data are as follows:

<i>Costs and data</i>	<b>Personal</b>	<b>Cafeteria</b>	<b>Computer</b>	<b>Development</b>	<b>Assembly</b>
<b>Overhead costs</b>	5,000	1500	20,000	55,000	56,000
<b>Computer h. used</b>	25	00	375	450	25
<b>No. of employees</b>	8	2	5	8	5

**Required:** Determined total overhead costs of production departments (Development and Assembly).

## Exercise 4:

First Trade company has 3 services departments. (Personal, storage & power) and 3 production departments (Machine, Assembly, & Finishing).

**Relevant cost and operating data are as follows:**

<i>Costs and data</i>	Service department			Production department		
	Personal	Storage	Power	Machine	Assembly	Finishing
<i>Estimated OH</i>	34200	20200	14200	55200	33400	30800
<i>No. of workers</i>	100	100	100	600	500	600
<i>Machine hours</i>	-	500	4500	5,000	3,000	2,000
<i>Direct labor hours</i>	-	-	-	2,000	4,000	1500
<i>No. of Material order</i>	50	-	50	100	80	50

### Required:

1. Allocate service department cost to production department using direct method compute overhead rate & step method & two step method.
2. Find OH rate, assume that machine depends on machine hours and Assemble & Finishing on labor hours?

### Exercise 5:

IP Magic Manufacturing Company information related to its Company for the year ended December 31<sup>st</sup>, 2022.

<b>Costs and data</b>	<b>Personal</b>	<b>Maintenance</b>	<b>Power</b>	<b>Assembly</b>	<b>Finishing</b>
<i>Indirect labor</i>	30,000	22,500	9,000	585,000	64,500
<i>Indirect Material</i>	---	6,500	30,000	313,000	95,000
<i>Other costs</i>	24,000	15,000	15,000	495,000	85,500
<i>Direct labor hours</i>	1,000	700	300	5,000	4,000
<i>No. of employees</i>	300	400	300	3,000	2,000
<i>Machine hours</i>	---	---	2,000	4,000	3,000

### Required:

Allocate service departments to production departments using:

- 1-The direct method & OH rate if Assembly → Machine hours.  
Finishing → labor hours.
- 2-The step method.
- 3-The two-step direct method.

### Exercise 6:

H & M Manufacturing Company has 2 production depts, assembly & finishing, and 3 service depts., cafeteria, personal, power. **The following information for the year ended 31, December 2020.**

<b>Costs and data</b>	<b>Cafeteria</b>	<b>Personal</b>	<b>Power</b>	<b>Assembly</b>	<b>Finishing</b>
<i>IND. Material Costs</i>	200	360	1220	6,800	8,200
<i>IND. Labor Costs</i>	960	1240	4,000	12200	18,400
<i>M. overhead cost</i>	440	600	780	5000	5400
<i>NO. of employees</i>	60	200	400	1200	2,000
<i>MH</i>				2,000	1200
<i>DLH</i>				1000	4,000

The company selects step methods to distribute service departments, Machine hours as a base for assembly department factory overhead rate, and direct labor hours as a base for finishing department manufacturing overhead rate, product “A” used 100 machine hours in assembly department & 175 direct labor hours in finishing department.

### **Required: Determine the Manufacturing Overhead Cost**

#### **Example 7:**

The company has furnished the following data relating to two Product undertaken by it in a period:

<i>Data and cost</i>	<i>P.1</i>	<i>P.2</i>
<i>Direct materials</i>	27,000	18750
<i>Direct wages</i>	21,000	15,000
<i>Selling price</i>	83325	64125
<i>Profit percentage on Total Cost</i>	10%	20%

#### **Required:**

1. Computation of percentage recovery rates of manufacturing overheads and administrative overheads.
2. Calculation of the amount of manufacturing overheads, administrative overheads, and profit for each of the two Products.
3. using the above recovery rates FIX the selling price of Product.

#### **Example 8:**

Yasen Company sells four products, some of them unprofitable, proposes discontinuing the sale of one of them. **The following information is available regarding income, costs and activity for the year ended 31-12-2022.**

<b>Data and Cost</b>	<b>Products</b>			<b>W</b>
	<b>M</b>	<b>N</b>	<b>Q</b>	
<b>Sales</b>	15,00,000	25,00,000	1250,000	2250,000
<b>Cost of sales</b>	10,00,000	2250,000	1050,000	1125,000
<b>Area of storage (Sq.ft.)</b>	25,000	20,000	40,000	15,000
<b>Number of parcels sent</b>	50,000	75,000	37500	87500
<b>No. of invoices sent</b>	40,000	70,000	30,000	60,000

	<b>Data and Cost</b>	<b>Basis</b>
<b>Fixed Costs</b>		
<b>Rent &amp; Insurance</b>	150,000	<i>Square feet</i>
<b>Depreciation</b>	50,000	<i>Parcel</i>
<b>Salesmen's salaries &amp; expenses</b>	3,00,000	<i>Sales Volume</i>
<b>Administrative wages and salaries</b>	250,000	<i>No. of invoices</i>
<b>Variable Costs:</b>		
<b>Packing wages &amp; materials</b>	2 per parcel	
<b>Commission</b>	4% of sales	
	<b>Stationery</b>	1 per invoice

**Required:** You are required to Prepare Costing Profit & Loss Statement, showing the percentage of profit or loss to sales for each product.

### Example 9:

The following information related to the manufacturing department for certain period in a factory:

- Direct Material                      75000EGP
- Direct Wages                        50.000EGP
- Manufacturing Overheads        150.000 EGP
- Labor Hours                        7500 hours
- Machine Hours                     10000 hours

**For one Order No (107) carried out in the department during the period, the relevant data was:**

- Direct Material 40.000EGP
- Direct Wages 20.000EGP
- Labor Hours 3400 hours
- Machine Hours 4000 hours

**Required:** Prepare a comparative statement of cost of this order by using the following methods: Direct materials Cost – Direct labor Cost – Prime Cost – Labore Hours Rate – Machine Hours Rate.

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