ASSIGNMENT No. 01
Cost Accounting (462) B.Com
Spring, 2025

Q. 1 (a) Define Cost Accounting. State the merits of cost accounting.

Cost Accounting Fundamentals provides the necessary tools and concepts required for businesses to successfully compete in today's global marketplace. The strengths and weaknesses of various methodologies seen in practice related to inventory valuation, product pricing and cost analysis are clearly identified and explained. As a result, best practices can be easily derived and implemented. This book will be a valuable addition to any business professional's library. - Tim Scullin, CPA, CFO of SIG Sauer, Inc.

Arguably one of the most important roles in accounting, the cost accountant plays a critical role in supporting tactical business decisions and enhancing profitability. Cost Accounting Fundamentals provides an in-depth explanation of the essentials needed to carry out this critical role, highlighted by easy to understand examples. The book serves as a great "how to" guide for those in cost accounting, those considering a career in cost accounting, or anyone in business who wants to learn more about the profession. -- Steven Randall, Partner, Vonya Global LLC

Cost Accounting Fundamentals is a fantastic guide for any cost or management accountant. The guidance in this book teaches the cost accountant how to be a true business partner to operations. -- Josh Nowack, CPA, Nowack Strategic Business Advisory & CPA

Cost Accounting Fundamentals is a comprehensive manual for the cost accounting professional, detailing concepts, techniques, and practices, particularly focusing on product cost accounting. This excellent manual provides every practicing cost accountant with a vitally important reference. The coverage of target costing, resource consumption cost concepts, and related cost planning and management topics makes this a reference that accounting managers will want to keep within easy reach as their careers advance.

Cost accounting involves the recordation

Cost accounting involves the recordation, analysis, and reporting of costs to management. The intent behind this type of accounting is to provide insights into the cost structure of a business that can be used to better manage it. As opposed to financial accounting, cost accounting is primarily intended for internal operational activities.

Cost accounting is also used to compile asset costs and expenses that are to be reported in the financial statements. For example, a cost accountant calculates the cost of ending inventory, which appears in the balance sheet. Similarly, the accountant compiles the cost of goods sold, which appears in the income statement. These are not simple calculations, since the cost accountant may need to deal with cost layering systems, overhead allocation, and byproduct costing splits.

Some of the activities associated with cost accounting are:

- Activity-based cost analyses
- Breakeven analysis
- Budgeting
- Cost control

- Marginal cost analysis
- Minimum pricing analysis
- Standard cost development
- Target costing
- Throughput analysis
- Transfer pricing
- Variance analysis

Cost accounting systems vary by business, since there are no standards for how they are to be constructed. This differs from financial accounting systems, for which there are comprehensive sets of standards (such as GAAP and IFRS).

While cost accounting is often used within a company to aid in decision making, financial accounting is what the outside investor community typically sees. Financial accounting is a different representation of costs and financial performance that includes a company's assets and liabilities. Cost accounting can be most beneficial as a tool for management in budgeting and in setting up cost control programs, which can improve net margins for the company in the future.

One key difference between cost accounting and financial accounting is that while in financial accounting the cost is classified depending on the type of transaction, cost accounting classifies costs according to information needs of the management. Cost accounting, because it is used as an internal tool by management, does not have to meet any specific standard set by the Generally Accepted Accounting Principles (GAAP) and, as a result, varies in use from company to company or from department to department.

Development of Cost Accounting

Scholars have argued that cost accounting was first developed during the industrial revolution when the emerging economics of industrial supply and demand forced manufacturers to start tracking whether to decrease the price of their overstocked goods or decrease production.

During the early 19th century when David Ricardo and T. R. Malthus were developing the field of economic theory, writers like Charles Babbage were writing the first books designed to guide businesses on how to manage their internal cost accounting.

By the beginning of the 20th century, cost accounting had become a widely covered topic in the literature of business management.

Types of Cost Accounting

Standard Cost Accounting

This type of cost accounting uses ratios to compare efficient uses of labor and materials to produce goods or services under standard conditions. Assessing these differences is called a variance analysis. Traditional cost accounting essentially allocates cost based on one measure, labor or machine hours. Due to the fact that overhead cost has risen proportionate to labor cost since the genesis of standard cost accounting, allocating overhead cost as an overall cost has ended up producing occasionally misleading insights.

Some of the issues associated with cost accounting is that this type of accounting emphasizes labor efficiency despite the fact that it makes up a comparatively small amount of the costs for modern companies.

Activity Based Costing

The Charter Institute of Management Accountants defines activity based accounting as, "an approach to the costing and monitoring of activities which involves tracing resource consumption and costing final outputs, resources assigned to activities, and activities to cost objects based on consumption estimates. The latter utilize cost drivers to attach activity costs to outputs."

Activity based costing accumulates the overheads from each department and assigns them to specific cost objects like services, customers, or products. The way these costs are assigned to cost objects are first decided in an activity analysis, where appropriate output measures are cost drivers. As a result, activity based costing tends to be much more accurate and helpful when it comes to helping managers understand the cost and profitability of their company's specific services or products. Accountants using activity based costing will pass out a survey to employees who will then account for the amount of time they spend on different tasks. This gives management a better idea of where their time and money is being spent.

Lean Accounting

Lean accounting is an extension of the philosophy of lean manufacturing and production developed by Japanese companies in the 1980s. Most accounting practices for manufacturing work off the assumption that whatever is being produced is done in a large scale. Instead of using standard costing, activity based costing, cost-plus pricing, or other management accounting systems, when using lean accounting those methods are replaced by value-based pricing and lean-focused performance measurements, for example, using a box score to facilitate decision making and create simplified and digestible financial reports.

Marginal Costing

Considered a simplified model of cost accounting, marginal costing (sometimes called cost-volume-profit analysis) is an analysis of the relationship between a product's or service's sales price, the volume of sales, the amount produced, expenses, costs, and profits. That specific relationship is called the contribution margin. The contribution margin is calculated by dividing revenue minus variable cost by revenue. This type of analysis can be used by management to gain insight on potential profits as impacted by changing costs, what types of sales prices to establish, and types of marketing campaigns.

(b) Describe the elements of Manufacturing Cost. Describe the classification of Costs regarding recording in Financial Statements. (20)

Manufacturing costs are essential for determining the total cost of producing goods. They encompass various elements that contribute to the overall expense incurred by a manufacturing entity. Understanding these elements is pivotal for accurate financial reporting and for establishing a solid basis for pricing, budgeting, and financial planning.

Direct Materials

The first element of manufacturing cost is direct materials, which includes the raw materials and components that are directly traceable to the finished product. These costs are variable, as they fluctuate with production levels. For example, a furniture manufacturer might consider wood, fabric, and hardware as direct materials. Accurately tracking these costs is crucial for evaluating production efficiency and for budget forecasting.

Direct Labor

Direct labor refers to the labor costs of employees who are directly involved in the production process. This includes wages, salaries, and benefits of workers who actively convert raw materials into finished products. Direct labor is also a variable cost as it changes with the number of units produced. Proper categorization is vital for understanding labor efficiency and for calculation of labor variance, which reflects the discrepancies between expected and actual labor costs.

Manufacturing Overhead

Manufacturing overhead encompasses all the indirect costs associated with production that cannot be directly traced to specific products. This includes costs like utilities, rent, and maintenance of the manufacturing facility, as well as salaries of supervisors. Manufacturing overhead is usually classified as fixed or variable. Fixed overhead remains constant regardless of production levels, while variable overhead changes with production volume. Proper allocation of overhead is key to achieving an accurate understanding of the total cost of production.

Variable vs. Fixed Costs

In the realm of manufacturing costs, costs can be classified as variable and fixed. Variable costs change in direct proportion to output levels, such as raw materials and direct labor. Conversely, fixed costs remain unchanged regardless of production levels—for instance, lease costs for manufacturing premises. Understanding these classifications aids companies in financial forecasting and budgeting, allowing for more strategic decision-making.

Cost of Goods Manufactured (COGM)

Cost of Goods Manufactured is a comprehensive reflection of the total production costs incurred during a specific period. COGM includes direct materials, direct labor, and manufacturing overhead incurred for products completed during a particular timeframe. This figure is vital for calculating the cost of goods sold (COGS), which directly impacts gross profit. Accurate calculations of COGM ensure that businesses maintain proper inventory values and make informed financial decisions.

Classification of Costs for Financial Statements

Costs incurred by a manufacturing company can be classified as either product costs or period costs when recording in financial statements. This classification is crucial not just for compliance with accounting standards but also for internal decision-making processes.

Product Costs

Product costs refer to all costs associated with acquiring or manufacturing the goods that a company sells. These include direct materials, direct labor, and manufacturing overhead incurred during the production process. Product costs are capitalized as inventory on the balance sheet until the products are sold, at which point they are transferred to cost of goods sold on the income statement. This matching principle aligns expenses with revenues, providing a more accurate depiction of profitability.

Period Costs

Period costs are expenses that are not tied directly to manufacturing and are incurred regardless of production levels. These include selling, general, and administrative expenses (SG&A) such as office salaries, rent for corporate offices, and marketing expenses. Period costs are recorded as expenses on the income statement in the period they are incurred, often leading to complex reporting requirements that companies must manage.

Direct vs. Indirect Costs

Costs can further be classified into direct and indirect costs. Direct costs are those that can be directly attributed to a specific product, such as direct materials and direct labor. Indirect costs, on the other hand, cannot be directly traced to individual products and typically encompass manufacturing overhead. Understanding these distinctions is essential not only for manufacturing cost analysis but also for compliance with relevant accounting principles.

Cost Behavior Analysis

Analyzing cost behavior is crucial for effective cost management in manufacturing. Costs can be classified by their behavior, either as variable, fixed, or mixed. This classification helps businesses forecast their expenses more accurately, enabling better budgeting and financial planning. For instance, during periods of low production, understanding fixed and variable costs assists management in making strategic decisions related to pricing and production levels.

Cost Allocation Methods

To properly reflect manufacturing costs in financial statements, companies employ various cost allocation methods. These methods include job order costing, process costing, and activity-based costing. Each method has its advantages and limitations. Job order costing is typically used in settings where products are manufactured based on specific customer orders, while process costing is best suited for mass production. Activity-based costing offers a more nuanced approach by assigning costs based on activities that drive costs, ensuring that products are accurately priced.

Accrual vs. Cash Basis Accounting

The classification of manufacturing costs can also be influenced by the accounting method adopted. In accrual-based accounting, costs are recognized when incurred, allowing for a more accurate representation of a company's financial situation over time. In contrast, cash basis accounting recognizes expenses when cash is exchanged, which can distort the apparent costs associated with manufacturing operations. Understanding the implications of these accounting methods is vital for financial reporting and accurate decision-making.

Implications for Financial Analysis

A thorough understanding of manufacturing costs and their classifications has significant implications for financial analysis. It affects critical financial metrics such as gross profit margin, inventory turnover, and overall profitability. This analysis assists management in identifying cost control areas, evaluating product performance, and ultimately guiding strategic planning and operational efficiency.

Conclusion

An in-depth understanding of manufacturing costs, their elements, and classifications forms the basis for effective financial management in manufacturing firms. By accurately tracking and reporting these costs, companies can make informed decisions, enhance profitability, and ensure sustainability in a competitive market landscape.

Q. 2 The following data pertains to Yellow Corporation for the period ended on 31st December 2024:

(20)

Inventories:	31-12-24	1-1-24
Direct Material	237,500	225,000
Work in Process	200,000	175,000
Finished Goods	237,500	275,000
Cost Incurred During the Period:		
Direct Material Used	492,500	
Cost of Goods Available for Sales	1,610,000	
Factory Overheads	517,500	
Total Manufacturing Cost	1,480,000	

Required: Prepare Cost of Goods Manufacturing and Sold Statement.

Certainly! Below is the Cost of Goods Manufactured and Sold Statement for Yellow Corporation presented in a table format.

Yellow Corporation

Cost of Goods Manufactured and Sold Statement

For the Period Ended 31st December 2024

Particulars	Amount ($)
Cost of Goods Manufactured	
Beginning Work In Process Inventory	175,000
Add: Total Manufacturing Costs	1,480,000

Particulars	Amount ($)
Less: Ending Work In Process Inventory	(200,000)
Cost of Goods Manufactured	**1,455,000**
Cost of Goods Sold	
Beginning Finished Goods Inventory	275,000
Add: Cost of Goods Manufactured	1,455,000
Less: Ending Finished Goods Inventory	(237,500)
Cost of Goods Sold	**1,492,500**
Cost of Goods Available for Sale	1,610,000

T table provides a clear and concise view of the calculations related to the Cost of Goods Manufactured and Cost of Goods Sold for Yellow Corporation for the specified period.

Q. 3 (a) Describe the contents of a Job Order Cost Sheet and the benefits which can be reaped out of it by an enterprise. (10)

customer/client orders. Employees complete job order cost sheets for each order and usually separate expenses into three main categories: direct material, direct labor and manufacturing overhead. Companies in many industries can use job order costing, though a variety of product offerings/services complicates the tracking of expenses.

Job Order Costing in Manufacturing Companies

Manufacturing companies incorporate job order costing as a means of controlling usage of raw materials, production equipment and labor hours. These businesses consider each customer order a separate job for the purposes of job order costing. Alternatively, manufacturers may group smaller value projects together under a single job heading.

How manufacturers group jobs depends on the size of the company. For example, a small business manufacturer may consider any job valued over $1,000 as a single job, but they may group smaller customer orders together in blocks of $1,000 for costing purposes.

White Collar Businesses

Companies in the white collar sector of business, including law firms, accounting businesses and private investment companies, can utilize job order costing to manage individual client accounts. For example, accounting firms can consider each individual client a job. Firms complete job order cost sheets each business day, detailing how accountants are handling client accounts and how many hours a client's needs consume each day. This generates daily costs that businesses can use to measure how much money firms bring in each day versus the costs associated with job activities.

Medical Services Businesses

Medical services businesses, including hospitals, small doctor's offices and medical billing companies, can use job order costing to consider each patient or bill as an individual job. Record-keeping for job order costing in service industries, including the medical field, can be more complex than in other industries because these businesses offer a wide array of services, according to Accounting For Management, a business accounting information website.

This requires medical service businesses and other service companies to keep detailed records of each specific job to determine costs correctly. For example, a doctor's office may order patients based on the purpose of visits and the cost of treatments administered.

Film Studios/ Retail Companies

Retail companies, including clothing producers and retail outlets, employ job order costing to track sales of clothing by size, individual articles and broader styles. This allows retail companies and other businesses to track expenses to create a variety of job order cost models to show how costs vary from product to product. Businesses in the entertainment industry, including film studios, can create separate job order cost sheets for each film the studios create.

Job order cost sheets for film companies contain actor salaries, director payments and crew wages as direct labor costs. Direct material costs can include props, costumes, utility costs for sound stages and set design fees. Costing is an accounting technique used to determine the exact expenses for materials, labor and overhead incurred in operations. Job order costing records the actual materials and labor expenses for specific jobs, and assigns overhead to jobs at a pre-determined rate. Process costing applies costs to departments based on the average number of units produced per day. Job order and process costing have unique advantages and disadvantages that make them best suited for specific situations.

Pros and Cons of Job Order Costing

One advantage of job order costing is that it allows managers to calculate the profit earned on individual jobs, helping them to better ascertain whether specific jobs are desirable to pursue in the future. This is best for businesses that do highly custom work, such as construction contractors and consultants.

Job order costing also gives managers the advantage of being able to keep track of individuals' and teams' performance in terms of cost-control, efficiency and productivity.
A disadvantage of job order costing is that employees are required to track all materials and labor used during the job. As an example, consider a construction contractor using a job order costing system. The contractor has to keep track of all the wood, nails, screws, electrical fixtures, paint and other materials used on the job, as well as tracking workers' lunch breaks and hours worked.

Pros and Cons of Process Order Costing

Process costing simplifies record keeping by relying on statistical calculations rather than actual inputs. Another advantage of process costing is that it allows managers to get detailed information on the production statistics of individual departments or work groups. This is best suited for continuous manufacturing settings, such as factories and utility companies.

In a factory setting, for instance, materials are calculated using an average of units produced, and salaries expenses are often relatively consistent between pay periods. Process costing in this scenario gives managers the advantage of being able to ascertain the same qualities in entire departments and compare performance over time.

Unit Cost Calculation

Job order and process costing are adequate to determine the average cost of each unit produced. The formula for unit cost calculation in a job order costing system is:

Unit Cost = Total Job Cost / Number of Units Produced in Job

In many cases, such as the construction contractor example, only one unit is technically being produced per job – in the previous example, one deck or one bathroom remodeling. The formula for unit cost calculation in a process cost system is:

Unit Cost = Department's Periodic Cost / Number of Units Produced in the Period

Unit cost considerations are generally more relevant in situations suited for process costing.

(b) The following transactions were conducted during the month of September, you are required to record the above transactions in the general journal: (10)

i. Material costing Rs. 550,000 was purchased.

ii. Direct Material costing Rs. 358,000 was issued to production for various jobs. The indirect material and supplies costing Rs. 22,000 were also issued.

iii. The payroll for the month of September amounted to Rs. 380,000 from which Provident Fund of Rs. 18,000 and Income Tax of Rs. 15,000 was deducted. The due amount of payroll was paid to the workers and employees

iv. The payroll was allocated as under: -

Direct Labour	**Rs. 275,000**
Indirect Labour	**Rs. 24,000**
Marketing staff	**Rs. 55,000**
Admin. Staff	**Rs. 26,000**

v. The Factory Overhead was applied at 70% of the direct labour cost.

Below are the journal entries to record the transactions you've provided for the month of September.

General Journal Entries for September

Date	Account Title	Debit (Rs)	Credit (Rs)
Sept 1	Raw Materials Inventory	550,000	
	Accounts Payable		550,000
	(To record purchase of materials)		
Sept 2	Work in Process Inventory	358,000	
	Raw Materials Inventory		358,000
	(To record issuance of direct materials)		
	Factory Overhead	22,000	
	Raw Materials Inventory		22,000
	(To record issuance of indirect materials)		

Date	Account Title	Debit (Rs)	Credit (Rs)
Sept 3	Payroll Expense	380,000	
	Provident Fund Payable		18,000
	Income Tax Payable		15,000
	Cash (or Bank)		347,000
	(To record payroll for September)		
Sept 4	Work in Process Inventory	275,000	
	Factory Overhead	24,000	
	Marketing Expense	55,000	
	Administrative Expense	26,000	
	Payroll Expense		380,000
	(To allocate payroll costs)		
Sept 5	Factory Overhead	192,500	
	Factory Overhead Applied		192,500
	(To apply factory overhead at 70% of direct labor)		

Explanation of Entries:

- **Sept 1**: Records the purchase of raw materials for production.
- **Sept 2**: Records the issuance of direct materials to production and indirect materials to factory overhead.
- **Sept 3**: Records the payroll expense, along with deductions for Provident Fund and Income Tax, and the net amount paid to workers.
- **Sept 4**: Allocates the payroll expenses to direct labor, indirect labor, marketing, and administrative staff, offsetting the total payroll expense recorded.
- **Sept 5**: Records the application of factory overhead based on 70% of direct labor. Calculated as follows:
Direct Labour=275,000\text{ Direct Labour} = 275,000Direct Labour=275,000
Factory Overhead Applied=275,000×70%=192,500\text{ Factory Overhead Applied} = 275,000 \times 70\% = 192,500Factory Overhead Applied=275,000×70%=192,500

Q. 4 Department 2 of Sunrise's costs for May 2024 were extracted from the cost accounting record as under: - (20)

Cost from Department 1. Rs. 320,000
The cost incurred by Department 2.
Materials Rs. 360,000
Labour Rs. 206,250
Factory overheads Rs. 123,750

The record shows that 12,000 units were received during the month from Department 1. Department 2 transferred 7,000 units to the Finished Goods Warehouse. The work in process at the end of May was 5,000 units which were 100% complete as to the material cost but only 25% were complete as to the conversion cost.
Required: Prepare a cost of production report for department 2.

To prepare a Cost of Production Report for Department 2 of Sunrise for May 2024, we will follow a structured approach which includes calculating the total costs, equivalent units of production, and cost per equivalent unit for both materials and conversion costs (labor + factory overheads).

Cost of Production Report

Department 2 - Sunrise Corporation
For the Month Ended May 31, 2024

1. Costs:

Particulars	**Amount (Rs)**
Cost from Department 1	320,000
Costs Incurred by Department 2:	
Materials	360,000
Labour	206,250
Factory Overheads	123,750
Total Costs	**1,010,000**

2. Units:

Particulars	**Units**
Units received from Department 1	12,000
Units transferred to Finished Goods	7,000
Work in Process (end of May)	5,000
Total Units	**12,000**

3. Calculate Equivalent Units:

- **Materials:**
  - 7,000 units completed (100% complete)
  - 5,000 units in WIP (100% complete for materials)

Total Equivalent Units for Materials:
7,000 (completed)+5,000 (work in process)=12,0007,000 \text{ (completed)} + 5,000 \text{ (work in process)} = 12,0007,000 (completed)+5,000 (work in process)=12,000

- **Conversion Costs:**
  - 7,000 units completed (100% complete)
  - 5,000 units in WIP (25% complete)

Total Equivalent Units for Conversion Costs:
7,000 (completed)+(5,000×25%)=7,000+1,250=8,2507,000 \text{ (completed)} + (5,000 \times 25\%) = 7,000 + 1,250 = 8,2507,000 (completed)+(5,000×25%)=7,000+1,250=8,250

4. Cost per Equivalent Unit:

Particulars	Total Cost (Rs)	Equivalent Units	Cost per Equivalent Unit (Rs)
Total Materials Cost	360,000	12,000	360,00012,000=30\frac{360,000}{12,000} = 3012,000360,000=30
Total Conversion Costs	206,250 + 123,750 = 330,000	8,250	330,0008,250=40\frac{330,000}{8,250} = 408,250330,000=40

5. Total Cost Distribution:

Particulars	Units	Cost per Unit (Rs)	Total Cost (Rs)
Transferred to Finished Goods	7,000	30 (Materials) + 40 (Conversion) = 70	7,000×70=490,0007,000 \times 70 = 490,0007,000×70=490,000
Work in Process (End of Month)	5,000	30 (Materials) + 10 (Conversion) = 50	5,000×50=250,0005,000 \times 50 = 250,0005,000×50=250,000

Summary of Cost of Production

Particulars	Total Cost (Rs)
Total Cost of Goods Transferred to Finished Goods	490,000
Total Cost of Work in Process (End of Month)	250,000
Total Costs accounted for	**740,000**

Conclusion:

The total costs for Department 2 during May 2024 were allocated between 490,000 Rs for finished goods transferred and 250,000 Rs for the work in process. The calculation reflects total costs associated with materials and conversion efforts in relation to production processes during the period.

Q. 5 (a) Draw formats of some proformas usually followed in the organization right from initiating a requirement to consumption relating to the materials. (20)

In organizations, materials procurement and consumption processes typically involve various forms and proformas to ensure proper documentation, tracking, and control of materials. Below are some commonly used proformas from the initiation of a material requirement to consumption:

1. Material Requisition Form

This form is used by departments to request materials needed for production or operations.

Copy----------

| MATERIAL REQUISITION FORM |

| Department: _____ Date: _____ |

| **Material Description** | **Quantity Required** | **Unit Price** |

|---|---|---|

| 1. _____ _____ _____ |

| 2. _____ _____ _____ |

| 3. _____ _____ _____ |

| Requested By: _____ **Approved By:** _____ |

| Purpose for Request: _____ |

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2. Purchase Order (PO) Form

This form formalizes the order for materials from suppliers after the requisition is approved.

Copy----------

| PURCHASE ORDER |

| Purchase Order No: _____ Date: _____ |

| **Supplier Name:** _____ Contact: _____ |

| **Material Description** | **Quantity Ordered** | **Unit Price** |

|---|---|---|

| 1. _____ _____ _____ |

| 2. _____ _____ _____ |

| 3. _____ _____ _____ |

| Delivery Date: _____ **Delivery Address:** _____ |

| Payment Terms: _____ |

| Authorized By: _____ |

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3. Goods Receipt Note (GRN)

This form is used to confirm receipt of materials from suppliers.

Copy----------

| GOODS RECEIPT NOTE |

| GRN No: _____ **Date:** _____ |

| Supplier Name: _____ |

| Material Description | Quantity Ordered | Quantity Received |

|---|---|---|

| 1. _____ _____ _____ |

| 2. _____ _____ _____ |

| 3. _____ _____ |

| Received By: _____ Verified By: _____ |

| Comments: _____ |

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4. Material Issue Note

This form records the issuance of materials to production or departments.

Copy----------

| MATERIAL ISSUE NOTE |

| Issue Note No: _____ **Date:** _____ |

| Department: _____ |

| Material Description | Quantity Issued | Issued By |

|----------|----------|

| 1. _____ _____ _____ |

| 2. _____ _____ _____ |

| 3. _____ _____ _____ |

| **Purpose of Issue:** _____ |

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5. Material Consumption Report

This report summarizes the materials consumed during a specific period.

Copy----------

| MATERIAL CONSUMPTION REPORT |

| Report Month: _____ **Date:** _____ |

| Prepared By: _____ |

| Material Description | Quantity Opening Stock | Quantity Consumed | Closing Stock |

|----------|----------|----------|----------|

| 1. _____ _____ | _____ | _____ |

| 2. _____ _____ | _____ | _____ |

| 3. _____ _____ | _____ | _____ |

| Comments: _____ |

Conclusion

These proformas serve as essential tools in material management processes within organizations, ensuring proper documentation, accountability, and tracking from the initiation of a requirement through procurement, receipt, issuance, and consumption. Each form facilitates effective communication between departments and plays a crucial role in inventory control and financial documentation.

(b) The quarterly requirement of some modules of Shan Engineering Company for manufacturing water pumps is 1,200 units. The cost per module is Rs. 120. The Ordering Cost is Rs. 800 while the Carrying Cost of the average inventory investment is 20% .

Required: Compute the following: -

A) Economic Order Quantity.
B) A Total number of orders to be placed in a year based on EOQ modelling.
C) Frequency of orders in days.
D) Annual Ordering Cost.
E) Annual Inventory Cost.

To solve these problems related to the inventory management of Shan Engineering Company, we will use the **Economic Order Quantity (EOQ) formula** and other relevant calculations. Here is a step-by-step breakdown:

Given Data:

- Quarterly requirement of modules (Q) = 1,200 units
- Cost per module (C) = Rs. 120
- Ordering Cost (S) = Rs. 800
- Carrying Cost per unit per year (H) = 20% of the cost of each module

Steps to Compute Required Values:

1. Calculate Annual Demand (D)

Since the quarterly requirement is given, we can find the annual requirement:

$$D = 1,200 \text{ units per quarter} \times 4 \text{ quarters} = 4,800 \text{ units per year}$$

2. Calculate Carrying Cost (H)

The carrying cost per unit is:

$$H = 20\% \text{ of Rs. } 120 = 0.20 \times 120 = Rs.24$$

****3. A) Calculate Economic Order Quantity (EOQ)**

The EOQ can be calculated using the formula:

$$EOQ = \sqrt{\frac{2DS}{H}}$$

Substituting the values calculated:

$$EOQ = \sqrt{\frac{2 \times 4,800 \times 800}{24}}$$

Calculating this gives:

$$EOQ = \sqrt{\frac{7,680,000}{24}} = \sqrt{320,000} \approx 565.68$$

Hence, the Economic Order Quantity (EOQ) is approximately **566 units** (rounded to nearest whole number).

4. B) Calculate Total Number of Orders to be Placed in a Year based on EOQ

The total number of orders can be calculated as:

$$\text{Number of Orders} = \frac{D}{EOQ}$$

Substituting the values:

$$\text{Number of Orders} = \frac{4,800}{566} \approx 8.48$$

Thus, we will place approximately **9 orders** per year (rounding to the nearest whole number).

5. C) Calculate Frequency of Orders in Days

To find the frequency of orders in days:
First, calculate the number of days in a year:

$$\text{Frequency of Orders} = \frac{365 \text{ days}}{\text{Number of Orders}}$$

Substituting the calculated number of orders:

$$\text{Frequency of Orders} = \frac{365}{9} \approx 40.56 \text{ days}$$

Thus, the frequency of orders is approximately every **41 days**.

6. D) Calculate Annual Ordering Cost

The annual ordering cost can be calculated using the formula:

$$\text{Annual Ordering Cost} = \text{Number of Orders} \times S$$

Substituting the values:

$$\text{Annual Ordering Cost} = 9 \times 800 = Rs.7,200$$

7. E) Calculate Annual Inventory Cost

The annual inventory cost is the sum of the carrying costs:

7. E) Calculate Annual Inventory Cost

The annual inventory cost is the sum of the carrying costs:

$$\text{Annual Inventory Cost} = \frac{EOQ}{2} \times H$$

Substituting the values calculated:

$$\text{Annual Inventory Cost} = \frac{566}{2} \times 24 = 283 \times 24 = Rs.6,792$$

Summary of Results:

- **A)** Economic Order Quantity (EOQ): **566 units**
- **B)** Total number of orders to be placed in a year: **9 orders**
- **C)** Frequency of orders in days: **41 days**
- **D)** Annual Ordering Cost: **Rs. 7,200**
- **E)** Annual Inventory Cost: **Rs. 6,792**

This gives an overview of the inventory management for Shan Engineering Company regarding water pump modules based on the provided data.