A TEXTBOOK OF

FINANCIAL COST

AND

MANAGEMENT

ACCOUNTING

Dr. P. PERIASAMY,

M.B.A., Ph.D.,

Reader,

Department of Business Management, '

Erode Arts College,

Erode - 638 009.

Kat

GJIimalaya CJlublishingGJIouse

MUMBAI • DELHI • NAGPUR • BANGALORE • HYDERABAD

© AUTHOR

No part of this pUblication should be reproduced, ·stored in a retrieval system, or transmitted in any form or by any means,

electronic, mechanical. photocopying, recording' and/or otherWise without the prior written permission of the author and the

publisher. '

Published by

Branch Offices:

Delhi

Nagpur

Bangalore

Hyderabad

Printed by

Revised Edition: 2010

Mrs. Meena Pandey

for HIMALAYA PUBLISHING HOUSE,

"Ramdoot", Dr. Bhalerao Marg, Girgaon.

Mumbai - 400 004.

Phones: 23860170& 23863863, Fax: 022-23877178

Email: himpub@vsnI.com

Website: www.himpub.com

"Pooja Apartments", 4-B, Murari Lal Street,

Ansari Road, Darya Ganj,

New Delhi - 110 002.

Phone: 23270392, Fax: 011-23256286

Kundanlal Chandak Industrial Estate,

Ghat Road, Nagpur - 440 018.

Phone: 2721216, Telefax: 0712-2721215

No. 16/1 (Old 1211), 1 st Floor,

Next to Hotel Highlands, Madhava Nagar,

Race Course Road, Bangalore - 560 001.

Phones: 22281541 &22385461, Fax: 080-22286611

No. 2-2-1 167!2H, 1st Floor,

Near Railway Bridge, Tilak Nagar,

Main Road, Hyderabad - 500 044.

Phone: 55501745, Fax: 040-27560041

Geetanjali Press Pvt. Ltd.

Kundanlal Chandak Industrial Estate,

Ghat Road, Nagpur - 440 018.

CONTENTS I

(1) ACCOUNTING PRINCIPLES AND CONCEPTS 1 - 6

Meaning and Scope of Accounting - Definition of Accounting - Steps of Accounting - Functions of

Accounting - Objectives of Accounting - Book keeping - Limitations of Accounting; Branches of

Accounting; Accounting Principles - Accounting Concepts - Entity Concept - Dual Aspect Concept

- Accounting Period Concept - Going Concern Concept - Cost Concept - Money Measurement

Concept - Matching Concept - Realization Concept - Accrual Concept - Rupee Value Concept;

Accounting Conventions - Conventions of Disclosure - Convention of Conservatism - Convention

of Consistency - Convention of Materiality - Questions.

(2) DOUBLE ENTRY SYSTEM OF ACCOUNTING 7 - 12

Meaning - System of Accounting - Cash System - Mercantile System - Mixed System - Single

Entry System - Double Entry System - Advantages - Factors Common to Every Business; Types of

Accounts - Personal Accounts - Real Accounts - Nominal Accounts; Accounting Rules - Debit

Aspect - Credit Aspect - Problems and Solutions and Exercises - Questions.

(3) ACCOUNTING BOOKS AND RECORDS 13 - 89

Introduction - Meaning of Books and Records - Journal - Meaning - Specimen ruling of Journal -

Preparation of Journal - Types of Journal - General Journal - Special Journals - Sales Book -

Purchase Book - Sales Returns Book - Purchase Returns Book - Preparation Subsidiary Journals -

Bills Receivable Book - Bills Payable Book - Cash Book - Types of Cash Book - Preparation of

Cash Book - Petty Cash Book - Preparation of Petty Cash Book - Purpose of Subsidiary Books -

Illustrations - Solutions - Questions and Practical Problems; Ledger - Meaning - Specimen Ruling

of Ledger - Posting of Journal to Ledger - Balancing of Ledger - Difference between Journal and

Ledger - Preparation of Ledger - Illustrations - Solutions - Questions and Exercises; Trial Balance

- Meaning - Objectives - Errors not disclosed by Trial Balance - Classification of Errors - Errors of

Omission - Errors of Commission - Errors of Principles Compensating Errors - Errors Disclosed by

Trial Balance - Locating Errors - Suspense Account - Method of Preparation of Trial Balance -

Specimen - Problems - Solutions - Questions and Exercises.

(4) FINAL ACCOUNTS 90 - 121

Meaning - Manufacturing Account - Components of Manufacturing Account - Illustration and

Solution; Trading, Profit and Loss Account - Meaning - Purpose - Specimen Format - Elements of

Trading Account - Equations of Trading Account - Profit and Loss Account - Specimen Format -

Preparation of Final Accounts - Operating Expensel'- - Non-operating Expenses - Operating Incomes .

- Non-operating Incomes; Balance Sheet - Meaning.~- t • .>urpose - Specimen form of Balance Sheet -

Assets 'and Liabilities - Classification of Asset~ hl'i :Uabilities - Adjustment Entries - Difference

between Profit and Loss Account and Balance S};et:t - Preparation of Profit & Loss and Balance

Sheet - Illustrations - Solutions - Questions - Exf:ldses.

(5) DEPRECIATION 122 - 148

Introduction - Meaning and Definition of Depreciation, Depletion and Amortization - Purpose -

Factors affecting Depreciation - Methods of charging Depreciation - Straight Line Method - Written

Down Value Method - Annuity Method - Sinking Fund Method - Revaluation Method. Insurance

Policy Method - Depletion Method - Sum of Digits Method - Machine Hour Rate Method -

Calculation of Machine Hour Rate - Illustrations - Solutions - Questions - Exercises.

(6) FINANCIAL STATEMENTS ANALYSIS AND INTERPRETATION 149 - 172

Introduction - Meaning of Income Statements, Balance Sheet and Statement of Retained EarningsNature

of Financial Statements - Objectives of Financial Statements - Limitations of Financial

Statements; Analysis and Interpretation - Meaning - Types of Analysis and Interpretations - Internal

Analysis - External Analysis - Horizontal Analysis - Vertical Analysis - Rearrangement of Income

Statements - Income Statement Equations - Rearrangement of Balance Sheet - Balance Sheet

Equations - Methods of Analysis and Interpretations - Comparative Financial Statements - Common

Size Statements - Trend Analysis - Ratio Analysis - Fund Flow Analysis - Cash Flow Analysis -

Illustrations - Solutions - Questions - Exercises.

(7) FUND FLOW STATEMENT 173 - 209

Introduction - Meaning of Fund, Flow of Fund and No Flow of Fund - Statement of changes in

Financial Position - Flow of Funds chart - No Flow of Funds Chart - Examples of Flow of Fund -

Components of Flow of Funds - Current Assets - Current Liabilities - Non-current Assets -

Non-current Liabilities - Fund Flow Statement - Meaning - Difference between Fund Flow Statement

and Income Statement - Fund Flow Statement Vs Balance Sheet - Preparation of Fund Flow

Statement; Fund From Operations - Statement of Changes in Working Capital - Fund Flow Statement

- Meaning - Specimen Format - Purposes - Calculation of Fund From Operations - Illustrations -

Solutions - Rules for Preparation of Working Capital Statement - Specimen Form - Illustrations -

Sources of Fund and Applications of Fund - Components of Sources of Fund and Applications of Fund

- Calculation of Sources and Application of Fund - Illustrations - Solutions - Exercises.

(8) CASH FLOW STATEMENT 210 - 232

Meaning - Purpose of Cash Flow Statement - Difference between Cash Flow Statement and Fund

Flow Statement - Limitations - Preparation of Cash Flow Statement - Flow of Cash Under

Non-Current Items - Flow of Cash due to Operations - Non-cash Items - Specimen Format -

Calculation of Cash Received from Operations - Illustrations - Solutions - Questions - Exercises.

(9) RATIO ANALYSIS 233 - 297

Meaning and Definition of Analysis and Interpretations of Ratios; Principles of Ratio Selection -

Advantages - Limitations of Ratio Analysis; Classification of Ratios - Liquidity Ratio; Current Ratio

- Quick Ratio - Absolute Liquid Ratio; Profitability Ratio; Gross Profit Ratio - Operating Ratio -

Operating Profit Ratio - Net Profit Ratio - Return on Investment Ratio - Return on Capital

Employed Ratio - Earning per Share Ratio - Dividend Yield Ratio - Price Earning Ratio - Net Profit

to Net Worth Ratio; Turnover Ratio; Stock Turnover Ratio - Debtors Turnover Ratio - Debt

Collection Period Ratio - Creditor's Turnover Ratio - Average Payment Period - Working Capital

Turnover Ratio - Fixed Assets Turnover Ratio - Capital Turnover Ratio; Solvency Ratios; Debt

Equity Ratio - Proprietary Ratio - Capital Gearing Ratio - Debt Service Ratio; Overall Profitability

Ratio; Illustrations - Solutions - Questions - Practical Problems.

(10) COST ACCOUNTING 298 - 304

Introduction - Definitions of Important Concepts - Cost - Cost Accounting - Cost Control - Cost

Reduction - Cost Allocation - Cost Absorption - Cost Audit - Cost Unit - Cost Centre -

Objectives of Cost Accounting - Difference between Financial Account and Cost Accounting -

Management Accounting - Meaning - Cost Accounting Vs Management Accounting - Advantages

of Cost Accounting - Limitations of Cost Accounting - Installation of Cost Accounting System -

Practical Difficulties in Installation of Costing System - Steps to Overcome - Questions.

(11) COST METHODS, TECHNIQUES OF COST ACCOUNTING

AND CLASSIFICATION OF COST

305 - 309

Introduction - Methods of Cost':" Job Costing - Contract Costing - Cost Plus Contract - Batch

Costing - Process Costing: Operation Costing - Output Costing - Multiple Costing - Technique of

Costing - Uniform Costing - Marginal Costing - Standard Costing - Historical Costing - Absorption

Costing; Classification of Cost; On the basis of Nature - Functions - Variability - Normality -

Controllability - Material- - Labour - Expenses - Production Cost - Administrative Cost - Selling

Cost - Distribution Cost - Normal Cost - Abnormal Cost - Fixed Cost - Variable Cost -

Controllable Cost - Uncontrollable Cost - Sunk Cost - Opportunity Cost - Replacement Cost -

Conversion Cost - Questions.

(12) COST SHEET ANALYSIS (OR) STATEMENT OF COST 310 - 325

Introduction - Meaning - Elements of Cost - Direct Cost - Indirect Cost - Overheads - Prime Cost

- Works Cost - Cost of Production - Cost of Sales - Importance of Cost Sheet - Specimen Format

of Cost Sheet - Preparation of Cost Sheet - Illustrations - Solutions - Questions - Practical Problems.

(13) MATERIAL COST CONTROL 326 - 331

Meaning of Materials - Direct Materials - Indirect Materials - Material Control - Functions of

Materials Control - Objectives of Stores Control - Essentials - Advantages; Materials Purchase

Control - Organization of Purchasing - Centralized Organization - Advantages - Disadvantages -

Decentralized Purchasing - Purchase Manager - Qualities - Duties of Purchase Manager - Functions

of Purchase Department - Purchase Procedure - Bills of Materials - Purchase Requisition - Selection

of Suppliers - Purchase Orders - Goods Received Note - Inspection of Materials - Questions.

(14) MATERIALS - INVENTORY CONTROL 332 - 351

Introduction - Store and Store keeping - Purpose of Store keeping - Functions of the Store keeper -

Stores Layout - Types of Stores - Centralized Stores - Decentralized Stores - Combination of Both;

Fixation of Stock levels - Minimum Stock Level - Maximum Stock Level - Danger Level - Reorder

Level - Calculations - Economic Order Quantity - Calculation EOQ - Illustrations - Solutions -

ABC Analysis - Alphabetical Method - Numerical Alphabetical Method; Inventory System -

Periodic Inventory System - Perpetual Inventory System - Continuous Stock Taking - Advantages

of Each System - Bin Card - Stores Ledger - Bin Card Vs Stores Ledger - Continuous Stock Taking

Vs Periodic Stock Taking - Material Stores Losses - Normal Loss - Abnormal Loss - Inventory

Turnover Ratios - Illustrations - Solutions - Questions - Exercises.

(15) VALUATION OF MATERIALS ISSUES 352 - 367

Introduction - Valuation of Total Cost of Material Purchased - Trade Discount - Quantity

Discount - Cash Discount - Materials Issue Procedure - Material Requisition - Bill of Materials;

Methods of Materials Pricing Issues - First In First Out (FIFO) - Last In First Out (LIFO) - Specific

Price Method - Base Stock Method - Highest In First Method (HIFO) - Periodic Simple Average

Method - Periodic Weighted Average Method - Standard Price Method - Inflated Price Method -

Market Price or Replacement Price Method - Illustrations - Solutions - Questions - Practical

Problems.

(16) LABOUR COST CONTROL 368 - 381

Meaning - Types of Labour Cost - Direct Labour Cost - Indirect Labour Cost - Control of Labour

Cost - Technique - Organization for Control of Labour Cost - Personnel Department - Engineering

and Works Study Department - Method Study - Motion Study - Time Study - Job Analysis - Job

Evaluation - Merit Rating - Job Evaluation Vs Merit Rating; Time Keeping Department - Time

Keeping - Objectives - Methods of Time Keeping - Manual Method - Disc Method - Mechanical

Method - Time Keeping Clocks - Dial Time Records - Key Record System; Time Booking -

Objectives - Methods of Time Booking - Daily Time Sheet - Weekly Time Sheet - Job Cards -

Combined Time and Job Card; Piece Work Card - Idle Time - Types - Normal Idle Time and

Abnormal Idle Time - Accounting Treatment of Idle Time; Overtime - Meaning - Effect of

Overtime - Accounting Treatment of Over Time - Control of Overtime - Casual Workers - System

of Control - Out Workers; Pay Roll Department - Labour Turnover - Methods of Labour Tum over

- Separation Method - Replacement Method - Flux Method - Illustrations - Solutions - Questions -

Practical Problems.

(17) LABOUR COST ACCOUNTING 382 - 401

Introduction - Meaning - Objectives of an Ideal Wage System - Principles - Methods of

Remuneration - Time Rate System - At Ordinary Levels - At High Wage Levels - Guaranteed Time

Rates - Piece Rate System - Straight Piece Rate - Piece Rate With Guaranteed Time Rate;

Differential Piece Rates - Taylor Differential Piece Rate System - Merrick Differential Piece Rate

System - Gantt Task and Bonus Plan - Bonus System or Incentive System; Individual Bonus Plan -

Halsey Premium Plan - Halsey - Wire Premium Plan - Rowan Plan - Barth Variable Sharing Plan -

Emerson Efficiency Plan - Bedaux Point Premium System - Accelerating Premium Plan; Group

Incentive Plan - Indirect Monetary Incentives - Non-Monetary Incentives - Illustrations - Solutions

- Questions - Practical Problems.

(18) OVERHEADS 402 - 424

Meaning and Definitions of Overheads - Importance of Overheads - Classification of Overheads -

Indirect Materials Cost - Indirect Labour Cost - Indirect Expenses - Production Overhead -

Administration Overhead - Selling Overhead - Distribution Overhead - Fixed Overhead - Variable

Overhead - Useful of Overhead Classification; Codification of Overhead - Advantages of Codification

- Procedure or Steps in Overhead - Collection of Overhead - Overhead Expenses - Sources and

Documents Used - Overhead Analysis - Allocation and Absorption - Apportionment of Overhead -

Basis of Apportionment - Illustrations - Solutions - Reapportionment or Redistribution of Overhead

- Method of Re-apportionment - Direct Re-distribution Method - Step Distribution Method -

Reciprocal Service Method - Step Repeated Distribution Method - Simultaneous Equitation Method

- Trial and Error Method - Illustrations of Each Methods - Solutions - Questions - Practical

Problems.

(19) ABSORPTION OF OVE~HEAD 425 - 446

Meaning - Overhead Rate - Actual Overhead Rate - Pre-Determined Overhead Rate - Blanket

Overhead Rate - MUltjple Overhead Rate - Normal Overhead Rate - Supplementary Overhead Rate;

Methods of Absorption of Overhead - Direct Material Cost Method - Direct Labour Cost Method -

Direct Labour Hours Method - Prime Cost Method - Unit Output Method - Machine Hour Rate;

Calculation of Machine Hour Rate - Fixed or Standing Charges - Variable Machine Expenses -

Basis for Apportionment of Machine Expenses - Advantages - Disadvantages - Illustrations -

Solutions -- Questions - Practical Problems.

(20) JOB, BATCH AND PROCESS COSTING 447 - 470

Introduction - Meaning - Features of Job Order Costing - Objectives of Job Order Costing - Prerequisite

for Job Order Costing - Advantages and Disadvantages of Job Order Costing -

Procedure for Job Order Cost System; Batch Costing - Meaning - Features - Determeniation -

Diffemece between Job Costing and Batch Costing - Advantages and Disadvantages - Problems and

Solutions; Process Costing - Meaning - Application of Process Costing - Job Costing Vs Process

Costing - Calculation of Normal Process Loss and Abnormal Process Loss - Procedure for

Preparation of Process Costing - Illustrations - Solutions - Questions - Practical Problems.

(21) JOINT PRODUCT AND BY -PRODUCT 471 - 490

Introduction - Joint Products - Me<lning - Features of Joint Products - Objectives of Joint Product

Costing - Methods of Apportionment of Joint Products - Average Unit Cost Method - Physical Unit

Method - Survey Method \_. Contribution Margin Method - Standard Cost Method - Market Value

Method - Market Value at Point of Separation - Market Value After Further Processing - Net

Realisable Value or Reverse Cost Method - By-Products - Meaning - Methods of Valuation of ByProducts

- Non Cost or Sales Value Method - Other Income Method - Cost Methods - Replacement

Cost Methods - Standard Cost Method - Apportionment on Suitable Basis - Inter Process Profits -

Equivalent Units - Steps Involved for Calculation of Equivalent Units - Illustrations - Solutions -

Questions - Multiple Choice - Questions - Answers - Practical Problems.

(22) CONTRACT COSTING 491 - 508

Meaning - Special Features of Contract Costing -- Costing Procedure - Accounting Treatment of

Materials, Labour, Direct Expenses, Overhead C05t, Plant and Machinery - Sub-Contracts - Work

Certified - Work Uncertified - Work in Progress - Accounting Treatment of Profit or Loss of Contract

- Escalation Clause - Cost-Plus Contract - Profit or Loss on Completed Contract - Cost of Uncertified

Work - Problems and Solutions - Questions - Choose the Correct Answers - Practical Problems.

(23) UNIFORM COSTING 509 - 511

Uniform Costing - Meaning - Objectives - Essential Requisites for Installation of Uniform Costing

- Advantages of Uniform Costing - Limitations - Requisites of Inter - Firm Comparison -

Advantages - Disadvantages - Questions.

(24) ACTIVITY-BASED COSTING 512 - 521

Meaning - Different Stages in Activity Based Costing - ABC and Cost Drivers - Examples of Cost

Drivers - Classification of Activities - Unit Level Activities - Batch Level Activity - Product Level

Activities - Facility - Level Activities - Difference Between Activity - Based Costing and

Conventional Costing - Advantages of Activity - Based Costing - Essential Factors.)f a Good

Activity - Based Costing System - Illustrations - Solutions - Questions.

(25) RECONCILIATION OF COST AND FINANCIAL ACCOUNTS 522 - 535

Reconciliation of Cost Financial Accounts - Meaning - Reasons for the difference - Items shown

only in Financial Accounts - Income - Expenditure - Items shown only in Cost Accounts -

Absorption of Overheads - Methods of stock valuation - Abnormal losses and gains - Methods of

Reconciliation - Treatment of causes for differences - Types of problems - I\Iustrations - Solutions

- Questions - Practical Problems.

(26) MARGINAL COSTING AND COST VOLUME PROFIT ANALYSIS 536 - 560

Meaning of Marginal Cost and Marginal Costing - Features of Marginal Costing - Absorption

Costing - Absorption Costing Vs Marginal Costing - Differential Costing - Meaning - Marginal

Costing Vs Differential Costing - Advantages of Marginal Costing - Limitations of Marginal

Costing - Cost - Volume Profit Analysis - Meaning - Objectives - Marginal Cost Equations -

Contribution - Break Even Analysis - Profit Volume Ratio (PN Ratio) - Margin of Safety - Break

Even Chart - Cash Break Even Point - Advantages - Limitations - Illustrations - Solutions -

Questions - Practical Problems.

(27) BUDGETING AND BUDGETARY CONTROL 561 - 596

Introduction - Definition of Budget - Essentials of Budget - Difference between Forecast and

Budgets - Budgetary Control- Objectives of Budgetary Control- Scope and Techniques of Standard

Costing and Budgetary Control - Requisites for effective Budgetary Control - Organization for

Budgetary Control - Organization Chart - Budget Centre - Budget Officer - Budget Committee -

Budget Manual - Budget Period - Key Factors - Advantages of Budgetary Control - Limitations of

Budgetary Control; Types of Budgets Control Ratios - Capacity Ratio - Activity Ratio - Efficiency

Ratio - Calendar Ratio; Some Important Budgets - Sales Budgets - Production Budget - Material

Purchase Budget - Cash Budget - Master Budget - Fixed Budget - Flexible Budget - Advantages -

Fixed Budgets Vs Flexible Budgets - Methods of Preparing Flexible Budget - Multi - Activity

Method - Ratio Method - Charting Method - Illustrations - Solutions - Zero Base Budgeting -

Questions - Practical Problems.

(28) STANDARD COSTING AND VARIANCE ANALYSIS 597 - 641

Introduction - Standard Cost and Standard Costing - Meaning - Standard Costing and Budgetary

Control - Preliminaries to the establishment of Standard Costs: Advantages and Disadvantages of

Standard Costing, Analysis of Variances - Material Variances - Calculation of Material Price

Variances, Material Usage Variances, Material Mix Variance; Labour Variance; Overhead Variance -

Overhead Cost Variance - Fixed Overhead Variances - Sales Variances - Illustrations - Solutions -

Questions - Practical Problems.

(29) CAPITAL BUDGETING 642 - 669

Capital Budging - Meaning - Definition - Importance - Objectives - Principles or Factors of Capital

Budgeting Decisions - Capital Budgeting Process - Types of Capital Expenditure - Types of Capital

Budgeting Proposals - Methods of Evaluating Capital Investment Proposals - Traditional Methods -

Pay-back Period Method - Post Pay - Back Period - Discounted Pay-back Period - Reciprocal PayBack

Period - Accounting Rate of Return Method - Time Adjusted Method - Net Present Value

Method - Internal Rate of Return Method - Profitability Index Method - JIIustrations - Solutions· -

Questions - Multiple Choice Question and Answers - Practical Problems.

(30) COST AUDIT 670 - 674

Cost Audit - Meaning and Definition - Difference between Financial Audit and Cost Audit Purposes

or Objectives of Cost Audit - Protective Purpose - Constructive Purpose - Circumstances Under

Which Cost Audit is Desirable - Types of Cost Audit - Efficiency Audit - Propriety Audit -

Statutory Audit - Advantages or Usefulness of Cost Audit - Usefulness to the Management - To the

Government - To the Shareholders; Cost Audit Programme - Areas of Cost Audit Programme is

carried out - Advantages - Disadvantages - Cost Accounts Records Questions.

(31) REPORTING TO MANAGEMENT 675 - 681

Introduction - Definition of Management Reporting - Objectives of Management Reporting -

Essentials of Good Reporting System - Classification of Management Reporting - According to

Objectives, Period, Functions - Report Meant for the Top Level of Management, Middle Level

Management and Junior Level Management - Questions.

DOD

CHAPTER 1

Accounting Principles and Concepts

Meaning and Scope of Accounting

Accounting is the language of business. The main objectives of Accounting is to safeguard the

interests of the business, its proprietors and others connected with the business transactions. This is done

by providing suitable information to the owners, creditors, shareholders, Government, financial institutions

and other related agencies.

Definition of Accounting

The American Accounting Association defines accounting as "the process of identifying, measuring

and communicating economic information to permit informed judgements and decisions by the users of the

information."

According to AICPA (American Institute of Certified Public Accountants) it is defined as "the art of

recording, classifying and summarizing in a significant manner and in terms of money, transactions and events

which are in part at least of a financial character and interpreting the result thereof."

Steps of Accounting

The following are the important steps to be adopted in the accounting process:

(1) Recording: Recording all the transactions in subsidiary books for purpose of future record or

reference. It is referred to as "Journal."

(2) Classifying: All recorded transactions in subsidiary books are classified and posted to the main

book of accounts. It is known as "Ledger."

(3) Summarizing: All recorded transactions in main books will be summarized for the preparation

of Trail Balance, Profit and Loss Account and Balance Sheet.

(4) Interpreting: Interpreting refers to the explanation of the meaning and significance of the result

of finanal accounts and balance sheet so that parties concerned with business can determine the

future earnings, ability to pay interest, liquidity and profitability of a sound dividend policy.

2 A Textbook of Financial Cost and Management Accounting

Functions of Accounting

From the definition and analysis of the above the main functions of accounting can be summarized as:

(1) Keeping systematic record of business transactions.

(2) Protecting properties of the business.

(3) Communicating the results to various parties interested in or connected with the business.

(4) Meeting legal requirements.

Objectives of Accounting

(1) Providing suitable information with an aim of safeguarding the interest of the business and its

proprietors and others connected with it.

(2) To emphasis on the ascertainment and exhibition of profits earned or losses incurred in the

business.

(3) To ascertain the financial position of the business as a whole.

(4) To ensure accounts are prepared according to some accepted accounting concepts and

conventions.

(5) To comply with the requirements of the Companies Act, Income Tax Act, etc.

Definition of Bookkeeping

Bookkeeping may be defined as "the art of recording the business transactions in the books of

accounts in a systematic manner." A person who is responsible for and who maintains and keeps a record

of the business transactions is known as Bookkeeper. His work is primarily clerical in nature.

On the other hand, Accounting is primarily concerned with the recording, classifying, summarizing,

interpreting the financial data and communicating the information disclosed by the accounting records to

those persons interested in the accounting information relating to the business.

Limitations of Accounting

(1) Accounting provides only limited information because it reveals the profitability of the concern

as a whole.

(2) Accounting considers only those transactions which can be measured in terms of money or

quantitatively expressed. Qualitative information is not taken into account.

(3) Accounting provides limited information to the management.

(4) Accounting is only historical in nature. It provides only a post mortem record of business

transactions.

Branches of Accounting

The main function of accounting is to provide the required informations for different parties who are

interested in the welfare of that enterprise concerned. In order to serve the needs of management and outsiders

various new branches of accounting have been developed. The following are the main branches of accounting:

(1) Financial Accounting.

(2) Cost Accounting.

(3) Management Accounting.

Accounting Principles and Concepts 3

(1) Financial Accounting: Financial Accounting is prepared to determine profitability and financial

position of a concern for a specific period of time.

(2) Cost Accounting: Cost Accounting is the formal accounting system setup for recording costs. It

is a systematic procedure for determining the unit cost of output produced or service rendered.

(3) Management Accounting: Management Accounting is concerned with presentation of accounting

information to the management for effective decision making and control.

Accounting Principles

Various accounting systems and techniques are designed to meet the needs of the management. The

information should be recorded and presented in such a way that management is able to arrive at right

conclusions. The ultimate aim of the management is to increase profitability and losses. In order to

achieve the objectives of the concern as a whole, it is essential to prepare the accounting statements in

accordance with the generally accepted principles and procedures.

The term principles refers to the rule of action or conduct to be applied in accounting. Accounting

principles may be defined as "those rules of conduct or procedure which are adopted by the accountants

universally, while recording the accounting transactions."

The accounting principles can be classified into two categories:

I. Accounting Concepts.

II. Accounting Conventions.

I. Accounting Concepts

Accounting concepts mean and include necessary assumptions or postulates or ideas which are used

to accounting practice and preparation of financial statements. The following are the important accounting

concepts:

(1) Entity Concept;

(2) Dual Aspect Concept;

(3) Accounting Period Concept;

(4) Going Concern Concept;

(5) Cost Concept;

(6) Money Measurement Concept;

(7) Matching Concept;

(8) Realization Concept;

(9) Accrual Concept;

(10) Rupee Value Concept.

II. Accounting Conventions

Accounting Convention implies that those customs, methods and practices to be followed as a guideline

for preparation of accounting statements. The accounting conventions can be classified as follows:

(1) Convention of Disclosure.

(2) Convention of Conservatism.

-I A Textbook of Financial Cost and Management AccOlllllillg

(3) Convention of Consistency.

(4) Convention of Materiality.

The following table summarizes classifications of Accounting Principles:

Accounting Principles

Accounting Concept

(1) Entity Concept

(2) Dual Aspect Concept

(3) Accounting Period Concept

(4) Going Concern Concept

(5) Cost Concept

(6) Money Measurement Concept

(7) Matching Concept

(8) Realization Concept

(9) Accrual Concept

(10) Rupee Value Concept

Accounting Conventions

(1) Convention of Disclosure

(2) Convention of Conservatism

(3) Convention of Consistency

(4) Convention of Materiality

The classification of accounting concepts and conventions can be explained in the following pages.

I. Accounting Concepts

(1) Entity Concept: Separate entity concept implies that business unit or a company is a body

corporate and having a separate legal entity distinct from its proprietors. The proprietors or members are not

liable for the acts of the company. But in the case of the partnership business or sole trader business no

separate legal entity from its proprietors. Here proprietors or members are liable for the acts of the firm. As

per the separate entity concept of accounting it applies to all forms of business to determine the scope of what

is to be recorded or what is to be excluded from the business books. For example, if the proprietor of the

business invests Rs.50,000 in his business, it is deemed that the proprietor has given that much amount to

the business as loan which will be shown as a liability for the business. On withdrawal of any amount it will

be debited in cash account and credited in proprietor's capital account. In conclusion, this separate entity

concept applies much larger in body corporate sectors than sole traders and partnership firms.

(2) Dual Aspect Concept: According to this concept, every business transaction involves two

aspects, namely, for every receiving of benefit and. there is a corresponding giving of benefit. The dual

aspect concept is the basis of the double entry book keeping. Accordingly for every debit there is an equal

and corresponding credit. The accounting equation of the dual aspect concept is:

Capital + Liabilities = Assets

(or)

Assets = Equities (Capital)

The term Capital refers to funds provide by the proprietor of the business concern. On the other hand,

the term liability denotes the funds provided by the creditors and debenture holders against the assets of

the business. The term assets represents the resources owned by the business. For example, Mr.Thomas

Starts business with cash of Rs.l ,00,000 and building of Rs.5,00,000, then this fact is recorded at two

places; Assets Accounts and Capital Account. In other words, the business acquires assets of Rs.6,00,000

which is equal to the proprietor's capital in the form of cash of Rs.l,OO,OOO and building worth of

Rs.5,00,000. The above relationship can be shown in the form of accounting equation:

Capital + Liabilities

Rs.l,OO,OOO + Rs.5,00,000

= Assets

= Rs.6,OO,OOO

Accounting Principles and Concepts 5

(3) Accounting Period Concept: According to this concept, income or loss of a business can be

analysed and determined on the basis of suitable accounting period instead of wait for a long period, Le.,

until it is liquidated. Being a business in continuous affairs for an indefinite period of time, the proprietors,

the shareholders and outsiders want to know the financial position of the concern, periodically. Thus, the

accounting period is normally adopted for one year. At the end of the each accounting period an income

statement and balance sheet are prepared. This concept is simply intended for a periodical ascertainment

and reporting the true and fair financial position of the concern as a whole.

(4) Going Concern Concept: It is otherwise known as Continue of Activity Concept. This concept

assumes that business concern will continue for a long period to exit. In other w.ords, under this

assumption, the enterprise is normally viewed as a going concern and it is not likely to be liquidated in the

near future. This assumption implies that while valuing the assets of the business on the basis of

productivity and not on the basis of their realizable value or the present market value, at cost less

depreciation till date for the purpose of balance sheet. It is useful in valuation of assets and liabilities,

depreciation of fixed assets and treatment of prepaid expenses.

(5) Cost Concept: This concept is based on "Going Concern Concept." Cost Concept implies that

assets acquired are recorded in the accounting books at the cost or price paid to acquire it. And this cost is

the basis for subsequent accounting for the asset. For accounting purpose the market value of assets are

not taken into account either for valuation or charging depreciation of such assets. Cost Concept has the

advantage of bringing objectivity in the preparation and presentation of financial statements. In the

absence of cost concept, figures shown in accounting records would be subjective and questionable. But

due to inflationary tendencies, the preparation of financial statements on the basis of cost concept has

become irrelevant for judging the true financial position of the business.

(6) Money Measurement Concept: According to this concept, accounting transactions are measured,

expressed and recorded in terms of money. This concept excludes those transactions or events which

cannot be expressed in terms of money. For example, factors such as the skill of the supervisor, product

policies, planning, employer-employee relationship cannot be recorded in accounts in spite of their

importance to the business. This makes the financial statements incomplete.

(7) Matching Concept: Matching Concept is closely related to accounting period concept. The chief

aim of the business concern is to ascertain the profit periodically. To measure the profit for a particular

period it is essential to match accurately the costs associated with the revenue. Thus, matching of costs and

revenues related to a particular period is called as Matching Concept.

(8) Realization Concept: Realization Concept is otherwise known as Revenue Recognition Concept.

According to this concept, revenue is the gross inflow of cash, receivables or other considerations arising

in the course of an enterprise from the sale of goods or rendering of services from the holding of assets. If

no sale takes place, no revenue is considered. However, there are certain exceptions to this concept.

Examples, Hire Purchase / Sale, Contract Accounts etc.

(9) Accrual Concept: Accrual Concept is closely related to Matching Concept. According to this

concept, revenue recognition depends on its realization and not accrual receipt. Likewise cost are

recognized when they are incurred and not when paid. The accrual concept ensures that the profit or loss

shown is on the basis of full fact relating to all expenses and incomes.

(10) Rupee Value Concept: This concept assumes that the value of rupee is constant. In fact, due to

inflationary pressures, the value of rupee will be declining. Under this situations financial statements are

prepared on the basis of historical costs not considering the declining value of rupee. Similarly depreciation

is also charged on the basis of cost price. Thus, this concept results in underestimation of depreciation and

overestimation of assets in the balance sheet and hence will not reflect the true position of the business.

6 A Textbook of Financial Cost and Management Accounting

II. Accounting Conventions

(1) Convention of Disclosure: The disclosure of all material information is one of the important

accounting conventions. According to this conventions all accounting statements should be honestly

prepared and all facts and figures must be disclosed therein. The disclosure of financial informations are

required for different parties who are interested in the welfare of that enterprise. The Companies Act lays

down the forms of Profit and Loss Account and Balance Sheet. Thus convention of disclosure is required

to be kept as per the requirement of the Companies Act and Income Tax Act.

(2) Convention of Conservatism: This convention is closely related to the policy of playing safe.

This principle is" often described as "anticipate no profit, and provide for all possible losses." Thus, this

convention emphasise that uncertainties and risks inherent in business transactions should be given proper

consideration. For example, under this convention inventory is valued at cost price or market price

whichever is lower. Similarly, bad and doubtful debts is made in the books before ascertaining the profit.

(3) Convention of Consistency: The Convention of Consistency implies that accounting policies,

procedures and methods should remain unchanged for preparation of financial statements from one period

to another. Under this convention alternative improved accounting policies are also equally acceptable. In

order to measure the operational efficiency of a concern, this convention allows a meaningful comparison

in the performance of different period.

(4) Convention of Materiality: According to Kohler's Dictionary of Accountants Materiality may

be defined as "the characteristid attaching to a statement fact, or item whereby its disclosure or method of

giving it expression would be likely to influence the judgment of a reasonable person." According to this

convention consideration is given to all material events, insignificant details are ignored while preparing

the profit and loss account and balance sheet. The evaluation and decision of material or immaterial

depends upon the circumstances and lies at the discretion of the Accountant.

QUESTIONS

1. Define Accounting.

2. Explain nature and scope of accounting.

3. What are the important functions of accounting?

4. What are the objectives of ac~ounting?

5. Define bookkeeping.

6. Briefly explain the basic accounting concept and conventions.

7. What are the important classification of accounting concepts? Explain them briefly.

8. Write short notes on :

(a) Convention of Disclosure.

(b) Convention of Conservatism.

(c) Convention of Consistency.

9. What do you understand by Dual Aspect Concept?

10. Explain Going Concern Concept.

11. Write short notes on:

(a) Cost Concept.

(b) Money Measurement Concept.

(c) Accounting Period Concept.

12. What are the limitations of Accounting?

DOD

CHAPTER 2

Double Entry System of Accounting

System of Accounting

\ The following are the main system of accounting for recording the business transactions:

(a) Cash System of Accounting.

(b) Mercantile or Accrual System of Accounting.

(c) Mixed System of Accounting.

(a) Cash System of Accounting: Under this system, only actual cash receipts and cash payments are

recorded. No credit transactiQll is made for a payment or receipt until cash is actually received or paid. This

system usually adopted by the Government Organizations and Financial Institutions. The non-trading

concerns are preparing Receipts and Payment Accounts based on the Cash Systems Accounting.

(b) Mercantile or Accrual System of Accounting: Under this system, all business transactions are

recorded in the books of accounts for a particular period inclusive of cash receipts and cash payments or

any amount having become due for payment or receipt. In other words, both cash transactions and credit

transactions are recorded in the books of accounts.

(c) Mixed System of Accounting: This system is applicable only where a concern adopting

combination of Cash System and Mercantile System. Under Mixed System of Accounting, some records

are made under cash system whereas others are recorded under mercantile system.

Further, Accounting records can be prepared under anyone of the following system:

1. Single Entry System.

2. Double Entry System.

(1) Single Entry System: Under this system, all transactions relating to a personal aspect are

recorded in the books of accounts but leaves all impersonal transactions. Single Entry System is based on

the Dual Aspect Concept and is incomplete and inaccurate.

8 A Textbook of Financial Cost and Management Accounting

(2) Double Entry System: This system was introduced by Iuco Pacioli, an Italian merchant during the

year 1494. According to this system, every transaction has two aspects. Both the aspects are recorded in the

books of accounts. Accordingly one is giving aspect and the other one is receiving aspect. Each aspect will be

recorded in one account and this method of writing every transactions in two accounts is known as Double

Entry System of bookkeeping. For example, Purchase of machinery for cash, in this transaction receiving

machinery is one aspect is said to be an account is debited and giving cash is another aspect is said to be an

account is credited with an equal amount. Thus, the basic principle of this system is that for every debit there

must be a corresponding and equal credit and for every credit there must be a corresponding and equal debit.

Advantages of Double Entry System

(1) This system provides information about the concern as a whole.

(2) It is possible to evaluate the operational efficiency of the concern.

(3) This system helps to ascertain the profit or loss by preparing profit and loss account and

balance sheet.

(4) Accuracy of accounting records can be verified by preparing a Trail Balance.

(5) This system helps to know the financial position of a concern for a particular period.

(6) It provides information for meeting various legal requirements.

(7) The values of assets and liabilities can be known at any time by preparing the balance sheet.

Factors Common to Every Business

In order to understanding the Double Entry System, it is essential to consider the following important

factors which are common to every business.

(1) Every business has to enter into business transactions with a number of persons or firms. To

record the transactions dealing with whom, accounts are opened in the name of each person or

firm. Such accounts are known as Personal Accounts.

(2) Every business must necessarily have certain assets such as buildings, stocks, cash etc. for

carrying on its activities. Therefore, an acc.ount of each asset is opened and such account is

known as Real or Property Accounts.

(3) Every business earn incomes and gains in various sources and certain expenses and losses

incurred to carry on its activities. Therefore, an account of each expense and income or gain is

opened in the books. Such accounts are known as Nominal or Factious Accounts.

Types of Accounts

In order to keep a complete record of all transactions in the business the following are the important

type of accounts, namely:

I. Personal Account

(a) Natural Person's Accounts.

(b) Artificial Person's Accounts.

(c) Representative Personal Accounts.

Double Entry System of Accounting

II. Impersonal Accounts

(1) Real Accounts

9

+

(a) Tangible Real Accounts.

(b) Intangible Real Accounts.

(2) Nominal Accounts

The following chart gives more explanation about the types of accounts:

Types of Accounts

~ \* ~

Impersonal Accounts

t

Personal Accounts

+

+ ~

Natural Artificial Representative

Personal

Accounts

Real ACCOUrS Nominal Accounts

tr---L--------,~

Person's

AcCounts

Person's

Accounts

I. Personal Accounts

Tangible Real Intangible Real

Accounts Accounts

An account recording transactions of business deals with person or firms or company is known as

Personal Account. It takes the following forms:

(a) Natural Person's Account: Natural Person's Accounts are meant for recording transactions of

business deals with individual persons. For example, Thomas Account, Raman's Account,

Nancy Account etc.

(b) Artificial Persons or Legal Bodies: An account recording financial transaction of business

deals with an artificial persons or legal bodies created by law or otherwise called an Artificial

Personal Account. For example, Firm's Account, Limited Companies, Bank Account etc.

(c) Representative Personal Account: An account indirectly representing a person or persons is

known as a Representative Personal Account. All accounts recording financial transactions of

outstanding expenses and accrued or prepaid incomes are Representative Personal Account. For

example, Salaries Outstanding Account is a personal account representing salaries payable to

the staff.

II. Real Accounts (or) Property Accounts

Real Account refers to an account recording financial transactions of business connected with assets

is known as Real Account or Property Accounts. The Real Accounts may be Tangible Real Account and

Intangible Real Account. Tangible Real Account refers to an account relates to an asset which can be

touched, felt and measured. For example, Building, Goods, Furniture, Machinery etc. On the other hand,

Intangible Real Account refers to an account which relates to an asset which cannot be touched and

measured physically. For example, Trade Mark, Goodwill, Patent, Copy Rights etc.

III. Nominal Account

Nominal Accounts are recording transactions of business connected with expenses, incomes, profit or

losses etc. are known as Nominal Accounts. For example, Rent Account, Salaries Account, and Interest

Account, etc.

10 A Textbook of Financial Cost and Management Accounting

Accounting Rules

According to Double Entry System of accounting every transaction of the business has two aspects.

The transaction should be recorded in the books of accounts according to the two aspects. The two aspects

are:

(1) Receiving Aspect otherwise known as Debit Aspect.

(2) Giving Aspect otherwise known as Credit Aspect.

Thus, every transaction involves two aspects:

(1) Debit Aspect.

(2) Credit Aspect.

There are three different rules for making entries under Double Entry System in respect of Personal

Account, Real Account and Nominal Account.

(1) Personal Account:

(2) Real Account:

(3) Nominal Account:

Debit the Receiver

Credit the Giver

Debit What comes in

Credit What goes out

Debit all expenses and losses

Credit all incomes and gains

The rule of double entry are show in the following chart:

Accounts

+

+ ~

Personal Account Real Account

+ \* + \* +

Debit Credit Debit Credit t t t t

Receiver Giver What comes in What goes out

Illustration: 1

t

Nominal Account

+ +

Debit Credit t t

Expenses Gains

& Losses & Incomes

From the following transactions find out the nature of account and also state which account should be debited

and which account should be credited:

(1) Salary paid

(2) Interest received

(3) Machinery purchased for cash

(4) Building sold

(5) Outstanding salary

(6) Received cash from Ramesh

(7) Proprietor introduced capital

(8) Dividend received

(9) Commission paid

( 10) Furniture purchased for cash

Double Entry System of Accounting

Analysis of Transactions

Solutions:

Transactions Accounts Types of Accounts Rules of Debit and Credit

Involved

(1) Salaries Salary Nc Nominal Debit all expenses and losses

Cash Nc Real Credit what goes out

(2) Interest received Cash Nc Real Debit what comes in

Interest Nc Nominal Credit all incomes and gains

(3) ~achinery Purchase ~achinery Nc Real Debit what comes in

Cash Nc Real Credit what goes out

(4) Building Sold Cash Nc Real Debit what comes in

Building Nc Real Credit what goes out

(5) Outstanding Salary Salary Nc Nominal Debit all expenses and losses '

Outstanding } Salary Nc Personal Credit the giver

(6) Received cash } Cash from Remesh Cash Nc Real Debit what comes in

Ramesh Nc Personal Credit the giver

(7) Capital introduced Cash Nc Real Debit what comes in

Capital Nc Personal Credit the giver

(8) Dividend received Cash Nc Real Debit what comes in

Dividend Nc Nominal Credit all incomes and gains

(9) Commission paid Commission Nc Nominal Debit all expenses and losses

Cash Nc Real Credit what goes out

(10) Furniture purchased Furniture Nc Real Debit what comes in

Cash Nc Real Credit what goes out

Illustration: 2

Classify the following under Personal, Real and Nominal accounts:

(1) Stock.

(5) Interest.

(9) Prepaid Interest.

(13) Salary Prepaid.

(17) Building.

Solution:

(1) Stock

(2) Loan

(3) Insurance

(4) Salary

(5) Interest

(6) Bank

(7) Cash

(8) Capital

(9) Prepaid Interest

(10) Salary Outstanding

(11) Drawings

(12) Bank Overdraft

(2)

(6)

(10)

(14)

(18)

Loan. (3) Insurance. (4) Salary.

Bank. (7) Cash. (8) Capital.

Salary Outstanding. (11) Drawing. (12) Bank Overdraft.

Fixtures. (15) Bills Receivable. (16) ~achinery.

Goodwill.

= Real Account

= Personal Account

= Nominal Account

= Nominal Account

= Nominal Account

= Personal Account

= Real Account

= Personal Account

= Personal Account

= Personal Account

= Personal Account

= Personal Account

11

12

(13)

(14)

(15)

(16)

(17)

(18)

Salary Prepaid

Fixtures

Bills Receivable

Machinery

Building

Goodwill

=

=

=

A Textbook of FiTlllncial Cost and Management Accounting

Personal Account

Real Account

Real Account

Real Account

Real Account

Real Account

QUESTIONS

1. What are the important system of accounting?

2. What do you understand by Double Entry System?

3. Explain the advantages of Double Entry System.

4. Explain the three important types of accounts.

5. What do you understand by Accounting Rules?

6. Write short notes on:

(a) Singl~ Entry System

(b) Double Entry System

(c) Personal Accounts

(d) Nominal Accounts

7. Classify the following under Personal Account, Real Account and Nominal Account:

(I) Cash Account. (2) Bank Account. (3) Capital Account. (4) Drawing Account. (5) Salaries Account. (6) Rent

Account (7) Inventory Account. (8) William Account. (9) Goodwill Account. (10) Commission Account.

[Ans: Personal Account 2, 3, 4, 8;

Real Account 1,7,9;

Nominal Account 5, 6, 10.]

8. Which account is to be debited and credited in the following transactions?

(I) Cash from Ramesh

(2) Rent paid in cash

(3) Goods purchased by cash

(4) Salary paid by cheque

(5) Bought furniture from Prem on credit

(6) Received cash from Kumar

(7) Cash paid to Ramesh

(8) Goods sold to Ramesh

(9) Cash paid in to Bank

[Ans : (I) Debit Cash Alc and Credit Ramesh's Alc (2) Debit Rent Alc and Credit Cash Alc (3) Debit Purchase Alc and

Credit Cash Alc (4) Debit Salary Alc and Credit Bank Alc (5) Debit furniture Alc and Credit Prem's Alc (6) Debit Cash

Alc and Credit Kumar's Alc (7) Debit Ramesh Alc and Credit Cash Ale (9) Debit Bank Alc and Credit Cash Alc]

9. What accounts should be debited and credited in the following transactions?

(I) Goods sold for cash

(2) Goods sold to Siva on Credit

(3) Cash paid to Ramesh

(4) Cash paid in to Bank

(5) Goods purchased for cash

(6) Goods purchased from Ram on Credit

(7) Interest received on investment

(8) Drew cash from bank for office use

(9) Paid rent in cash

(10) Discount received on sales

(II) Received cash from Ramesh

(12) Started business with cash

[Ans : (I) Debit Cash Alc and Credit Sales Alc (2) Debit Siva's Alc and Credit Sales Alc (3) Debit Ramesh's Alc and

Credit Cash Alc (4) Debit Bank's Alc and Credit Cash Alc (5) Debit purchase Alc and Credit Cash Alc (6) Debit

purchase Alc and Credit Ram's Alc (7) Debit cash Account and Bank's Alc (9) Debit Rent Alc and Credit Cash Alc

(10) Debit Cash Alc and Credit Sales Alc (11) Debit Cash Alc and Credit Ramesh's Alc (12) Debit Cash Alc and

Credit Capital Alc]

000

CHAPTER 3

Accounting Books and Records

The purpose of preparation of Trading, Profit and Loss Account and Balance Sheet to ascertain the

profit or loss made by business and to know the financial soundness of the concern as a whole. In order to

achieve the objectives of the firm, it is essential to maintain several books and records. The number of

books and records are maintained by an -enterprise for the evidence of the recording business transactions.

Cash Receipts, Invoice, Cash Memo, Cheque and other vouchers are the examples of documentary

evidence supported for preparation of income statements.

According to double entry system of accounting each transaction is recorded in the books of accounts

to ascertain the profits earned during a particular period. "Transaction" of a business refers to an event the

recognition of which gives rise to an entry in account records.

While analyzing the review of accounting cycle, the whole process of accounting consists of the

following important stages :

(1) Recording the transactions are done through Journals or Subsidiary Books.

(2) Classifying the transactions are achieved by Ledger.

(3) Summarizing the transactions are done through Trial aalance.

(4) The last stage is concerned with preparing Income Statements (Trading, Profit and Loss

Account and Balance Sheet).

JOURNAL

In the first stage of double entry system each transactions are recorded in the 'Journal' or "Subsidiary

Books." Journal is the book of "Original Entry or First Entry" which is used for recording of all business

transactions in chronological order. Then it is posted to ledger. This process is known as "Entering." In

other words record of the each transaction is called as "Journal Entry." The process of recording in the

Journal is called as "Journalizing."

14 A Textbook of Financial Cost and Management Accounting

Specimen Ruling of Journal

The specimen ruling of Journal is shown below:

Date Particulars L.F. Dr. Cr.

(I) (2) (3) (4) Rs. (5) Rs.

Date, Month Name of Accounts to be Debited .. . .. . ...

a Year Name of Accounts to be Credited .. . ... . ..

From the above specimen ruling of Journal, we can observe the following points:

Column 1

Column 2

Column 3

Column 4

Column 5

It indicates the date, month and year on which each transaction takes place.

It represents (a) name of account to be debited; (b) name of account to be credited.

L.P. Stands for Ledger Folio, i.e, reference to the main book.

Dr. Stands for Debit, i.e., amount to be debited.

Cr. Stands for Credit, i.e., amount to be credited.

If two or more transactions of similar nature occur on the same day and either the debit account or

credit account is common, such transactions can be conveniently entered in the Journal in the form of a

Combined Journal Entry instead of making a separate entry for each transaction. Such type of entry is a

"Compound Journal Entry."

Types of Journals

Journals broadly classified into (I) General Journals and (2) Special Journals. Special Journals are

subsidiary books which are as follows :

l. Sales Book

2. Purchase Book

3. Purchase Returns Book

4. Sales Returns Book

5. Bills Receivable Book

6. Bills Payable Book

7. Cash Book.

These subsidiary books which are used for recording of each transactions. The following points to

be considered before making journal entry :

(1) Capital Account: The initial influx of capital in the form of cash provided by the proprietor is

known as "Capital." It may be further converted into plant and machinery, building etc. Hence it should be

debited to Cash Nc or Plant & Machinery Property Nc and credited to Proprietor's Nc.

(2) Drawing Account : When proprietors withdrawn money or goods from business for personal

use, it should be debited to Drawing Nc and credited Cash Nc or Purchase Nc.

(3) Goods Account : If any transactions relating to purchase or sale of goods, instead of making

journal entries in one Goods Account, separate accounts may be maintained as Sales Nc, Purchase Nc,

Sales Returns Nc, and Purchase Returns Nc.

Accounting Books and Records 15

(a) Sales Account: is meant for recording sale of goods. It should be credited to Sales Nc.

(b) Purchase Account: is meant for recording purchase of goods. It should be debited to

Purchase Nc.

(c) Sales Returns Account: is concerned with recording return of the goods from customers.

It should be debited to Sales Return Nc.

(d) Purchase Return Account: is meant for recording purchased goods return to suppliers. It

should be credited to Purchase Return Nc.

(4) While making journal entry, a brief explanation will be given is known as "Narration."

(5) To apply the rule of debit and credit in each type of account such as ;

(a) Personal Account: Debit the Receiver, Credit the Giver.

(b) Real Account: Debit what comes in, Credit what goes out.

(c) Nominal Account: Debit all Expenses & Losses, Credit all Incomes and Gains.

Illustration: 1

Journalize the following transactions in the books of Nancy Ltd.

2003 March

1 Started business with Cash

1 Paid into bank

2 Goods purchased for Cash

3 Purchase of furniture and payment by cheque

5 Sold goods for cash

8 Sold goods to Rosy

10 Goods Purchased from Thomas

12 Goods Return to Thomas

15 Sold goods to Rahavan for cash

18 Cash received from Rosy Rs.396 & discount allowed to her Rs.4

Date

21 Withdraw from bank for private use

21 Withdraw from bank for use in the business

25 Paid telephone rent for one year

28 Cash paid to Rosy in full settlement of her account

30 Paid for Stationery

Rent paid

Salaries to Staff

Journal of Nancy Ltd.

Particulars

2003 March

1 Cash Account

To Capital Account

(Being cash brought in to start business)

March 1 Bank Account

To Cash Account

(Being Cash paid into Bank)

LF.

Dr.

Dr.

Debit

Rs.

4,500

2,500

Rs. in lakhs

4,500

2,500

1,500

500

600

400

700

100

250

100

500

40

594

20

100

250

(Rs. in lakhs)

Credit

Rs.

4,500

2.500

16 A Textbook of Financial Cost and Management Accounting

2 Purchased Account Dr. 1,500

To Cash Account 1,500

(Being goods purchased for cash)

3 Furniture Account Dr. 500

To Bank Account 500

(Being purchase of furniture and payment made by cheque)

5 Cash Account Dr. 600

To Sales Account 600

(Being the goods sold for cash)

8 Rosy Account Dr. 400

To Sales Account 400

(Being the goods sold for credit)

12 Thomas Account Dr. 100

To Returns Outward Account 100

(Being the goods retuned)

15 Cash Account Dr. 250

To Sales Account 250

(Being the goods sold for cash)

18 Cash Account Dr. 396

Discount Account Dr. 4

To Rosy Account 400

(Being Rs. 396 received from Rosy and Rs. 4

discount allowed to her)

21 Drawing Account Dr. 100

Cash Account Dr. 500

To Bank Account 600

(Being cash withdrawn for both office and personal use)

25 Telephone Rent Account Dr. 40

To Cash Account 40

(Being payment of telephone rent)

28 Rosy Account Dr. 600

To Cash Account 596

To Discount Account 4

(Being cash paid to Rosy and discount allowed to her)

30 Stationery Account Dr. 20

Rent Account Dr. 100

Salaries Account Dr. 250

To Cash Account 370

(Being payment of stationery, rent and salaries)

Total 13,060 13,060

Accounting Books and Records

Illustration: 2

Journalize the following transactions:

2003 Jan.

Date

" I

2

3

4

5

6

7

8

9

10

11

12

13

14

15

2003 Jan.

1

2

3

4

5

6

Jan. 7

Purchased machinery for cash

Sold goods to Ramesh for cash

Sold goods to Kannan

Cash received from Murugan

Cash withdrawn from bank

Paid salaries

Purchased goods worth of Rs. 1000 less 10% trade discount

The errection charges of machinery amounted to Rs. 500

which were paid in cash

Cash paid to Ramasamy

Paid interest

Returned goods to Premkumar

Returned goods by Periasamy

Received dividend on shares

Paid rent

Old furniture sold for

Particulars

Machinery Account

To Cash Account

Journal

~Being Machinery purchased for cash)

Cash Account

To Sales Account

(Being goods sold for cash)

Kannan Account

To Sales Account

(Being goods sold for credit)

Cash Account

To Murugan Account

(Being cash received from Murugan)

Cash Account

To Bank Account

(Being cash withdrawn from Bank)

Salaries Account

To Cash Account

(Being cash paid for salaries)

Purchase of goods Account

To Cash Account

To Discount Account

Dr.

Dr.

Dr.

Dr.

Dr.

Dr.

Dr.

(Being goods Purchased and discount allowed for Rs. 1(0)

LF. Debit

Rs.

5,000

2,000

1,000

700

500

800

1,000

Rs. in lakhs

5,000

2,000

1,000

700

500

800

400

400

300 .

200

500

400

200

17

(Rs. in lakhs)

Credit

Rs.

5,000

2,000

1,000

700

500

'.

800

900

100

/8 A Textbook of Financial Cost and Management Accounting

8 Machinery Account Dr. 500

To Cash Account 500

(Being the errection charges paid for machinery)

9 Ramasamy Account Dr. 400

To Cash Account 400

(Being cash paid to Ramasamy)

10 Interest Account Dr. 400

To Cash Account 400

(Being cash paid for Interest)

11 Premkumar Account Dr. 300

To Purchase Return Account 300

(Being goods returned to Premkumar)

12 Sales Return Account Dr. 200

To Periyasamy Account 200

(Being goods returned by Periyasamy)

13 Cash Account Dr. 500

To Dividend on' Shares Account 500

(Being dividend received on shares)

14 Rent Account Dr. 400

To Cash Account 400

(Being rent paid for cash)

15 Cash Account Dr. 200

To Old Furniture Account 200

(Being old furniture sold for cash)

Total 13,900 13,900

Illustration: 3

Journalize the following transactions in the books of Mr. Sharma:

Jan. 2003

Shanna started business by investing cash of Rs. 40,000. He brought goods of Rs. 10,000, Furniture

Rs. 5,000 and Machinery Rs. 10,000

2 Purchase building Rs. 5,000

3 Sale of goods worth Rs. 7,000 less 10% trade discount

4 Purchase of goods worth Rs. 6,000 less 5% cash discount

5 Sold goods to William on credit Rs. 2,500

6 Amount withdrawn from bank Rs. 800 for office use

7 Paid freight Rs. 500

8 Sold 50 shares in National Ltd @ Rs. 20 per share and commission paid Rs. 30

9 Received cheque from Vijay and deposited in Bank Rs. 5,000

10 Paid to Anderson in full settlement of Rs. 1,500

11 Amount withdrawn from bank for personal use Rs. 500

12 Paid rent Rs. 400 and Salaries Rs. 1,000

13 Paid insurance premium Rs. 300

14 Dividend received Rs. 300

15 Cheque for Rs. 1,000 received from Murgan in settlement of a debt of Rs. 1,250 returned dishonoured

Accmmling Books and Records 19

16 Bank collected interest on our investments Rs. 1,500

17 Charge of depreciation on Machinery @ 10% for six months (Machinery Rs. 20,000)

18 Sold goods to Balu Rs. 2,000

Journal of Mr. Sharma Account

Date Particulars L.F. Debit Credit

Rs. Rs.

2003. Jan.

I Cash Account Dr. 40,000

Goods Account Dr. 10,000

Machinery Account Dr. 10,000

Furniture Account Dr. 5,000

To Capital Account 65,000

(Being the cash, goods, furniture and

machinery brought to start business)

2 Buildings Account Dr. 5,000

To Cash Account 5,000

(Being the buildings purchased)

3 Cash Account Dr. 6,300

Discount Account Dr. 700

To Sales Account 7,000

(Being the goods sold and discount allowed)

4 Purchase Account Dr. 6,000

To Cash Account 5,700

To Discount Allowed Account 300

(Being the. goods purchased and discount allowed)

5 William Account Dr. 2,500

To Sales Account 2,500

(Being goods sold on credit)

6 Cash Account Dr. 800

To Bank Account 800

(Being amount withdrawn for office use)

7 Freights Account Dr. 500

To Cash Account 500

(Being cash paid for freight)

8 Cash Account Dr. 970

To Investment in Shares Account 970

(Being 50 shares in National Ltd. sold

@ Rs.20 per share less commission )

9 Bank Account Dr. 5,000

To Vijay Account 5,000

(Being cheque received and deposited in bank)

20 A Textbook of Financial Cost and Management Accounting

10 Anderson Account Dr.

To Cash Account

(Being the cash paid in full settlement)

11 Drawing Account Dr.

To Bank Account

(Being amount withdrawn for personal use)

12 Rent Account Dr.

Salaries Account Dr.

To Cash Account

(Being paid rent and salaries)

13 Bank Account Dr.

To Dividend Account

(Being Dividend received)

14 Murugan Account Dr.

To Bank Account

To Discount Allowed Account

(Being Cheque received from Murugan in settlement of a

debt of Rs.1250 dishonoured and discount allowed)

15 Bank Account

To Interest on Investment account

(Being Bank collected interest on investment)

16 Depreciation Account

To Machinery Account

(Being depreciation on machinery charged

@ 10% P.a. on Rs. 2000 for six months)

17 Balu Account

To Sales Account

(Being goods sold to Balu)

Illustration: 4

Journalize the following transactions:

Jan. 2003

1

3

6

7

10

12

16

20

27

29

31

31

Ravi Commenced business with

Goods\_purchased for cash

Goods sold to Ramesh on credit

I3rought goods from Ram

Cash received from Ramesh

Paid Ram on account

Goods sold to Rajive

Goods sold for cash

Amount paid to Ram

Cash received from Rajive

Paid rent in cash

Salary paid to office staff

Dr.

.-

Dr.

Dr.

1,500

500

400

1,000

300

1,250

1,500

1,000

2,000

Rs.

42,000

18,400

11,200

6,600

7,200

4,200

7,500

15,000

2,400

7,500

900

1,400

1,500

500

1,400

300

1,000

250

1,500

-1,000

2,000

Accounting Books and Records 21

Solution:

Journal

Date Particulars L.F. Debit Credit

Rs. Rs.

2003 Cash Account Dr. 42,000

Jan.l To Capital Account 42,000

(Being the amount invested in cash)

3 Purchase Account Dr. 18,400

To Cash Account 18,400

(Being cash purchased of goods)

6 Ramesh Account Dr. 11,200

To Sales Account 11,200

(Being credit sales of goods)

7 Purchase Account Dr. 6,600

To Ram Account 6,600

(Being credit purchase of goods)

,

10 Cash Account Dr. 7,200

To Ramesh Account 7,200

(Being cash received from Ramesh)

12 Ram Account Dr. 4,200

To Cash Account 4,200

(Being cash paid to Ram)

16 Rajive Account Dr. 7,500

To Sales Accourlt

,

7,500

(Being Credit Sales)

20 Cash Account Dr. 15,000

To Sales Account 15,000

(Being Goods sold for cash)

27 Ram Account Dr. 2,400

To Cash Account 2,400

(Being amount paid to Ram)

29 Cash Account Dr. 7,500

To Rajive Account 7,500

(Being cash received from Rajive)

31 Rent Account Dr. 900

To Cash Account 900

(Being cash paid for rent)

31 Salaries Account Dr. 1,400

To Cash Account 1,400

(Being cash paid for salaries)

22

Illustration: 5

A Textbook of Financial Cost and Management Accounting

Journalize the transactions given below in the books of Sakesha & Co. :

2003

Jan.l Sakesha starts business with Rs. 40,000

1 Paid in to bank Rs. 36,000

2 Bought furniture for 1,700 and typewriter for Rs. 3,000, payment made by cheque

5 Goods purchased from Ramasamy & Co. for 11,200 on credit

7 Goods purchased from Porwal & Co. for Cash Rs. 2,200

8 Goods sold on credit to Gupta & Co. Rs. 3,000

10 Goods sold on credit to Chandra & Co. Rs. 5,600

11 Paid for office stationery Rs. 500

12 Paid rent Rs. 400

14 Brought fixtures for Rs. 2,000

17 Received cash from Gupta & Co. Rs. 2940; allowed them discount Rs. 60

20 Issued cheque for Rs. 11,000 in full settlement (i.e., nothing more is due them) to Ramasamy & Co.

25 Paid in to bank Rs. 2,400

30 Paid insurance premium Rs. 900 by cheque

Solution:

Journal of Sakesha & Co.

Date Particulars LF. Debit Credit

Rs. Rs.

Jan. 1 Cash Account Dr. 40,000

To Capital Account 40,000

(Being commenced with business Rs. 40,000)

1 Bank Account Dr. 36,000

To Cash Account 36,000

(Being cash paid in to bank)

2 Furniture Account Dr. 1,700

Typewriter Account Dr. 3,000

To Bank Account 4,700

(Being bought furniture & typewriter)

5 Goods Purchased Account Dr. 11,200

To Ramasamy & Co. 11,200

(Being goods purchased on credit)

7 Good Purchased Account Dr. 2,200

Tl' Cash Account 2,200

(Being goo,j~ received from Porwal & Co.)

8 Gupta & ( o. Account Dr. 3,000

1 0 Sales Account 3,000

(Being go, ds sold on credit)

10 Chandra l Co. Account Dr. 5,600

le' Sales Account 5,600

(Being gOl,ds sold on credit)

11 Office StatIOnery Account Dr. 500

To Cash Account 500

(Being bought office stationery)

Accounting Books and Records

12 Rent Account Dr.

To Cash Account

(Being Rent Paid)

14 Fixtures Account Dr.

To Cash Account

(Being bought fixtures)

17 Cash Account Dr.

To Gupta & Co. Account

To Discount Allowed Alc

(Being cash received in full statement)

20 Ramasamy & Co. Account Dr.

To Bank Account

(Being cheque issued to Ramasamy & Co.)

25 Bank Account Dr.

To Cash Account

(Being cash paid into bank)

30 Insurance Premium Account Dr.

To Bank Account

(Being insurance premium paid by cheque)

Illustration: 6

Journalize the following transactions :

2003

K. Singh started business with cash Rs. 80,000

Paid in to bank Rs. 4,000

Goods purchased from Prasad & Co. for cash Rs. 30,000

Goods sold for cash Rs. 12,000

400

2,000

3,000

11,000

2,400

900

March 1

2

4

7

9

11

13

15

16

17

19

21

24

29

Bought furniture from Kapur & Co. for Rs. 10,000 and paid by cheque

Goods sold to Sethi & Co. for Rs. 8000 on credit

31

Goods purchased from Gupta & Co. Rs. 20,000 on credit

Damaged goods returned to Gupta & Co. Rs. 10,000

Cash received from Sethi & Co. Rs. 7880 in full settlement

Withdraw goods for personal use Rs. 2000

Withdraw cash from business for personal use Rs. 4000

Paid telephone rent Rs. 2000

Paid cash to Gupta & Co. in full settlement of Rs. 9800

Brought stationery Rs. 400

Paid rent to office building Rs. 1000

Paid salaries to office staff Rs. 4000

Paid advertisement expenses of Rs. 2000

23

400

2,000

2,940

60

11,000

2,400

900

24 A Textbook of Financial Cost and Management Accounting

Journal

Date Particulars LF. Debit Credit

Rs. Rs.

2003 Cash Account Dr. 80,000

Mar. 1 To Capital Account 80,000

(Being commenced of business)

2 Bank Account Dr. 4,000

To Cash Account 4,000

(Being cash paid in to bank)

4 Purchase Account Dr. 30,000

To Cash Account 30,000

(Being goods purchased for cash)

7 Cash Account Dr. 12,000

To Sales Account 12,000

(Being goods sold for cash)

9 Furniture Account Dr. 10,000

To Bank Account 10,000

(Being purchase of furniture)

11 Sethi & Co. Account Dr. 8,000

To Sales Account 8,000

(Being goods sold on credit)

13 Purchase Account Dr. 20,000

To Gupta & Co. Account 20,000

(Being goods purchased on credit)

15 Gupta & Co. Account Dr. 10,000

To Purchase Return Account 10,000

(Being damaged goods returned)

16 Cash Account Dr. 7,880

Discount Account Dr. 120

To Sethi & Co. Account 8,000

(Being cash received from Sethi & Co. in full

settlement and allowed Rs. 140 as discount)

17 Drawings Account Dr. 2,000

To Purchases Account 2,000

(Being withdrawal of goods for personal use)

19 Drawings Account Dr. 4,000

To Cash Account 4,000

(Being cash withdrawal from the

business for personal use)

21 Telephone Rent Account Dr. 2,000

To Cash Account 2,000

(Being telephone rent paid)

24 Gupta & Co. Account Dr. 10,000

To Cash Account 9,800

To Discount Account 200

(Being cash paid to Gupta & Co.

and allowed discount Rs. 200)

Accounting Books and Records

29

31

QUESTIONS

Stationery Account

Rent Account

Salaries Account

To Cash Account

(Being expenses paid)

Advertisement Expenses Nc

To Cash Account

(Being advertisement expenses paid)

1. What do you understand by accounting books.and records?

2. What is meant by Journal?

3. Explain the different types of Journals.

4. Draw a specimen ruling of Journal.

Dr.

Dr.

Dr.

Dr.

5. What are the factors to be considered while making journal entry?

400

1,000

4,000

2,000

6. What do you understand by source of document? Explain briefly various sources of documents.

PRACTICAL PROBLEMS

(1) Journalize the following transactions in the books of Mrs. Sharma & Co. :

2003

Jan. 1 Commenced business with cash

1 Purchased Machinery

2 Purchased goods on Credit from Ram

3 Purchase goods for cash

5 Sold goods for cash

7 Goods purchased from Ramesh

9 Goods return to Ram

10 Goods sold to Murugan

13 Goods returned by Murugan

15 Draw cash from bank for office use

17 Draw cash from bank for private use

19 Purchased furniture

22 Paid for office rent

25 Paid for Salaries

27 Paid for Advertisement

30 Sold goods Rs. 25,000 less 10% Discount.

(2) Pass the necessary Journal entries of Mrs. Cupta & Co.:

April 2003

1 Paid into Bank

2 Purchased Furniture for cash

5 Deposited into Bank

6 Purchased goods from Rahul

7 Sold goods on credit to Siva

9 Cash Sales

10 Cash Purchases

Jl Amount withdrawn from bank for office use

15 Paid insurance premium

17 Dividend received

19 Paid rent

22 Paid Salaries

24 Drawn cash from bank for personal use

25 Goods returned from Siva

27 Goods returned to Rahul

30 Paid for Advertisement

5,400

2,000

Rs.

2,00,000

25,000

10,000

20,000

10,000

5,000

500

15,000

300

1,000

2,000

5,000

1,500

20,000

4,000

Rs.

50,000

10,000

15,000

5,000

7,000

9,000

15,000

3,000

5,000

3,000

2,000

15,000

4,000

300

200

1,000

25

26 A Textbook of Financial Cost and Management Accounting

(3) Journalize the following transactions in the books of Ramesh & Co.:

2003

Jan. I

3

5

7

9

11

13

15

17

19

21

25

27

31

Started business with Rs. 50,000 and paid into Bank Rs. 25,000

Sold goods for cash Rs. 20,000

Brought Furniture for Rs. 7,000

Purchased goods from Pandey & Co. Rs. 15,000

Withdrawn Rs. 700 from bank for office use

Sold goods to Jain & Co. Rs. 10,000

Paid Salaries Rs. 20,000

Paid Telephone charges Rs. 1,000

Paid into Bank Rs. 50,00

Sold goods to Mrs. Gowda on credit for Rs. 15,000 less 10% Discount

Goods returned from Pandey Rs. 500

Received cash from Jain & Co. Rs. 5,500 Discount allowed Rs. 250

Withdraw Rs. 1,500 from bank for personal use

Paid for advertisement Rs. 2,000

(4) Journalize the following transactions in the books of Mrs. Sam & Co.:

2003

Jan. Started business with cash

I Paid in to Bank

2 Furniture purchased for cash

5 Machinery purchased

7 Goods sold for cash

9 Purchased goods from Reddy & Co.

10 Goods returned to Gupta.

13 Goods Returned from Reddy & Co.

15 Cash received from Jain Rs. 8,000 and discount allowed to him Rs. 100

17 Withdrawn from bank for office use

19 Paid Telephone rent

21 Paid Salaries

23 Goods sold to Ram on credit for

25 Paid rent and rates

27 Withdrawn from bank for personal use

29 Cash paid to Reddy & Co. for full settlement of his account

31 Goods sold to Ramesh for 10,000 less 10% trade discount.

(5) Journalize the following transactions, in the books of Hariprasad & Co.:

2003

Jan. I

I

2

2

3

5

7

9

11

\3

15

17

19

21

23

25

27

29

31

Business started with cash Rs. 2,50,000

Cash deposited into Bank Rs. 25,000

Machinery purchased from Krishna on credit for Rs. 10,000

Furniture purchased for cash Rs. 5,000

Sold goods to Murugan less trade discount of 10% for Rs. 20,000

Goods purchased from Jain for Rs. 5,000 at 10% trade discount.

Goods returned from Murugan for Rs. 250

Goods returned to Jain for Rs. 100

Withdrawn Rs. 5,000 from bank for office use

Paid for Advertisement Rs. 2,000

Goods purchased for cash Rs. 5,000

Paid salaries for Rs. 30,000

Goods sold for cash Rs. 10,000

Paid interest Rs. 2,000

Dividend received for Rs. 4,000

Withdrawn cash from bank for personal use for Rs. 1,000

Cash paid to Jain in full settlement of his account for Rs. 5,000

Deposited cash into Bank Rs. 3,000

Sold goods to Karthik on credit Rs. 7,000

Rs.

2,00,000

50,000

25,000

30,000

10,000

20,000

500

1,000

3,000

4,000

25,000

8,000

1,000

2,000

15,000

Accounting Books and Records

(6) Journalize the following transactions:

200]

Jan. 1 Started business with Rs. 2,00,000; paid in to Bank Rs. 1,00,000

3 Purchased furniture for cash Rs. 10,000

7 Goods Purchased for cash Rs. 60,000

8 Goods Sold for cash Rs. 12,000

10 Purchased one typewriter for Rs. 4,000 from Ram & Co. on credit

12 Goods sold to Kannan & Co. for Rs. 10,000 on credit

15 Bought goods from Mahandra & Co. for Rs. 20,000 on credit

16 Paid Rs. 5,000 for advertisement

24 Goods sold to Varma & Co. Rs. 8,000 for cash

25 Paid salaries to office staff Rs. 5,000

27 Paid telephone rent Rs. 1,000

30 Withdraw from ba~ Rs. 2,500 for private use

31 Bought one delivery van for Rs. 40,000 from Mumbai Motor Co. on credit.

(7) Journalize the following transactions :

200]

Aprl. 1 Gill Commenced business with Rs. 1,00,000

2 Paid in to Bank Rs. 60,000

3 Purchased goods from Lindo Rs. 40,000

5 Sold goods to Moorthi Rs. 30,000

7 Purchased Furniture for Rs. 2,500

8 Returned goods to Lindo Rs. 5,000

10 Stationery purchased for Rs. 250

11 Paid Lindo Rs. 35,000 by cheque

14 Moorthi returned goods worth Rs. 2,000

16 . Moorthi paid us Rs. 28,000

18 Cash sales Rs. 1,500

19 Purchased goods from Gopal Rs. 10,000

20 Sales to Meenashi & Co. Rs. 6,000

21 Cash purchases Rs. 3,000

22 Returned goods to Gopal Rs. 2,000

23 Paid Gopal by cheque Rs. 8,000

25 Received cheque from Meenashi & Co. Rs. 6,000

26 Drawings Rs. 2,500

27 Sold goods to Valen and cash received Rs. 1,500

28 Paid rent Rs. 1,500 by cheque

30 Paid Salary Rs. 2,000

(8) Journalize the following transactions:

200]

Mar. I Goods purchased for cash from Murthy Rs. 34,000

3 Goods sold to Narayan Rs. 34,000 on credit

5 Returned damaged goods to Dinkar Rs. 1,000

7 Paid salaries Rs. 1,700

10 Commission received for Rs. 1.400

15 Goods sold to Rajendra for cash Rs. 4,000

19 Goods sold on cash Rs. 10,000

23 Purchased furniture from Prasad & Co. at Rs. 9,000 on credit

25 Paid cash to Prasad & Co. Rs. 9,000

31 Paid Rent Rs. 2,500

(9) Journalize the following transactions:

200]

Mar. P.S. Rao started business with cash Rs. 10,000 and bank balance Rs. 1,60,000,

building Rs. 60,000 and furniture Rs. 4,000

2 Purchased goods from Rajendra Rs. 1,00,000

3 Goods sold to Prasad Rs. 24,000

27

28 A Textbook of Financial Cost and Management Accounting

5 Goods purchased from Ghosh and paid by cheque Rs. 10,000

6 Damaged goods returned to Rajendra Rs. 10,000

7 Received goods returned by Prasad Rs. 4,000

8 Received cheque from Prasad Rs. 20,000

10 Paid in to bank to Rs. 20,000

11 Paid Rajendra by cheque Rs. 90,000

12 Commission received Rs. 6,000

14 Purchased plant and machinery

15 Wiihdrawn from bank Rs. 4,000

17 Goods sold to Rajan and cheque received Rs. 4,000

20 Paid in to bank Rs. 6,000

23 Cash received from Ashok Rs. 40,000

25 Commission paid to broker Rs. 1,000

30 Paid advertisement Rs. 5,000

(10) The foilowing are the transactions of Rajan Nair & Co. for the month of April 2003, Journalize the transactions:

2003

Apr!. 1

I

2

3

5

7

10

12

15

16

17

19

21

25

27

29

30

Capital paid in to bank Rs. 50,000

Bought stationery for cash Rs. 300

Bought office furniture from Gupta & Co. Rs. 5,000

Goods sold to Anand Rs. 10,000

Goods purchased for cash Rs. 21,000

Received cheque from Bharathan Rs. 10,000

Bought postage stamps Rs. 100

Goods sold for cash Rs. 7,500

Paid salaries to office staff Rs. 2,500

Paid Gupta & Co. by cheque Rs. 5,000

Goods sold to Ashok & Co. Rs. 5,000

Goods purchased from Lakshman & Co. Rs. 7,000

Goods purchased for cash from Thaker & Co. Rs. 2,250

Goods sold to Anand Rs. 3,500

Cheque received from Ashok & Co. Rs. 5,000

Paid Thaker & Co. by cheque in fuil settlement of Rs. 2,250

Withdrawn from bank Rs. 2,500

(11) Pass journal entries in the books of Jain & Co. from the following transactions:

2004

Mar. 1

5

7

9

13

17

22

25

31

31

Jain & Co. started business with cash Rs. 80,000; Goods Rs. 80,000 and furniture Rs. 20,000

Goods sold to Ravi for cash Rs. 20,000

Damaged goods returned from Ravi Rs. 4,000

Received from Ravi Rs. 15,980 in full settlement of his account

Bought goods from Sherlekar of the list price of Rs. 20,000 at Rs. 15 trade discount

Goods returned to Sherlekar of the list price of Rs. 2,000

Settled the account of Sherlekar by paying cash, under a discount of 10%

Bought a furniture for Rs. 2,400 for the domestic use of Jain & Co.

Paid for trade expenses Rs. 1,400

Paid for travelling expenses Rs. 760

(12) Journalize the following transactions:

2004

Jan. I

2

4

5

7

8

9

15

16

20

Nataraj started with cash Rs. 2,00,000

Paid in to bank Rs. 2,00,000

Purchased goods from Thangarn & Co. on credit Rs. 10,000

Paid Postage & Telegram Rs. 500

Bought furniture Rs. 10,000

Purchased adding machine Rs. 20,000

Goods sold for cash Rs. 25,000

Sold goods on credit to Mohan & Co. Rs. 50,000

Paid to Thangam & Co. Rs. 9,950 and discount allowed by him Rs. 50

Sold goods to Ramesh & Co. Rs. 15,000

Accounting Books and Records 29

24 Received cheque from Mohan & Co. in full settlement of amount due to them Rs. 49,500

31 Paid rent by cheque Rs. 5,000

(13) Pass journal entries for the following transactions:

(I) Goods purchased from Kapil Dev for Rs. 80,000 at a trade discount of 10% and cash discount of 2% paid 75% of

the amount immediately

(2) Received a cheque from Prem Kumar for Rs. 16,000 this cheque was deposited in to bank the next day

(3) Cheque received from Premkumar was dishonoured

(4) Sold old news papers Rs. 100

(5) Bought goods from Raj & Co. and paid by cheque Rs. 14,000

(6) Sold half of the above goods to Sam & Co. at a profit of 35% on cost

(14) Record the following transactions in the account of Hari & Co. :

2004

Jan. 1 Goods sold to Swaminathan Rs. 12,000

3 Cash received from Swaminathan Rs. 1l,600

and allowed him discount Rs. 400

15 Bought goods from Rajan on Credit Rs. 16,000

20 Paid cash to Rajan in full settlement of his account Rs. 15,900

25 Paid cash for trade expenses Rs. 200

27 Paid cash for stationery Rs. 375

29 Paid wages Rs. 500

30 Cash Sales Rs. 12,000

(15) Journalize the following transactions :

(I) Bought goods for cash Rs. 50,000

(2) Paid cash for stationery Rs. 500

(3) Bought furniture for cash Rs. 4,000

(4) Sold goods for cash Rs. 16,000

(5) Sold goods to Jhon on credit Rs. 5,000

(6) Sold goods to William for cash Rs. 7,000

(7) Paid rent Rs. 1,500

(8) Paid salary Rs. 1,000

(9) Paid freight on goods purchased Rs. 500

(10) Paid wages Rs. 700

(Il) Received from James Rs. 5,000

(12) Received Interest from James Rs. 1,000

LEDGER

Meaning and Definition

Ledger refers to the book of Main Entry and it contains various accounts such as Personal Accounts,

Real Accounts and Nominal Accounts. In the first stage of accounting cycle, all business transactions are

recorded separately through Journal or Subsidiary Books during a particular date or period. Hence, Journal

fails to bring the similar transactions together and it is not useful for any reference. In order to have a

consolidated view of the similar transactions, the transactions entered in the journal will have to be posted

to Ledger Account.

A Ledger Account may be defined as a "Summary Statement of all transactions relating to a person,

asset, expense or income which have taken place during a given period of time and showing their net

effect." From the above definition, we can observe that Ledger is designed as the book of second stage in

the accounting cycle which is used for recorded transactions which are classified and grouped into

different heads of accounts.

30 A Textbook of Financial Cost and Management Accounting

Specimen Rulings or Ledger

Dr.

The specimen of ruling of each account in the ledger is as follows :

Name or Account Cr.

Date Particulars J.F. Amount Rs. Date Particulars J.F. Amount Rs.

To Name of Debit Alc By Name of Credit Alc

From the above specimen rulings of ledger account, we can observe the following points :

(1) Ledger Account is usually in the "T" form which contain two sides-Debit side and Credit side.

(2) Left hand side is called Debit Side (Dr.)

(3) Right hand side is called Credit Side (Cr.)

(4) Each side further divided into four columns:

(a) Column 1 meant for date, month and year.

(b) Column 2 meant for particulars.

(c) 'F' stands for Folio (Page Number) of the Journal or Subsidiary Books.

(d) Accounts to be Debited or Credited.

(5) The name of accounts to be debited find an entry on the left side.

(6) The name of accounts to be credited find an entry on the right side.

Posting or Journal to Ledger

The term "Posting" refers to the process of ents:ring in the ledger the information given in the journal.

In other words, the process of transferring the transactions from the journal to the ledger during the

particular period is known as "Posting." Accordingly separate account should be opened into the ledger

for posting the transactions relating to the individual persons, assets, expenses or losses as shown in the

journal. The following example will make you clear the process of posting.

Jan.]

2003, Kannan Sold goods to Gupta Rs. 5,000.

Journal Entry

2003 Particulars Debit Rs. Credit Rs.

Jan.l Gupta Account Dr. 5,000

To Sales Account 5.000

(Being goods Sold to Gupta on Credit)

Dr. Gupta Account Cr.

Date Particulars J.F. Amount Rs. Date Particulars J.F. Amount Rs.

2003

Jan.l To Sales Alc 5.000

Accounting Books and Records 31

Dr. Sales Account Cr.

Date Particulars J.F. Amount Rs. Date Particulars J.F. Amount Rs.

2003

Jan.l By Gupta Alc 5,000

Balancing of Ledger Account

In order to prepare the financial statements, balancing of various accounts in the ledger is essential.

The following procedure to be adopted while balancing of various accounts in the ledger.

(1) Debit and Credit sides of an accounts are totalled separately.

(2) Find the difference between the total of both sides.

(3) The difference is entered on the side on which the total is smaller and this difference is the

closing balance shown by the account and this will be carried forward to the next year as the

"opening balance" in the account.

(4) If the debit side of an amount is more, it is called Debit Balance and it is entered on the credit

side to close the account and written as by balance c/d.

(5) If the credit side of an amount is more it is called Credit Balance and it is entered on the debit

side to close the account and written as To Balance c/d.

Difference between Journal and Ledger

In the process of accounting cycle, both the Journal and Ledger serve as important books which are

indispensable for each other. The following are the important points that differentiate the Journal and

Ledger:

jOllrllai

(1) Journal is the book of Original Entry or

First Entry

(2) It is the book of Chronological Record

(3) The process of recording in the

journal is called journalizing

(4) Journal as a book supported by

greater sources of evidence

(5) Journal lays focus on recording

transactions

(6) The process of Journalizing is

a continuous one.

Illustration: 7

Ledger

(1) Ledger is the book of Second entry

(2) It is the book of Analytical Record

(3) The process of recording in ledger is posting

(4) Ledger is dependent on journal

(5) Ledger focuses on process of classification

of grouping of different heads of accounts.

(6) The process of posting in ledger to be

done according to the needs and convenience.

By Solving illustration I, Chapter 3, "Accounting Books and Records."

32

Solution:

Dr.

Date

2003

Mar. 31

Dr.

Date

2003

Mar. I

5

15

18

21

Apr!. I

Dr. •

Date

2003

Mar. I

Apr!. I

Dr.

Date

2003

Mar.2

Aprl.l

Particulars l.F.

To Balance c/d

Particulars l.F.

To Capital Nc

To Sales Nc

To Sales Nc

To Rosy Nc

To Bank Nc

To Balance bId

Particulars l.F.

To Cash Nc

To Balance bId

Particulars l.F.

To Cash Nc

To Balance bId

A Textbook of Financial Cost and Management Accounting

Ledger,

Capital Account

Amount Rs. Date

2003

4,500 Mar. I

4,500

Aprl.l

Cash Account

Amount Rs. Date

2003

4,500 Mar. I

600 2

250 25

396 28

500 30

30

30

31

6,246

1,242

Bank Accoun,t

Amount Rs. Date

2003

2,500 Mar.3

3

21

31

2,500

1,400

Purchases Account

Amount Rs. Date

2003

1,500 Mar.31

1,500

1,500

(Rs. In lakhs) Cr.

Particulars l.F. Amount Rs.

By Cash Nc 4,500

4,500

By Balance bId 4,500

Cr.

Particulars l.F. Amount Rs.

By Bank Nc 2,500

By Purchase Nc 1,500

By Telephone rent Nc 40

By Rosy Nc 594

By Stationery Nc 20

By Rent Nc 100

By Salaries Nc 250

By Balance c/d 1,242

6,246

Cr.

Particulars l.F. Amount Rs.

By Furniture Nc 500

By Cash Nc 500

By Drawings Nc 100

By Balance c/d 1,400

2,500

Cr.

Particulars J.F. Amount Rs.

By Balance c/d 1,500

1,500

Accounting Books and Records

Dr.

Date Particulars J.F.

2003

Mar. 2 To Bank Nc

Apr!. I To Balance bId

Dr.

Date Particulars J.F.

2003

Mar.31 To Balance c/d

Dr.

Date Particulars J.F.

2003

Mar. 12 To Return onwards Nc

Apr!. I To Balance bId

Dr.

Date Particulars J.F.

2003

Mar.31 To Balance c/d

Dr.

Date Particulars J.F.

2003

Mar. 31 To Sales Nc

28 To Cash Nc

28 To Discount Nc

Apr!. I To Balance bId

Furniture Account

Amount Rs. Date Particulars

2003

500 Mar.31 By Balance c/d

500

500

Sales Account

Amount Rs. Date Particulars

2003

1,250 Mar.6 By Cash Nc

8 By Rosy Nc

15 By Cash Nc

1,250

Aprl.l By Balance bId

Thomas Account

Amount Rs. Date Particulars

2003

100 Mar.31 By Balance c/d

100

100

Return Outwards Account

Amount Rs. Date Particulars

2003

100 Mar. 12 By Thomas Nc

100

Aprl.l By Balance bId

Rosy Account

Amount Rs. Date Particulars

2003

400 Mar. 18 By Cash Nc

594 18 By Discount Nc

6 31 By Balance c/d

1,000

1,000

J.F.

J.F.

J.F.

J.F.

J.F.

33

Cr.

Amount Rs.

500

500

Cr.

Amount Rs.

600

400

250

1,250

1,250

Cr.

Amount Rs.

100

100

Cr.

Amount Rs.

100

100

100

Cr.

Amount Rs.

396

4

600

1,000

34

Dr.

Date

2003

Mar.l8

31

Dr.

Date

2003

Mar. 21

Apr!. 1

Dr.

Date

2003

Mar. 25

Aprl. 1

Dr.

Date

2003

Mar. 30

Aprl. 1

Dr.

Date

2003

Mar.30

Aprl.l

Particulars l.F.

To Rosy A/c

To Balance cld

Particulars l.F.

To Bank Nc

To Balance bId

Particulars l.F.

To Cash Nc

To Balance bId

Particulars l.F.

To Cash Nc

To Balance bId

Particulars l.F.

To Cash Nc

To Balance bId

A Textbook of Financial Cost and Management Accounting

Discount Account Cr.

Amount Rs. Date Particulars l.F. Amount Rs.

2003

4 Mar.28 By Rosy Nc 6

2

6 6

Aprl.l By Balance bId 2

Drawings Account Cr.

Amount Rs. Date Particulars l.F. Amount Rs.

2003

100 Mar. 31 By Balance c/d 100

100 100

100

Telephone Rent Account Cr.

Amount Rs. Date Particulars l.F. Amount Rs.

2003

40 Mar. 31 By Balance cld 40

40 40

40

Sta~ionery Account Cr.

Amount Rs. Date Particulars l.F. Amount Rs.

2003

20 Mar.31 By Balance cld 20

20 20

20

Rent Account Cr.

Amounts Rs. Date Particulars l.F. Amount Rs.

2003

100 Mar.31 By Balance c/d 100

100 100

100

Accounting Books and Records

Dr. Salaries Account

Date Particulars 1.F. Amount Rs. Date Particulars

2003 2003

Mar.30 To Cash Nc 250 Mar.31 By Balance c/d

250

Aprl.l To Balance bid 250

Illustration: 8

By Solving illustration 2, Chapter 3, "Accounting Books and Records."

Solution:

Dr.

Date" Particulars 1.F.

2003

Jan. 1 To Cash Nc

31 To Cash Nc

Feb. 1 To Balance bid

Dr.

"Date Particulars 1.F.

2003

Jan. 1 To Sales Nc

4 To Murugan Nc

5 To Bank Nc

13 To Dividend Nc

15 To Old Furniture Nc

31 To Balance c/d

Dr.

Date Particulars 1.F.

2003

Jan. 31 To Balance c/d

Ledger

Machinery Atcount

Amount Rs. Date

2003

5,000 Jan.31

500

5,500

5,500

Cash Account

Amount Rs. Date

2003

2,000 Jan.l

700 6

500 7

500 8

200 9

4,500 10

14

8,400

Api. 1

Sales Account

Amount Rs. Date

2003

3,000 Jan. 2

2

3,000

Feb. 1

Particulars

By Balance c/d

Particulars

By Machinery Nc

By Salaries Nc

By Purchase of }

goods Nc

By Machinery Nc

By Ramasamy Nc

By Interest Nc

By Rent Nc

By Balance bid

Particulars

By Cash Nc

By Kannan Nc

By Balance bid

1.F.

1.F.

J.F.

1.F.

35

Cr.

Amount Rs.

250

250

(Rs. in lakhs)

Cr.

Amount Rs.

5,500

5,500

Cr.

Amount Rs.

5,000

800

900

500

400

400

400

8,400

4,500

Cr.

Amount Rs.

2,000

1,000

3,000

3,000

36

Dr.

Date

2003

Jan. 2

Feb. 1

Dr.

Date

2003

Jan. 31

Dr.

Date

2003

Jan. 31

Dr.

Date

2003

Jan. 6

Feb. 1

Dr.

Date

2003

Jan. 7

Jan. 7

Feb. 1

Dr.

Date

2003

Jan. 31

Particulars J.F.

To Sales Nc

To Balance bId

Particulars J.F.

To Balance c/d

Particulars J.F.

To Balance c/d

Particulars J.F.

To Cash Nc

To Balance bId

Particulars J.F.

To Cash Nc

To Discount Alc

To Balance bId

Particulars J.F.

To Balance cld

A Textbook of Financial Cost and Management Accounting

Kannan Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

1,000 Jan. 31 By Balance c/d 1,000

1,000 1,000

1,000

Murugan Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

700 Jan. 4 By Cash Nc 700

700 700

Feb. 1 By Balance bId 700

Bank Account Cr.

Amounts Rs. Date Particulars J.F Amount Rs.

2003

500 Jan. 5 By Cash Nc 500

500 500

Feb. 1 By Balance bId 500

Salaries Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

SOO Jan. 31 By Balance cld SOO

SOO SOO

SOO

Purchases of Goods Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

900 Jan. 31 By Balance cld 1,000

100

1,000 1,000

1,000

Discount Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

100 Jan. 7 By Purchase of }

Goods Nc 100

100 100

Feb. 1 By Balance bId 100

Accounting Books and Records

Dr.

Date Particulars J.F.

2003

Jan.9 To Cash Alc

Feb.l To Balance bId

Dr.

Date Particulars J.F.

2003

Jan.W To Cash Alc

Feb.l To Balance bId

Dr.

Date Particulars J.F.

2003 7

Jan. 11 To Purchase Return Nc

Feb. 1 To Balance bId

Dr.

Date Particulars J.F.

2003

Jan.31 To Balance cld

Dr.

Date Particulars J.F.

2003

Jan.12 To Periyasarny Alc

Feb. 1 To Balance bId

Dr.

Date Particulars J.F.

2003

Jan.31 To Balance cld

Ramasamy Account

Amount Rs. Date Particulars

2003

400 Jan.4 By Balance cld

400

400

Interest Account

Amount Rs. Date Particulars

2003

400 Jan.3l By Balance cld

400

400

Premkumar Account

Amount Rs. Date Particulars

2003

300 Jan.3l By Balance cld

300

300

Purchases Return Account

Amount Rs. Date Particulars

2003

300 Jan. 11 By Premkumar Alc

300

Feb.l By Balance bId

Sales Return Account.

Amount Rs. Date Particulars

2003

200 Jan.31 By Balance cld

200

200

Periyasamy Account

Amount Rs. Date Particulars

2003

200 Jan. 12 By Sales Return Alc

200

Feb. 1 By Balance bId

J.F.

J.F.

J.F.

J.F.

J.F.

J.F.

37

Cr.

Amount Rs.

400

400

Cr.

Amount Rs.

400

400

Cr.

Amount Rs.

300

300

Cr.

Amount Rs.

300

300

300

Cr.

Amount Rs.

200

200

.

Cr.

Amount Rs.

200

200

200

38

Dr.

Date

2003

Jan.3J

Dr.

Date

2003

Jan. 14

Feb.l

Dr.

Date

2003

Jan.31

Paniculars

To Balance cld

Paniculars

To Cash Alc

To Balance bId

Paniculars

To Balance c/d

Illustration: 9

l.F.

l.F.

l.F.

A Textbook of Firuzncial Cost and Management Accounting

Dividend on Shares Account Cr.

Amount Rs. Date Paniculars l.F. Amount Rs.

2003

500 Jan. 13 By Cash Nc 500

500 500

Feb. 1 By Balance bId 500

Rent Account Cr.

Amount Rs. Date Paniculars l.F. Amount Rs.

2003

400 Jan.31 By Balance cld 400

400 400

400

Old Furniture Account Cr.

Amount Rs. Date Paniculars l.F. Amount Rs.

2003

200 Jan.15 By Cash Alc 200

200 200

Feb. I By Balance bid 200

By Solving illustration 3, Chapter 3 of "Accounting Books and Records."

Solution:

Dr.

Date Paniculars l.F.

2003

Jan.31 To Balance cld

Ledger

Capital Account

Amount Rs. Date

2003

65,000 Jan. I

1

1

I

65,000

AprI.l

Cr.

Paniculars l.F. Amount Rs.

By Cash Alc 40,000

By Goods Nc 10,000

By Machinery Alc 10,000

By FUflliture Alc 5,000

65,000

By Balance bid 65,000

Accounting Books and Records

Dr. Bank Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 1 To Capital Nc 40,000 Jan.2

3 To Sales Nc 6,300 4

6 To Bank Nc 800 7

8 To Share Capital Nc 970 10

12

12

31

48,070

Feb. 1 To Balance bId 33,970

Dr. Goods Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan.l To Capital Nc 10,000 Jan.31

10,000

Feb. 1 To Balance bId 10,000

Dr. Machinery Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan.l To Capital Nc 10,000 Jan. 19

31

10,000

Feb.! To Balance bId 9,000

Dr. Furniture Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan.l To Capital Nc 5,000 Jan.31

5,000

Feb. 1 To Balance bId 5,000

Dr. Buildings Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan.l To Cash Nc 5,000 Jan.31

5,000 ,

Feb. 1 To Balance bId 5,000

Particulars J.F.

By Buildings Nc

By Purchase Nc

By Freight Nc

By Anderson Nc

By Rent Nc

By Salaries Nc

By Balance c/d

, ,

Particulars J.F.

By Balance c/d

,- -

Particulars J.F.

By Depreciation Nc

By Balance c/d

Particulars J.F.

By Balance cld

Particulars .,.F.

By Balance c/d

39

Cr.'

Amount Rs.

5,000

5,700

500

1,5qO

400

I,OOQ '

- 33;970

' ... '48,070'

Cr.

Amount Rs.

10,000

10,000

. , ~,.

Cr.

AmouniRs.

1,000

9,00'0

10,000

Cr.

Amount Rs.

5,000

5,000 '

Cr.

Amount Rs .

5,000

5,000

40

Dr.

Dr.

Dale

2003

Jan.3

IS

Feb. 1

Date

2003

Jan.31

Dr.

Date

2003

Jan.4

4

Feb.l

Dr.

Date

2003

Jan.5

Feb.l

Dr.

Date

2003

Jan. 9

14

16

Feb.l

Particulars J.F.

To Sales Ale

By Murugan Ale

To Balance bid

Particulors J.F.

To Balance c/d

Particulars J.F.

To Cash Ale

To Discount Ale

To Balance bid

Particulars J.F.

To Sales Ale

To Balance bid

Particulors J.F.

To Vijay Ale

To Dividend Ale

To Interest on }

Investment Ale

To Balance bid

A Textbook of Financial Cost and Management Accounting

Discount Account Cr.

Anwuht Rs. Date Particulars J.F. Amount Rs.

2003

700 Jan.4 By Purchases Ale 300

250 31 By Balance e/d 150

700 700

ISO

Sales Account Cr.

. Amount Rs. Date Particulars J.F. Amount Rs.

2003

11,500 Jan.3 By Cash Ale 6,300

3 By Discount Ale 700

5 By William Ale 2,500

20 By Balu Ale 2,000

11,500 11,500

Feb.l By Balance bid 11,500

Purchases Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

5,700 Jan.31 By Balance c/d 6,000

300 -,

6,000 6,000

6,000

William Account Cr.

Anwunt Rs. Date Particulars J.F. Amount Rs.

200J

2,500 Jan.31 By Balance e/d 2,500

2.500 2,500

2,500

Bank Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

5,000 Jan.6 By Cash Ale 800

300 11 By Drawings Ale 500

15 By Murugan Ale - 1,000

1.500 31 By Balance e/d 4,500

6,800 6,800

4.500

Accounting Books and Records

Dr.

Date Particulars 1.F.

2003

Jan.7 To Cash Ale .

Feb. 1 To Balance bid

Dr.

Date Particulars 1.F.

2003

Jan.31 To Balance c1d

Dr.

Date Particulars 1.F.

2003

Jan.31 To Balance cld

Dr.

Date Particulars J.F.

2003

Jan.lO To Cash Alc

Feb. I To Balance bId

Dr.

Date Particulars 1.F.

2003

Jan. 11 To Bank Ale

Feb. I To Balance bId

Dr.

Date Particulars 1.F.

2003

Jan.12 To Cash Alc

Feb.l To Balance bid

Freight Account

Amount Rs. Date Particulars

2003

500 Jan.31 By Balance c1d

500

500

Share Capital Account

Amount Rs. Date Particulars

2003

970 Jan.31 By Cash Alc

970

Feb. 1 By Balance bid

VJjay Account

Amount Rs. Date Particulars

2003

5,000 Jan.9 By Bank Alc

5,000

Feb. 1 By Balance bId

Anderson Account

Amount Rs. Date Particulars

2003

1,500 Jan.31 By Balance cld

1,500 .

1.500

Drawings Account

Amount Rs. Date Particulars

2003

500 Jan.31 By Balance c1d

500

500

Rent Account

Amount Rs. Date Particulars

2003

400 Jan.31 By Balance c1d

400

400

J.F.

J,F.

1.F.

1.F.

1.F.

1.F.

41

Cr.

Amount Rs.

500

500

Cr.

AmoUflt Rs.

970

970

970

Cr.

Amount Rs.

5,000

5,000

5,000

Cr.

Amount Rs.

1.500

1.500

Cr.

Amount Rs.

500

500

Cr.

Amount R$.

400

400

42

Dr.

Date

2003

Jan.12

Feb. 1

Dr.

Date

2003

Jan.31

Dr.

Date

2003

Jan.! 5

15

Feb. I

Dr.

Date

2003

Jan.31

Dr.

Date

2003

Jan.19

Feb. 1

Dr:.

Date

2003

Jan.20

Feb. 1

Particulars

To Cash Alc

To Balance bId

Pafticulars

To Balance cld

Particulars

To Bank Alc

To Discount Alc

To Balance bId

Particulars

To Balance cld

...

Particulars

To Machinery Alc

To Balance bId

Particulars

To Sales Alc

To Balance bId

A Textbook of Financial Cost and Management Accounting

Salaries Account Cr.

l.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

1,000 Jan.31 By Balance cld 1.000

1,000 1.000

1,000

Dividend Account Cr.

l.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

300 Jan.14 By Bank Alc 300

300 300

Feb. 1 By Balance bId 300

~urugan Account Cr.

l.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

1,000 Jan.31 By Balance cld 1,250

250

1,250 1,250

1,250

Interest on Investment Account Cr.

,.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

1,500 Jan.16 By Bank Alc \,500

1,500 1,500

Feb.! By Balance bId 1.500

Depreciation Account Cr.

l.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

1,000 Jan.31 By Balance cld 1,000

1,000 1.000

1,000

Balu Account Cr.

l.F. Amount Rs. Date Particulars l.F. Amount Rs.

2003

2,000 Jan.31 By Balance cld 2,000

2,000 2,000

2,000

Accounting Books and Records

QUESTIONS

1. What do you understand by Ledger?

2. Draw a specimen ruling of ledger. Explain it briefly.

3. What are the differences between Journal and Ledger?

PRACTICAL PROBLEMS

(1) Record the following transactions in the Ledger of Mrs. Pandey & Co.:

2003

Jan. 1 Commensed business with cash

1 Purchased Machinery

2 Purchased goods on credit from Ram

3 Purchased goods for cash

5 Sold goods for cash

7 Goods purchased from Ramesh

9 Goods Return to Ram

10 Goods Sold to MUrugan

13 Goods returned by Murugan

15 Draw cash from bank for office use

17 Draw cash from bank for private use

19 Purchased furniture

22 Paid for office rent

25 Paid for Salaries

27 Paid for Advertisement

30 Sold goods of Rs. 35,000 less 10% discount

(1) From the following transactions, you are required to prepare Journal and Ledger Account of Ram & Co.:

(3)

2003

Jan.1 Paid into Bank

2 Purchased Furniture for cash

5 Deposited into Bank

6 Purchased goods from Rahul

7 Sold goods on credit to Siva

9 Cash Sales

10 Cash Purchases

11 Amount withdrawn from Bank for office use

15 Paid insurance premium

17 Dividend paid by cheque

17 Dividend received

19 Paid rent

22 Paid salaries to office staff

24 Draw cash from bank for personal use

25 Goods returned from Siva

27 Goods returned to Rahul

30 Paid for Advertisement

Enter the following transactions in a Ledger AccouQt of Ramesh & Co.:

2003

Jan. I Started business with Rs. 50,000 and paid into Bank Rs. 25,000

3 Sold goods for cash Rs. 20,000

5 Brought Furniture for Rs. 7,000

7 Purchased goods from Pandey & Co. Rs. 15,000

9 Withdrawn Rs. 700 from bank for office use

11 Sold goods to Jain & Co. Rs. 10,000

13 Paid Salaries Rs. 20,000

15 Paid Telephone charges of Rs. 1,000

17 Paid into Bank Rs. 5,000

19 Sold goods to Mrs. Gowda & Co. on Credit for Rs. 15,000 less 10% discount

Rs.

4,00,000

50,000

20,000

20,000

10,000

10,000

1,000

30,000

500

2,000

5,000

10,000

4,000

30,000

4,000

Rs.

50,000

10,000

15,000

5,000

7,000

9,000

15,000

3,000

5,000

2,000

5,000

1,500

15,000

4,000

300

200

1,000

43

44

& Co.:

A Textbook of Financial Cost and Management Accounting

21 Goods returned from Pandey Rs. 500

25 Received cash from Jain & Co. Rs. 5,500 discount allowed Rs. 250

27 Withdrawn Rs. 1,500 from bank for personal use

31 Paid for advertisement Rs. 2,000

(4) From the following transactions. you are required to prepare Journal and Ledger Account of Mrs. Sam & Co.:

2003

Jan. I Started business with cash Rs. 2,00,000

I Paid into Bank Rs. 50,000

2 Goods sold to Ramesh for Rs. 10,000 less 10% trade discount

4 Furniture purchased for cash Rs. 25,000

7 Withdrawn from bank for personal use Rs. 2,000

9 Machinery Purchased for cash Rs. 30,000

II Goods sold to Ram on credit for Rs. 8.000

13 Good sold for cash Rs. 10,000

15 Purchased goods from Reddy & Co. Rs. 20,000

17 Goods returned from Reddy & Co. Rs. 1,000

20 Goods returned to Gupta Rs. 500

23 Cash paid to Reddy & Co. for full settlement of his account Rs. 15,000

25 Withdrawn cash from bank for office use Rs. 3.000

27 Paid telephone rent Rs. 1,500

27 Paid salaries to office staff Rs. 25,000

29 Cash received from John & Co. Rs. 8.000 and discount allowed to him Rs. 100

31 Goods sold for cash Rs. 5,000

(5) From the following transactions, you are required to prepare Journal and Ledger Account in the books of Hari Prasad

2003

Jan. I Business started with cash Rs. 3,00,000

I Cash paid into Bank Rs. 25,000

I Purchased Furniture Rs. 5,000

2 Machinery purchased from Krisha on credit for Rs. 10,000

3 Goods sold for cash Rs. 10.000

5 Goods sold to Murugan less trade discount of 10% for'Rs. 20,000

7 Goods purchased from Ramesh for Rs. 5,000 at 10% trade discount

9 Goods returned from Murugan for Rs. 500

II Goods returned to Ramesh for Rs. 3,000

14 Paid for Advertisement Rs. 2,000

15 Withdrawn Rs.4,000 from bank for office use

17 Goods purchased for cash Rs. 5,000

19 Paid salaries to office staff Rs. 18,000

21 Goods sold for cash Rs. 10,000

23 Paid interest Rs. 1,500

25 Dividend received Rs. 3,400

27 Withdrawn cash from bank for personal use for Rs. 1,400

29 Cash paid to Ramesh in full settlement of his account for Rs. 5,000

30 Deposited cash into bank Rs. 3,000

31 Sold goods to Karthik on credit for Rs. 5,000

TRIAL BALANCE

Meaning

To ensure the proof of completion and arithmetical correctness of the books of account. it is essential

to prepare the trial balance. In the first stage of accounting all business transactions are recorded in Journal

or Subsidiary Books. Then they are transferred to ledger by posting to relevant accounts. The fundamental

principle of double entry system of accounting is that for every debit. there must be a corresponding and

equal credit. Therefore. when all the accounts of a concern are thus balanced in the ledger at the end of the

Accounting Books and Records 45

period, a statement is prepared to show the list of debit balances on one side and credit balances on the

other side. This list so prepared is called as "Trial Balance." Accordingly the total of the debit side of trial

balance must be equal to that of its credit side.

Objectives of Trial Balance

The following are the important objectives of preparing the Trial Balance:

(1) To ensure the arithmetical correctness of the book of accounts.

(2) It is the statement that shows a summary of all business transactions recorded in the ledger

accounts and reveals the net position at glance.

(3) To ensure that the preparation of Journal and Ledger are based on the principles of double entry

system.

(4) To have a basis for preparation of income statements such as Trading, Profit and Loss

Accounts.

Errors Not Disclosed by Trial B~lance

The statement of Trial Balance is not a final and conclusive proof of the complete correctness of

books. This is because, there are certain errors in the books of accounts which may be committed while

recording, classifying or summarizing the financial transactions which are not disclosed by the trial

balance. The following are some of the errors which will not affect the agreement of Trial Balance:

Classification of Errors

Errors can be classified on the basis of its nature :

I. Errors of Omission.

II. Errors of Commission.

III. Errors of Principles.

IV. Compensating Errors.

I. Errors of Omission : Errors of Omission refers to recording the transaction which is completely

omitted in the books of journal or subsidiary books. Therefore errors are not disclosed by trial balance due

to the transactions not being recorded and omitted in the book of original entry.

II. Errors of Commission: Errors of Commission may be occurred by wrong recording in the books

of original entry. The committed errors arise due to the negligence of the Accountant while recording,

totaling, carrying forward and balancing the accounting process. Therefore errors not disclosed by Trial

Balance due to the errors committed by the negligence of the Accountants. The errors of commission may

arise due to the following ways :

(1) Entering the wrong amount to the correct side of correct subsidiary books

(2) Entering the correct amount to the wrong side of correct subsidiary books

(3) Entering the correct amount to the correct side of wrong subsidiary books

(4) Posting wrong amount to the correct side of the accounts

(5) Posting correct amount to the wrong side of the accounts

(6) Posting to the correct side of the account but making double posting.

46 A Textbook of Financial Cost and Management Accounting

III. Errors of Principles : Transactions are recorded on the basis of the fundamental principles of

double entry system of accounting. Errors of principles arise due to ignorance of the principles of

accounting. Such errors do not affect the agreement of trial balance. The errors of principles occur due to

the following ways :

(1) Errors committed due to inability to properly allocate between revenue and capital items.

(2) Errors committed due to inability to make the difference between capital expenditure and

revenue expenditure.

(3) Errors committed due to inability to make the difference between productive expenses and

unproductive expenses.

IV. Compensating Errors : Compensating errors refer to those errors which are compensated by

each other. In other words, the effect of one error is compensated by the other. Such errors which do not

affect the agreement of the trial balance. For example, if wage paid Rs. 1,000 is debited in the Wage

Account at Rs. 1,500 and dividend received Rs. 1,500 is credited in the Dividend Account at Rs. 2,000, the

excess debit in Wage Account is compensated by an excess credit of Rs. 500 in Dividend Account.

Errors Disclosed by Trial Balance

A Trial Balance disclosed any errors due to affect the one side of account. The following are the

examples of errors disclosed by the trial balance :

(a) Errors committed in casting the books of subsidiary books.

(b) Errors committed in carrying forward the total amount from one page to another.

(c) Errors committed during posting from the books of journal or subsidiary books to ledger.

(d) Errors committed in balancing the ledger accounts.

(e) Errors committed during preparation of debtors' and creditors' list of accounts.

(f) Errors committed due to ignorance in carrying forward a balance of an account to the Trial

Balance.

Location of Errors

If the trial balance disagrees, it is essential to find out errors before proceeding further. The

following is the usual procedure adopted to find out the errors :

(1) Check the total of two side of the trial balance once again.

(2) Divide the difference of the two sides of the trial balance by two and find out whether there

appears an entry for the same amount either sides of the trial balance. It is possible that a

balance may have been recorded in the wrong side of the trial balance thus resulting in the

difference of double the amount.

(3) If the mistake is not located by the first step then divide difference by 9. If the difference is

evenly divisible by 9, the error can be an error of transposition of figure. For example, if Rs.

816 is written as Rs. 618 the difference is Rs. 198. and Rs. 198 is evenly divisible by 9. Thus.

it can be concluded that where the difference is divisible by 9 there can be a possibility of this

type of error.

(4) Check the list of total balances of all debtors and creditors to find out the errors.

(5) Check whether balances of cash and balances of bank have been taken in the trial balance or not.

Accounting Books and Records

(6) Check the totals of different ledger accounts and carry forward to trial balances.

(7) See the casting and carrying forward of subsidiary books.

(8) Check the posting from the subsidiary books to ledger.

Suspense Account

47

If the efforts are not to locate the errors, the difference of the trial balance is temporarily transferred

to the Suspense Account. This is made because, the preparation of financial statements cannot be delayed

further. In Suspense Account all those errors can be rectified only by making suitable journal entries.

Methods of Preparation of Trial Balance

The following are the two methods of preparing the Trial Balance :

I. Total Method.

II. Balance Method.

I. Total Method: Under this method, the total of debits and credits of all accounts are shown in the

respective debit and credit side of the trial balance.

II. Balance Method: In this method, only balance of each account of ledger is recorded in trial

balance. In other words, all the list of debit balances recorded in one column and the list of credit balances

recorded in the other. Of the two methods, this method is very widely used in practice.

Specimen Ruling of Trial Balance

The following is the specimen ruling of Trial Balance:

Trial Balance as on Mrs. I. M. Pandey's Book

s. No. Name of Accounts LF. Debit Balance Rs. Credit Balance Rs.

Illustration: 10

From the accounts prepared in illustration 7, of Chapter 3 [Accounting Books and Records], you are

required to prepare a Trial Balance :

48

Solution:

A Textbook of Financial Cost and Management Accounting

Trial Balance as on 30th April 2003 (Rs. in Lakhs)

s. No. Name of Accounts L.F Debit Balance Rs. Credit Balance Rs.

1 Capital Account - 4,500

2 Cash Account 1,242

3 Bank Account 1,400

4 Purchase Account 1,500

5 Furniture Account 500

6 Sales Account - 1,250

7 Thomas Account 100 -

8 Return Outwards Account - 100

9 Rosy Account 600 -

10 Discount Account - 2

11 Drawing Account 100

12 Telephone Account 40

13 Stationery Account 20

14 Rent Account 100

15 Salaries Account 250

Total 5,852 5,852

lIIustration: 11

From the accounts prepared in illustration 8, of Chapter 3 [Accounting Books and Records], you are

required to prepare a Trial Balance :

Solution:

Trial Balance as on Feb. 2003 (Rs in Lakhs)

s. No. Name of Accounts L.F. Debit Balance Rs. Credit Balance Rs.

1 Machinery Account 5,500 -

2 Cash Account - 4,500

3 Sales Account - 3,000

4 Kannan Account 1,000 -

5 Murugan Account - 700

6 Bank Account - 500

7 Salaries Account 800 -

8 Purchase of Goods Account 1,000 -

9 Discount Account - 100

10 Ramasamy Account 400 -

11 Interest Account 400 -

12 Premkumar Account 300 -

13 Purchase Return Account - 300

14 Sales Return Account 200 -

15 Periasamy Account - 200

16 Dividend on Shares Account - 500

17 Rent Account 400 -

18 Old Furniture Account - 200

Total 10,000 10,000

Accounling Books and Records 49

Illustration: 12

From the accounts prepared in illustration 9, of Chapter 3 [Accounting Books and Records], you are

requested to prepare a Trial Balance :

Solution:

Trial Balance as on 29th Feb. 2003

S. No. Name of Accounts L.F. Debit Balance Rs. Credit Balance Rs.

I Capital Account - 65,000

2 Cash Account 33,970 -

3 Goods Account 10,000 -

4 Machinery Account 9,000 -

5 Furniture Account 5,000 -

6 Buildings Account 5,000 -

7 Discount Account 150 -

8 Sales Account - 11,500

9 Purchase Account 6,000 -

10 William Account 2,500 -

II Bank Account 4,500 -

12 Freight Account 500 -

13 Share Capital Account - 970

14 Vijay Account - 5,000

15 Anderson Account 1,500 -

16 Drawings Account 500 -

17 Rent Account 400 -

18 Salaries Account 1,000 -

19 Dividend Account - 300

20 Murugan Account 1,250 -

21 Interest on Investment - 1,500

22 Depreciation Account 1,000 -

23 BaJu Account 2,000 -

Total 84,270 84,270

Illustration: 13

Journalize the following transactions. Post in the ledger. Extract balances and prepare list of such

balances:

2003

Mar. 1 Jain commenced business with Rs. 80,000 cash and also brought into business furniture worth Rs. 10,000;

motor car valued for Rs. 24,000 and stock worth Rs. 40,000

4 Paid in to bank Rs. 76,000

5 Goods purchased from Ramesh on credit for Rs. 18,000

7 Goods sold to James on credit for Rs. 12,000

8 Brought stationery from Javier & Co. for cash Rs. 400

10 Goods Sold to Ram & Co. for cash Rs. 4,000

II Paid traveling expenses to manager for Rs. 1,200

13 Withdrawn cash Rs. 2,000 from bank for personal use

15 Withdrawn from the bank Rs. 6,000 for office use

17 Issued by cheque Rs.17,600 to Ramesh in full settlement of his account

50 A Textbook of Financial Cost and Management Accounting

21 Paid clearing charges Rs. 800

24 Received cheque for Rs. 12,000 from James

29 Paid Rs. 600 by cheque to owner's house being the house rent of Jain

30 Interest credit by bank for Rs. 400

31 Bank charges Rs. 50 debited in Jain Alc

Journal

Date Particulars LF.

2003 Cash Alc

Mar. 1 Furniture Alc Dr.

Motor Car Alc Dr.

Stock Alc Dr.

To Jain's Capital Alc

(Being Jain's commenced business)

4 Bank Alc Dr.

To Cash Alc

(Being cash paid in to bank)

5 Purchases Alc Dr.

To Ramesh Alc

(Being goods purchased on credit )

7 James Alc Dr.

To Sales Alc

(Being goods sold on credit)

8 Stationery Alc Dr.

To Cash Alc

(Being office stationery purchased)

10 Cash Alc Dr.

To Sales Alc

(Being goods sold for cash)

11 Traveling. expenses Alc Dr.

To Cash Alc

(Being payment of traveling expenses)

13 Drawing Alc Dr.

To Bank Alc

(Being amount withdrawn for personal use)

15 Cash Alc Dr.

To Bank Alc

(Being amount withdrawn for office use)

17 ·Ramesh Alc Dr.

To Bank Alc

To Discount Alc

(Being received cheque in full settlement)

21 Clearing Charges Alc Dr.

To Cash Alc

(Being expenses paid)

Debit Credit

Rs. Rs.

Dr. 80,000

10,000

24,000

40,000

1,54,000

76,000

76,000

18,000

18,000

12,000

12,000

400

400

4,000

4,000

1,200

1,200

2,000

2,000

6,000

6,000

18,000

17,600

400

800

800

Accounting Books and Records

24

29

30

31

Dr.

Date

2003

Mar. 1

"10

" 15

Apr!. 1

Dr.

Date

2003

Mar. 4

" 24

" 30

Apr!. 1

Dr.

Date

2003

Mar. 5

Apr!. 1

Bank Nc Dr.

To James Nc

(Being cheque received from James)

Drawing Nc Dr.

To Bank Nc

(Being payment to owner's house towards rent)

Bank Nc Dr.

To Interest Nc

(Being interest credited by bank)

Bank Charges Nc Dr.

To Bank Nc

(Being bank charges debited to Jain Nc)

Particulars J.F.

To Capital

To Sales

To Bank

To Balance bid

Particulars J.F.

To Cash

To James

To Interest

To Balance bId

Particulars J.F.

To Ramesh

To Balance bid

Ledger

Cash Account

Amount Date

Rs.

2003

80,000 Mar. 4

4,000 "8

6,000 "11

" 21

" 31

90,000

11,600

Bank Account

Amount Rs. Date

2003

76,000 Mar. 13

12,000 " 15

400 "17

" 29

" 31

" 31

88,400

62,150

Purchase Account

Amount Rs. Date

2003

18,000 Mar. 31

18,000

18,000

51

12,000

12,000

600

600

400

400

50

50

Cr.

Particulars J.F. Amount

Rs.

By Bank 76,000

By Stationery 400

By Traveling }

Expenses 1,200

By Clearing charges 800

By Balance cld 11,600

90,000

Cr.

Particulars J.F. Amount Rs.

By Drawings 2,000

By Cash 6,000

By Ramesh 17,600

By Drawings 600

By Bank charges 50

By Balance dd 62,150

88,400

Cr.

Particulars J.F. Amount Rs.

By Balance dd 18,000

18,000

52

Dr.

Dr.

Dr.

Dr.

Dr.

Date

2003

Mar. 31

Date

2003

Mar. 31

" 17

Date

2003

Mar. 31

Apr\. 1

Date

2003

Mar. 1

Apr\. 1

Date

2003

Mar. 1

Apr\. 1

Particulars J.F.

To Balance cld

Particulars J.F.

To Bank

To Discount .

Particulars J.F.

To Balance c/d

By Balance bid

Particulars J.F.

..

To Capital.

To Balance bid

Particulars J.F.

To Capital

To Balance bid

A Textbook of Financial Cost and Management Accounting

Sales Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

16,000 Mar. 7 By James 12,000

"10 By Ram & Co 4,000

16,000 16,000

Apr\. 1 By Balance bid 16,000

Ramesh Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

17,600 Mar. 5 By Purchases 18,000

400

18,000 18,000

Jain's Capital Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

1,54,000 Mar. 1 By Cash 80,000

" 1 By Furniture 10,000

" 1 By Motor car 24,000

" 1 By Stock 40,000

1,54,000 1,54,000

1,54,000

Furniture Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

10,000 Mar. 31 By Balance cld 10,000

10,000 10,000

10,000

Motor Car Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

24,000 Mar. 31 By Balance c/d 24,000

24,000 24,000

24,000

Accounting Books and Records

Dr. Stock Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Mar. 1 To Capital Alc 40,000 Mar. 31

40,000

Aprl. 1 To Balance bId 40,000

Dr. James Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Mar. 7 To Sales 12,000 Mar. 24

12,000

Dr. Stationery Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Mar. 8 To Cash 400 Mar. 31

400

Aprl.l To Balance bId 400

Dr. Traveling Expenses Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Mar. 11 To Cash 1,200 Mar. 31

1,200

Aprl. 1 To Balance bId 1,200

Dr. Drawing Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Mar. 13 To Bank 2,000 Mar. 31

"29 To Bank 600

2,600

Aprl. 1 To Balance bId 2,600

Dr. Discount Account

Date Particulars l.F. Amount Rs. Date

2003 2003

Mar. 31 To Balance cld 400 Mar. 17

400

Aprl. 1

Particulars J.F.

By Balance cld

Particulars J.F.

By Bank

Particulars l.F.

By Balance c/d

.

Particulars J.F.

By Balance cld

Particulars J.F.

By Balance c/d

Particulars l.F.

By Ramesh

By Balance bId

53

Cr.

Amount Rs.

40,000

40,000

Cr.

Amount Rs.

12,000

12,000

Cr.

Amount Rs.

400

400

Cr.

Amount Rs.

1,200

1,200

Cr.

Amount Rs.

2,600

2,600

Cr.

Amount Rs.

400

400

400

54

Dr.

A Textbook of Financial Cost and Management Accounting

Dr.

Dr.

Date Particulars l.F.

2003

Mar. 21 To Cash

Apr!. 1 To Balance bId

Date Particulars l.F.

2003

Mar. 31 To Balance cld

Date Particulars l.F.

2003

Mar. 31 To Bank

Apr!. 1 By Balance bId

Name of Accounts

Cash Account

Bank Account

Purchases Account

Sales Account

Jain's Capital Account

Furniture Account

Motor Car Account

Stock Account

Stationery Account

Traveling Expenses Account

Drawing Account

Discount Account

Clearing Charges Account

Interest Account

Bank Charges Account

Clearing Charges Account

Amount Rs. Date

2003

800 Mar. 31

800

800

Interest Account

Amount Rs. Date

2003

400 Mar. 30

400

Apr!. 1

Bank Charges Account

Amount Rs. Date

2003

50 Mar. 31

50

50

Trial Balance

QUESTIONS

1. What is a Trial Balance?

2. What are the important objectives of Trial Balance?

3. Explain the errors which are disclosed by the Trial Balance.

4. Discuss the classification of Errors.

5. What do you meant by Suspense Account?

6. What are the procedures adopted for locating errors?

Particulars

By Balance c/d

Particulars

By Bank

By Balance bId

Particulars

By Balance c/d

Debit Balance

Rs.

11,600

62,150

18,000

10,000

24,000

40,000

400

1,200

2,600

800

50

1,70,800

Cr.

l.F. Amount Rs.

800

800

Cr.

l.F. Amount Rs.

400

400

400

Cr.

l.F. Amount Rs.

50

SO

Credit Balance

Rs.

16,000

1,54,000

400

400

1,70,800

Accounting Books and Records

7. Explain the methods of preparation of Trial Balance.

S. Explain the errors disclosed by Trial Balance.

9. Write short notes on:

(a) Errors of Commission

(b) Errors of Principles

(c) Suspense Account

PRACTICAL PROBLEMS

(1) From the following incorrect Trial Balance of Gupta & Co., you are required to prepare a correct Trial Balance:

Name of Accounts Dr. Rs. Cr. Rs.

Sales 5,00,000 -

Sales Return 10,000 -

Purchases - 3,00,000

Purchase Return - 5,000

Sundry Debtors 4,00,000 -

Sundry Creditors 1,50,000 -

Fixed Assets - 2,50,000

Opening Stock 1,50,000

Closing Stock 2,00,000 -

Capital - 4,70,000

Operating Expenses 1,00,000 -

General Reserve - 1,00,000

Outstanding Expenses - 10,000

Cash at Bank - 25,000

Suspense Account - 50,000

Total 13,60,000 13.60,000

[Aos : Total Trial Balance Rs. 12,35,(00)

(2) From,the following wrong trial balance of Mrs. Sharma & Co., you are required to prepare a correct Trial Balance:

Name of Accounts Dr. Rs. Cr. Rs.

Sales - 42,000

Purchase 1,76,000 -

Stock - 4,00,000

Furniture 40,000 -

Buildings 2,00,000 -

Cash in hand - 11,600

Interest 4,000 - BankNc 5,00,000 -

Plant - 1,06,000

Kumar 20,000 - Capital 40,000 - Govind's Loan Nc - 2,00,000

RameshNc - 1,00,000

Bad Debits 6,000 -

Discount Account - 7,600

Jain Nc - 1,00,000

Salary 40,000 - Drawings 4,000 -

Interest on Loan 10,000

Total 10,40,000 9.67.200

(3) From the following information, you are required to prepare a Trial Balance of M & S & Co.:

Purchases

Purchase Return

Sales

Rs.

35,400

550

64,000

55

56 A Textbook of Financial Cost and Management Accounting

Sales Return

Opening Stock

Manufacturing Expenses

Salaries

Interest paid

Dividend paid

Discount received

Rent and Rates

Tax paid

Bank Overdraft

Cash in hand

Sundry Debtors

Bills Payable

Bills Receivable

Drawings

Machinery

Debenture

Capital

Sundry Creditors

[Ans: Total of Trial Balance Rs. 2,20,100]

500

23,500

1,250

4,750

2,300

50

2,000

1,000

1,750

3,000

6,700

25,000

2,000

2,600

3,000

2,250

5,000

12,000

21,500

(4) The following balances are extracted from the books Patel & Co. as on 31" December 2003.

Rs.

Capital 1,00,000

Drawings 25,000

Purchases 4,50,000

Sales 6,50,000

Return Inwards 3,500

Return Outwards 4,500

Carriage Inwards 5,500

Carriage Outwards 4,000

Duty on Purchases 10,000

Stock on (31.12.2003) 55,000

Motor Van 30,000

Prepare a Trial Balance as at 31.12.2003

[Ans : Total Trial Balance of Rs.7,84,500]

Salaries

Rent

Taxes

Insurance

Sundry Debtors

Sundry Creditors

Cash on hand

Cash at bank

Furniture

Land

(5) Prepare the Trial Balance of Ramesh as at 31" March 2004

Rs.

Cash 3,700 Land and Buildings

Opening Stock 57,000 Rent Received

Debtors 32,000 Electricity

Sales 6,39,000 Bills Receivable

Wages 1,32,000 Traveling Expenses

Sundry Creditors 52,000 Insurance

Bad Debts Reserve 4,000 Purchases

Carriage 3,000 Purchases Returns

Trade Marks 53,000 Discount

Advertising 12,500 Bad Debts

Salaries 1,09,000 Bank

Machinery 2,89,000 Capital

[Ans: Trial Balance Total Rs.13,32,200]

Rs.

25,000

10,000

1,500

3,000

40,000

30,000

2,500

12,500

5,000

1,02,000

Rs.

2,80,000

50,000

65,000

17,000

23,000

36,000

1,20,000

5,000

3,000

7,000

85,000

5,87,200

Accounting Books and Records 57

(6) The following trial balance of Rajive & Co., although it adds up to the same total on both sides, is incorrect:

Dr. Rs. Cr. Rs.

Capital 1M Jan. 2003 8,950 -

Drawings - 1,050

Stock I U Jan. 2003 3,725 -

Purchases 23,100 -

Sales - 39,425

Wages and Salaries 6,205 -

Lighting and heating 310 -

Equipment 3,600 -

Carriage Outward - 230

Return Inwards 105 -

Return Outwards - 290

Provision for bad debts 350 -

Discount allowed 285 -

Discount received - 315

Rent, Rates and Insurance 1,115 -

Motor Vehicles 1,475 -

Cash in hand 110 -

Sundry Creditors 4,925 -

Sundry Debtors - 13,920

Bank overdraft 975

55,230 55,230

(7) The following Trial Balance of a firm as on 31" March 2004 is not correct. Recast it correctly.

Debit Balances Credit Balances

Rs. Rs.

Debtors 65,000 Discount allowed 26,000

Purchases 3,20,000 Carriage 5,500

Wages 1,30,000 Cash in hand 4,500

Salaries 40,000 Bank Balances 60,500

Traveling Expenses 10,000 Repairs 2,100

Insurance 3,000 Sundry Expenses 1,100

Mortgage Interest 3,000 Sales 6,00.000

Buildings 80,000 Capital 2,50,000

Machinery 1,30,000 Rent & Taxes 16,500

Furniture 15,000

Stock 54,000

Mortgage loan 70,000

Creditors 42,000

Commission earned 4,200

9,66,200 9,66,200

(8) Prepare a Trial Balance from the following balances:

Rs. Rs.

Opening Stock 1.20,000 Cash at bank 2,41,000

Machinery 3,00,000 Sundry Debtors 2,35,000

Sales 9,00,000 Wages 1,18,000

Sundry Creditors 1,88,000 Postage & Telegrams 1,000

Rent Received 27,000 Advertising 9,100

Repairs 5,500 Printing & Stationery 6,200

Salaries 60,000 Cash on hand 5,200

Purchases 5,30,000 Land & Buildings 6,50,000

General Expenses 22,000 Furniture 12,000

Capital 12,00,000

[Aos : Trial Balance Total Rs. 23,15,OOOJ

58 A Textbook of Financial Cost and Management Accounting

(9) From the following balance, prepare a Trial Balance as on December 31,2003:

Rs. Rs.

Capital (1.1.2003) 1,80,000 Purchases 1,60,000

Stock of goods 50,000 Plant 1,80,000

Insurance 3,000 Discount earned 2,000

Wages 80,000 Creditors 65,000

Bad Debts 3,250 Salaries 8,000

Sales 3,80,000 Debtors 56,500

Cash at bank 34,000 Rent 20,000

Returns Inwards 10,750 General Expenses 13,000

Cash in hand 6,000 Discount allowed 2,500

[Ans : Trial Balance Total Rs. 6,27,000]

Subsidiary Books (Special Journals)

In order to understand the procedure of recording transactions of business, it is necessary to consider

the special journals of each book are given below:

(1)

(2)

(3)

(4)

(5)

(6)

(7)

Sales Book

Purchase Book

Sales Returns Book

Purchase Returns Book

Bills Receivable Book

Bills Payable Book

Cash Book:

(a) Simple Cash Book

(b) Cash Book with Discount Column

(c) Cash Book with Bank and Discount Column

(d) Petty Cash Book

These Books can be exhibited in the following chart :

Types of Subsidiary Books (Special Journals)

!

Sales

Book

r Purchase

Book

Simple Cash

Book

~ r r r Sales Return

Book

r

Cash Book with

Discount Column

Purchase Return

Book

r

Cash Books with

Bank and Discount

Column

Bills

Payable

Book

r 1

Bills Cash

Receivable Book

Book

r 1

Petty Cash Book

Accounting Books and Records

Purpose of Subsidiary Books

The following are the purpose of subsidiary books summarized as :

(1) Sales Book

(2) Purchase Book

(3) Sales Return Book

(4) Purchase Return Book

(5) Bills Receivable Book

To record credit sales of goods ..

To record credit purchases of goods.

To record return outwards to suppliers.

To record return inwards from customers.

To record bills received.

(6) Bills Payable Book To record bills payable accepted.

(7) Cash Books To record all cash receipts and payments.

59

(1) Sales Book: Sales Book is also termed as "Day Book." This book deals with recording sale of

goods on credit. In other words all credit sales are recorded in this book. Cash Sales are not recorded in

Sales Journal.

(2) Purchases Book: Purchases Book is also known as "Brought Day Book" or "Invoice Book" or

"Invoice Journal." This book deals with recording purchase of goods on credit. In other words all credit

purchases are recorded in this book. The purchase of goods which are meant for resale. Cash purchase of

goods are not recorded in Purchase Books, it will be recorded in the Cash Books only.

(3) Sales Returns Book: This book is also called as "Return Inwards Book." This book is meant for

recording transactions relating to sales return made by the customers to whom the goods have been sold on

credit. As soon as goods return from the customers a 'Credit Notes' sent to the customers indicating that

his account has been credited.

(4) Purchase Returns Book: It is also known as "Purchase Outward Book" or "Purchase Outward

Journal." This book is maintained to record of transactions relating to return of purchased goods on credit.

As soon as goods are return to the supplier a "Debit Note" has been prepared and sent to the supplier

indicating that his account has been debited.

(5) Bills Receivable Book: This is otherwise termed as "Bills Receivable Journal." This book is used

for recording the details of bills received from the customers. In other words, ~t is the document

acknowledge the amount of receivable from the customer or drawer.

(6) Bills Payable Book: This book is also called as "Bills Payable Journal." It is used for recording

the details of bills accepted by the firm. In other words, it is the written proof prepared by the firm to

acknowledge the amount payable to supplier.

Illustration: 14

Enter the following transactions in the purchase book of Ravi & Co. :

2003

January 1 Goods purchased from Raju & Co., Mumbai on credit 100 bags rice @ Rs.2()(), trade discount

allowed 10%.

" 10 Bought goods from Gupta & Co., New Delhi on credit 200 bags coffee @ Rs.l00, less 1'0% Trade

Discount.

"30 Bought goods from Ram & Co., Bangalore on credit 100 tins of ghee @ Rs. 500 less 10% discount

60

Solution:

A Textbook of Financial Cost and Management Accounting

Purchase Journal

Date Name of Suppliers L.F. Debit Note Amount

2003 Raju & Co. 100 bags of rice @ 200 20,000

Jan. 1 Less : 10% Trade Discount 2,000 18,000

" 10 Gupta & Co. 200 bags coffee & 100 20,000

Less : 10% Trade Discount 2,000 18,000

" 30 Ram & Co. 100 tins of ghee @ 500 50,000

Less : 10% discount 5,000 45,000

Purchase Nc 81,000

Illustration: 15

Record the following transactions in the Sales Day Book and post them in to the ledger:

2003

March 1 Sold to James & Co.

10 Meters Silk @ Rs.20

10 Meters Wool @ Rs.30

March 15 Sold to William & Co.

10 Meters Cotton @ Rs.l00

20 Meters Velvet @ Rs.50

March 30 Sold to Ram & Co.

10 Meters Silk @ Rs.30

30 Meters Knitted @ Rs.50

SolVltion:

Date -

2004

Mar. 1

" 15

" 30

Dr.

Sales Journal

Name of Suppliers

James & Co.

10 Meters Silk @ Rs.20

IOMeters Wool @ Rs.30

Williams & Co.

10 Meters Cotton @ Rs.IOO

20 Meters Velvet @ Rs.50

Ram & Co.

10 Meters Silk @ Rs.50

30 Meters Knitted @ Rs.50

Sales Nc

Ledger

James & Co.

LF. Outward Invoice No. Amount

200

300

1,000

1,000

500

1,500

4,500

Cr.

Date Particulars J.F. Amount Rs. Date Particulars J.F. Amount Rs.

2003 2003

Mar. 1 To Sales Nc 500 Mar. 31 By Balance cld 500

500 500

Apr\. 1 To Balance bId 500

Accounting Books and Records

Dr.

Date Particulars l.F.

2003

Mar. 15 To Sales Nc

Apr!. 1 To Balance bId

Dr.

Date Particulars l.F.

2003

Mar. 30 To Sales Nc

Apr!. 1 To Balance bId

Dr.

Date Particulars l.F.

2003

Mar. 31 To Balance cld

Illustration: 16

Williams & Co.

Amount Rs. Date

2003

2000 Mar.31

2000

2000

Ram & Co.

Amount Rs. Date

2003

2000 Mar. 31

2000

2000

Williams & Co.

Amount Rs. Date

2003

4500 Mar. 31

" 15

" 30

4500

Apr!. 1

Particulars l.F.

By Balance cld

Particulars l.F.

By Balance cld

Particulars l.F.

,

By James & Co.

By William & Co.

By Ram & Co.

By Balance bId

61

Cr.

Amount Rs.

2000

2000

Cr.

Amount Rs.

2000

2000

Cr.

Amount Rs.

500

2000

2000

4500

4500

From the following transaction of MIs J. Chandra, you are required to prepare a Bills Receivable

Book and Bills Payable Book

2003

Jan. 1

Solution:

7

10

21

25

26

27

30

31

Acceptance received from Jhon payable six months after date for Rs. 13,000

7 Accepted Mary Ellen's draft for Rs. 8,000 for 4 months

Draw a bill on Dixon for Rs. 5,000 for 6 months

Gave Ram our acceptance for Rs. 10,000 payable 6 months after date

Jhon's acceptance for Rs. 13,000 was retired under a rebate of Rs. 200

Received a bill from Reddy for Rs. 2,000 for 2 months

Accepted a bill of Edward for Rs. 9,000 for 3 months

Accepted May Ellen's draft Rs. 4,000 for 2 months

Drew a bill on Dixon for 4,000 for 3 months and accepted by him payable at State Bank of India, Madras.

Bills Receivable Book

Bills Payable Book

Bills Receivable Book

Bills Dateo! From Whom Nameo! Dateo! Term Dateo! Where LF. Amount Remarks

S.No Receipts Received Acceptor Bill Maturity Payable

I 2003 Jhon Self 2003 2003

Jan. 1 Jan. 1 6 Months June 4 13,000 Retired

2 "10 Dixon Self "10 6 Months June 13 5,000

3 " 26 Reddy Self .. 26 2 Months March 29 2,000

4 "31 Dixon Self " 31 13 Months May 3 S81, Madras 4,000

24,000

Bills Payable Book

Bills Dateo! Nameo! the Nameo! Term When Due LF. Where Amount Remarks

S.No. Bill Drawer the Payee Payable

I 2003 2003

Jan. 7 Mary - Ellens Mary - Ellens 4 Months May - 10 8,000

2 "21 Ram Ram 6 Months July - 24 10,000

3 "27 Edward Edward 2 Months April- 30 9,000

4 "30 Mary - Ellens Mary - Ellens 3 Months April-3 4,000

31,000

Accounting Books and Records

Dr.

Date Particulars J.F.

2003

Jan. 31 To Balance cld

Dr.

Date Particulars J.F.

2003

Jan. 31 To Balance c/d

Dr.

Date Particulars J.F.

2003

Jan. 31 To Balance cld

Dr.

Date Particulars J.F.

2003

Jan. I To Jhon

.. 10 To Dixon

.. 26 To Reddy

.. 31 To Dixon

Feb. 1 By Balance bId

Ledger Account

Jhon Account

Amount Rs. Date

2003

13,000 Jan. 1

13,000

Feb. 1

Ledger Ale

Jhon Ale

Dixon Account

Amount Rs. Date

2003

9,000 Jan. 10

.. 31

9,000

Feb. 1

Reddy Account

Amount Rs. Date

2003

2,000 Jan. 26

2,000

Feb. 1

Bills Receivable Account

Amount Rs. Date

2003

13,000 Jan. 31

5,000

2,000

4,000

24,000

24,000

63

Cr.

Particulars J.F. Amount Rs.

By Bills }

Receivable Alc 13,000

13,000

By Balance bId 13,000

Cr.

Particulars J.F. Amount Rs.

By Bills }

Receivable Alc 5,000

By Bills }

Receivable Alc 4,000

9,000

By Balance bId 9,000

Cr.

Particulars J.F. Amount Rs.

By Bills }

Receivable Alc 2,000

2,000

By Balance bId 2,000

Cr.

Particulars J.F. Amount Rs.

By Balance c/d 24,000

24,000

64

Dr.

A Textbook of Financial Cost and Management Accounting

Mary Ellens Account

Date Particulars J.F. Amount Rs. Date Particulars

2003 2003

Jan. 7 To Bills Payable Alc 8,000 Jan. 31 By Balance cld

.. 30 To Bills Payable Alc 4,000

12,000

Feb. 1 By Balance bId 12,000

Dr. Ram Account

Date Particulars J.F. Amount Rs. Date Particulars

2003 2003

Jan. 21 To Bills Payable Alc 10,000 Jan.31 By Balance cld

10,000

Feb. 1 By Balance bId 10,000

Dr. Edward Account

Date Particulars J.F. Amount Rs. Date Particulars

2003 2003

Jan. 27 To Bills Payable Alc 9,000 Jan. 31 By Balance cld

9,000

Feb. 1 To Balance BId 9,000

Dr. Bills Payable Account

Date Particulars J.F. Amount Rs. Date Particulars

2003 2003

Jan. 31 To Balance cld 31,000 Jan. 7 By Mary Ellens

.. 21 ByRam

.. 27 By Edward

.. 30 By Mary Ellens

31,000

Feb. 1 By Balance bId

Illustration: 17

Enter the following transactions in proper subsidiary books and post in to ledger:

2003

January 1 Goods purchased from Ahuja & Co. Rs. 40,000

3 Goods sold to Sharma & Co. Rs. 20,000

5 Kumar & Co Sold Goods to us Rs. 20,000

10 William purchased goods from us Rs. 14,000

15 Damaged goods returned by Sharma & Co. Rs. 1,600

20 Damaged gods returned to Ahuja & Co. Rs. 1,000

22 Damaged goods returned by William 1,800

25 Goods sold to Ravi & Co. for cash Rs.lO,OOO

27 Bought goods from Jhon & Co. Rs.12,OOO

29 Damaged goods returned to James & Co. Rs.2000

31 Goods sold to Ram & Co. Rs.l2,OOO

Cr.

J.F. Amount Rs.

12,000

12,000

Cr.

J.F. Amount Rs.

10,000

10,000

Cr.

J.F. Amount Rs.

9,000

9,000

Cr.

J.F. Amount Rs.

8,000

10,000

9,000

4,000

31,000

31,000

Accounting Books and Records 65

Solution:

Purchases Book

Date Name of suppliers L.F. Inward Invoice No. Amount Rs.

2003

Jan. 1 Ahuja & Co. 40,000

" 5 Kumar & Co. 20,000

" 27 Jhon & Co. 12,000

72,000

Sales Book

Date 'Name of Customers LF. Outward Invoice No. Amount Rs.

2003

Jan. 3 Sharma & Co. 20,000

"10 William 14,000

" 25 Ravi & Co. 10,000

" 31 Ram & Co. 12,000

56,000

Purchases Return Book

Date Name of Suppliers LF. Debit Note No. Amount Rs.

2003

Jan. 20 Ahuja & Co. 1,000

" 29 James & Co. 2,000

3,000

Sales Return Book

Date Name of Customers LF. Credit Note No. Amount Rs.

2003

Jan. 15 Sharma & Co. 1,600

" 22 William & Co. 1,800

3,400

Ledger

Dr. Ahuja & Co. Account Cr.

Date Particulars J.F. Amount Rs. Date' Particulars J.F. Amount Rs.

2003 2003

Jan. 20 To Purchase Return 1,000 Jan. 31 By Purchases 40,000

" 31 To Balance c/d 39,000 "

" 40,000 40,000

Feb. 1 By Balance bId 39,000

66

Dr.

Dr.

Dr.

Dr.

Dr.

Date

2003

Jan. 31

Date

2003

Jan. 31

Date

2003

J.a. n. I 5

.. 27

Feb. I

Date

2003 <

Jan. 3

Feb. 1

Date

2003

Jan. 10

Feb. I

Particulars J.F.

To Balance cld

Particulars J.F.

To Balance cld

Particulars J.F.

To Ahuja & Co

To Kumar & Co

To Jhon & Co

To Balance bId

Particulars J.F.

To Sales

To Balance bId

Particulars J.F.

To Sales

To Balance bId

A Textbook of Financial Cost and Management Accounting

Kumar & Co. Account Cr.

Amount Rs. Dale Particulars J.F. Amoullt Rs.

2003

20,000 Jan. 31 By Purchases 20,000

20,000 20,000

Feb. I By Balance bId 20,000

Jhon & Co. Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

12,000 Jan. 27 By Purchases 12,000

12,000 20,000

2003

Feb. I By Balance bId 12,000

Purchases Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

40,000 Jan. 31 By Balance cld 72,000

20,000

12,000

72,000 72,000

72,000

Sharma & Co. Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

20,000 Jan. 15 By Sales Return 1,600

.. 31 By Balance cld 18400

20,000 20,000

18,400

William Account Cr.

Amount Rs. Date Particulars J.F. Amount Rs.

2003

14,000 Jan. 22 By Sales Return 1,800

.. 31 By Balance cld 12,200

~4,OOO 14,000

12,200

Accounting Books and Records

Dr. Ravi & Co. Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 25 To Ravi & Co. 10,000 Jan. 31

10,000

Feb. 1 To Balance bid 10,000

Dr. Sales Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 31 To Ram & C~ 12,000 Jan. 31

12,000

Feb. 1 To Balance bid 12,000

Dr. Sales Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 31 To Balance cJd 56,000 Jan. 3

.. 10

.. 25

.. 31

56,000

Feb. 1

Dr. James & Co. Account

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 31 To Purchase Return 2,000 Jan. 31

2,000

Feb. 1 To Balance bid 2,000

Dr. Purchase Return Ale

Date Particulars J.F. Amount Rs. Date

2003 2003

Jan. 31 To Balance cld 3,000 Ja.n. . 20 29

3,000

Feb. 1

Particulars J.F.

By Balance cJd

Particulars J.F.

By Balance cld

Particulars J.F.

By Shanna & Co.

By William

By Ravi & Co .

By Ram & Co.

By Balance bid

Particulars . J.F.

By Balance cJd

Particulars J.F.-

By Ahuja & Co.

By James & Co.

To Balance bid

67

Cr.

Amount Rs.

10,000

10,000

Cr.

Amount Rs.

12,000

12,000

Cr.

Amount Rs.

20,000

14,000

10,000

12,000

56,000

56,000

Cr .

Amount Rs.

2,000

2,000

Cr.

Amount Rs.

1,000

2,000

3,000

3,000

68

Dr.

Date

2003

J.a. n. 15 22

Feb. I

Particulars 1.F.

To Sharma & Co.

To William & Co .

To Balance bId

A Textbook of Financial Cost and Management Accounting

Sales Return Ale Cr.

Amount Rs. Date Particulars 1.F. Amount Rs.

2003

1,600 Jan. 31 By Balance c/d 3,400

1,800

3,400 3,400

3,400

Illustration: 18

From the following transactions, you are required to enter in the related subsidiary books and post

them in the ledger :

2003

March I

2 -

3

4

5

16

28

30

Solution:

Date

2003

March I

28

Date

2003

March I

4

30

Dale

2003

March 3

Purchase of goods from Sharma Rs. 2,000

Sold goods to Varma Rs. 5,000

Goods return to Sharma Rs. 200

Sold goods to Murugan Rs. 10,000

Goods return by Varma Rs. 400

Goods return by Murugan Rs. 200

Goods Purchased from Aravind Rs. 4,000

Sold goods to Mahesh Rs. 7,000

Purchases Book

Name of Suppliers L.F.

Sharma ...

Aravind ...

Sales Book

Name of Customers LF.

Varma ...

Murugan ...

Mahesh ...

Inward Invoice No.

Outward Invoice No.

Purchases Return Book

Name of Suppliers L.F. Debit Note No.

Sharma ...

...

Amount Rs.

2,000

4,000

6,000

Amount Rs.

5,000

10,000

7,000

22,000

Amount Rs.

200

200

Accounting Books and Records

Date Name of Customers

2003

March 5 Varma

16 Murugan

Dr.

Date Particulars l.F.

2003 1 to Purchase Return

March 31 To Balance c/d

Dr.

Date Particulars l.F.

2003 :

March 31 To Balance c/d

Dr.

Date Particulars l.F.

2003

March 1 To Sharma

28 To Aravind

Feb. 1 To Balance bId

Sales Return Book

L.F.

...

...

Ledger

Sharma Account

Amount Date

Rs.

200 2003

1,800 March 1

2,000

Feb. 1

-

Aravind Account

Amount Date

Rs.

2003

4000 Mar. 28

4000

Feb. 1

Purchase Account

Amount Date

Rs.

2003

2,000 Mar. 31

4,000

6,000

6,000

69

Credit Note No. Amount Rs.

400

200

600

Cr.

Particulars l.F. Amount

Rs.

By Purchases 2,000

2,000

By Balance bid 1,800

Cr.

Particulars l.F. Amount

Rs.

By Purchases 4000

4000

4000

By Balance bId 4000

Cr.

Particulars l.F. Amount

Ks.

By Balance c/d 6,000

6,000

70

Dr.

Dr.

Date

2003

Mar. 2

Feb. 1

Date

2003

March 4

Feb.l

Dr.

Date

2003

March 4

Feb. 1

Dr.

Date

2003

March 2

31

Paniculars J.F.

To sales

To Balance bid

Paniculars J.F.

To Sales

To Balance bid

Paniculars J.F.

To Sales

To Balance bid

Paniculars J.F.

To Balance c/d

A Textbook of Financial Cost and Management Accounting

Varma Account Cr.

Amount Date Paniculars J.F. Amount

Rs. Rs.

2003

5,000 Mar. 5 By Sales Returns 400

.. 31 By Balance c/d 4,600

5,000 5,000

4,600

~urugan Account Cr.

Amount Date Paniculars J.F. Amount

Rs. Rs.

2003

10,000 Mar. 16 By Sales Return 200

.. 31 By Balance c/d 9,800

10,000 10,000

9,800

~ahesh Account Cr.

Amount Date Paniculars J.F. Amount

Rs. Rs.

2003

7,000 Mar. 31 By Balance c/d 7,000

7,000 7,000

7,000

Sales Account Cr.

Amount Date Paniculars J.F. Amount

Rs. Rs.

2003

22,000 Ma..r . 31 By Varma 5,000 4 By Murugan 10,000

.. 30 By Mahesh 7,000

22,000 22,000

Feb. 1 By Balance bid 22,000

Accounting Books and Records

Dr.

Date Particulars

2003

March 31 To Balance cld

Dr.

Date Particulars

2003

March 5 To Varma

16 To Murugan

Feb. 1 To Balance bid

Purchase Return Account

l.F. Amount Date

Rs.

2003

200 Mar. 3

200

Feb. 1

Sales Return Account

l.F. Amount Date

Rs.

2003

400 Mar. 31

200

600

600

Particulars l.F.

By Sharma

To Balance bid

Particulars l.F.

By Balance c/d

71

Cr.

Amount

Rs.

200

200

200

Amount

Rs.

600

60()'

(7) Cash Book : Cash Book is used for recording the transactions relating to cash receipts and casll

payments. In order to adjust the cash book according to the needs and convenience, the Cash Book has divided

into two sides for recording the cash receipts and payments. Accordingly cash receipts are recorded on one

side (Debit Side) and cash payments are recorded on the other side (Credit Side). Thus, Cash Books is used is

practice and it services the purpose of original entry as well as a book of ledger account.

The following are the classification of Cash Book such as:

(1) Simple Cash Book (Single Column)

(2) Two Column Cash Book (Cash Book with Discount Column)

(3) Three Column Cash Book (Cash Book with Bank and Discount Column)

(4) Petty Cash Book

(1) Simple Cash Book

This type of cash book is usually used like an ordinary cash account. It refers to recording of

transactions relating to all receipts and payments of cash during a particular period. The specimen ruling of

the Simple Column Cash Book is as follows :

Dr. Simple Cash Book (Single Column) Car.

Date Receipts R.N. LF. Amount Date Payment R.N. LF. Amowrt

Particulars Rs. Particulars Rs .

.

72 A Textbook of Financial Cost and Management Accounting

From the above spetimen of Simple Cash Book Journal the following points can be observed:

(1) It has divided into two parts, i.e., Debit Side and Credit Side.

(2) All receipts of cash are recorded in Debit Side and all payments of cash are recorded in Credit

Side of Cash Book.

(3) L.F. - Stands for Ledger Folio, i.e., reference to Main Book

(4) R.N. - Stands for Receipt No., i.e., reference for Receipts.

(5) V.N. - Stands for Voucher No., i.e., reference for Payments

Illustration: 19

From the information given below, you are required to prepare Simple Cash Book of Mr. John:

2003

Jan. 1 Cash in hand Rs. 10,000

1 Cash paid into Bank Rs. 20,000

3 Goods purchased for cash Rs. 15,000

5 Cash received from David Rs. 10,000

7 Goods sold for cash Rs. 30,000

9 Paid for stationery Rs. 5,000

10 Paiq to rent Rs. 4,000

13 Paid into Bank Rs. 15,000

15 Cash received from Govind Rs. 7,000

17 Paid for advertisement Rs. 5,000

18 Sold goods for cash Rs. 10,000

20 Dividend received Rs. 3,000

23 Paid Interest Rs. 2,000

25 Bought goods for cash Rs. 10,000

27 Cash received from Ram Rs. 15,000

31 Paid for repair charges Rs. 1,000

Solution:

Dr. Cash Book of John (Single Column)

Date Receipts V,N. LF. Amount Date Payment

Particulars Rs. Particulars

2003 2003

Jan. 1 To Balance bId 10,000 Jan.! By Bank

5 To David 10,000 3 By Purchases

7 To Sales 30,000 9 By Stationery

15 To Govind 7,000 10 By Rent

18 To Sales 10,000 13 By Bank

20 To Dividend 3,000 17 By Advertisement

27 To Ram 15,000 23 By Interest

25 By Purchases

31 By Repair Charges

31 By Balance cld

85,000

Feb.! To Balance bId 8,000

Cr.

V,N. LF. Amount

Rs.

20,000

15,000

5,000

4,000

15,000

5,000

2,000

10,000

1,000

8,000

85,000

Accounting Books and Records

Illustration: 20

Enter the following transactions in the cash book of James & Co.:

2003

Mar. 1 James & Co. commences business with Rs. 60,000 in cash

Goods purchased for cash from Pande & Co. Rs. 7,400

Cash Sales Rs. 9,000

3

16

25

26

27

28

29

30

31

Solution:

Paid cash to Chandra & Co. Rs. 3,000

Paid cash for furniture Rs. 4,000

Paid commission Rs. 300

Paid salaries to office staff Rs. 500

Paid for Advertising Rs. 400

Received commission Rs. 500

Paid office rent Rs. 1,000

Dr. Simple Cash Book

Date Particulars J.F. Amount Date

Rs.

2003 2003

M.. ar. 1 To Capital 60,000 Mar. 3 16 To Sales 9,000 .. .. 25 30 To Commission 500 .. .. 26 .. 27 .. 29 .. 29 .. 31 31

69,500

Apr!. 1 To Balance bid 52,900

(2) Two Column Cash Book

Particulars

By Purchases

By Chandra & Co.

By Furniture Nc

By Commission

By Salaries

By Advertising

By Office Rent

By Balance cld

73

Cr.

J.F. Amount

Rs.

7,400

3,000

4,000

300

500

400

1,000

52,900

69,500

It is also known as Cash Book with Discount Column. This Cash Book is meant for recording

transactions relating to all receipts and payments of cash and discount. In the two column cash book, on

each side there are two columns which are as follows :

(1) Two columns with each side:

Cash and Discount Columns with Debit Side.

Cash and Discount Columns with Credit Side.

(2) Discount Column indicates: recording all discounts allowed and received:

Debit Side: recording all discounts allowed by firm.

Credit Side: recording all discounts received by firm.

(3) Cash Column indicates: recording all cash receipts and cash payments:

Debit Side: recording all cash receipts.

Credit Side: recording all cash payments.

74 A Textbook of Financial Cost and Management Accounting

fllustration: 21

. From the following transactions, you are required to prepare a Cash Book with Cash and Discount

Columns:

2003

.March 1

2

3

4

5

6

7

8

10

14

17

27

29

Solution:

Dr.

Date

2003

Mar. 1

6

7

17

27

31

Balance of cash in hand Rs. 10,000

Paid into Bank Rs. 8,000

Purchased goods and paid by cheque Rs. 2,000

Paid for advertising Rs. 100

Purchased furniture and paid by cheque Rs. 200

Received for cash sales Rs. 1,000

Received a cheque for Rs. 1,400 from Mr. M and allowed him a discount of Rs. 15

Gave a cheque for Rs. 1,700 and was allowed a discount of Rs. 20

Mr. R directly paid into Bank in our account Rs. 900

Paid into Bank Rs. 2,000

Withdraw for office use Rs. 100

Received from Mr. K by money order Rs. 95

Withdraw by cheque for personal use Rs. 75

Cash Book (Double Columns)

Particulars LF. Discount Cash Date Particulars

Rs. Rs.

2003

To Balance bid 10,000 Mar.2 By Bank

To Sales 1,000 3 By Purchases

To Mr. M 15 1,400 4 By Advertisement

To Bank 100 5 By Furniture

To Mr. K 95 8 By Bank

10 By Mr. R

To Balance cld 2,380 14 By Bank

29 By Drawings

15 14,975

Apr. 1 By Balance bId

L.F.

Ihstration: 22

Cr.

Discount Cash

Rs. Rs.

8,000

2,000

100

200

20 1,700

900

2,000

75

20 14,975

2 ,380

From the following particulars, you are required to prepare a Cash Book with Cash and Discount Coltmmsonly:

2003

Jan. 1 Cash in hand Rs. 20,000

2 Paid into Bank Rs. 10,000

3 Purchase office furniture by cheque Rs. 5,000

4 Sold goods for cash Rs. 3,000

7 Paid Sharma Rs.l,OOO and was allowed a discount of Rs. 60

10 Received Rs. 2,000 from cash Sales

11 Paid for cash purchases Rs. 2,840 and received Rs. 160 as discount

13 Withdrawn for personal use Rs. 2,000

20 Drawn from bank for office use Rs. 500

Accounting Books and Records

25 Paid salaries in cash Rs. 500

29 Received for cash sales Rs. 1,500

31 Deposited in bank Rs. 5,000

Solution:

Dr. Cash Book (Double Columns)

Date Particulars L.F. Discount Cash Date Particulars

Rs. Rs.

2003 2003

Jan.1 To Balance bId 20,000 Jan.2 By Bank

4 To Sales 3,000 3 By Furniture

10 To Sales 2,000 7 By Sharma

20 To Bank 500 11 By Purchases

29 To Sales 1,500 13 By Drawings

25 By Rent

31 By Bank

31 By Balance cld

27,000

Feb. I To Balance bId 660

Illustration: 23 .

75

Cr.

L.F. Discount Cash

Rs. Rs.

10,000

. 5,000

60 1,000

160 2,S40

2,000

500

5,000

660

220 27,000

From the following transactions of Chandha & Co., you are required to prepare a Double Column

Cash Book : ' .

2003

Mar.! Balances of cash in hand Rs. 3,200

Dr.

Date

2003

Mar. I

"6

"10

"12

"13

4 Paid to Srivastava (discount allowed Rs. 40) Rs. 1,460

6 Goods sold to Ram for cash Rs. SOO

S Brought furniture for cash Rs. 3,000

10 Sale of old newspapers Rs. 40

12 Received cash from Basu & Co. in full settlement of his debt Rs. 1,200 (Rs. 1,140)

13 Received cash from Shukla & Co. (discount allowed Rs. 30) Rs. SOO

15 Paid Salaries to office staff Rs. 1,000

20 Received from Tandan & Co. against debt 'previously written off Rs. 300

25 withdraw from bank Rs. SOO

31 Sale of old furniture Rs. 600

Cash Book (Double Column)

Particulars L.F. Discount Cash Date Particulars

Rs. Rs.

2003

To Balance bId 3,200 Mar.4 By Srivastava Alc

To Sales Alc SOO "s By Furniture Alc

To Old }

Newspaper's Alc 40 " 15 By Salaries Alc

(Sales for Cash)

To Basu & Co. Ale 60 1,140 " 31 By Balance eld

To Shukla & Co. Alc 30 SOO

L.F.

Cr.

Discount Cash

Rs. Rs.

40 1,560

3,000

1,000

3,120

76 A Textbook of Financial Cost and Management Accounting

"20 To Bad Debts Nc 300

"25 To Bank Nc } 800

(Withdrawals)

"31 To Old Furniture Nc 600

(Sale of Old furniture)

90 7,680 40 7,680

Apr!. 1 Th Balance bId 3,120

(3) Three Column Cash Book

Three Column Cash Book is also known as "Cash Book with Discount and Bank Column." This

cash book has divided into three columns on each side which are as follows :

(1) Three Columns with Each Side:

(a) Cash, Discount and Bank Columns with Debit Side.

(b) Cash, Discount and Bank Columns with Credit Side.

(2) Cash Column Indicates: Recording all Cash Receipts and Cash Payments.

Debit Side Recording all Cash Receipts.

Credit Side Recording all Cash Payments.

(3) Discount Column Indicates : Recording all discounts allowed and discounts received.

Debit Side

Credit Side

Recording all discounts allowed by firm.

Recording all discounts received by firm.

(4) Bank Column Indicates: Recording all deposits and withdrawals made in the bank.

Debit Side

Credit Side

Recording all deposits (both cash and cheque) are made in the bank.

Recording all withdrawals from the bank.

(5) 'C' - Stands for reference.

(6) L.F. - Stands for Ledger Folio reference to main book.

(7) Contra Entries : When the deposit is made in the bank, it is entered in debit side (receipts

side) and credited in cash column on the credit side of the cash book. Similarly, when any

amount withdrawn from bank for business purposes, it is recorded in debit side (receipts side)

of cash column and bank column is credited on the payment side. Thus. both cash column and

bank column in the cash book serves as Cash Account and Bank Account. There is no need to

post them in ledger. Such type of entry appearing on both sides of the cash book is known as

"Contra Entry." The capital letter 'C' is used for this purpose.

(8) Cheque Received : When the cheque is received and it is encashed or deposited on the same

day then it is directly recorded in the transactions on the debit side of bank column without

entering in the cash-column. If the cheques are received and they are encashed or deposited on

the different dates. Contra Entry will be recorded in the cash book by entering debited in bank

column and credited in cash column on the debit side of the cash book. Similarly. cheque

payments are recorded on the credit side of the bank column in cash book.

(9) Cheques Dishonoured : When the cheque is dishonoured, it should be recorded transactions

credited in the bank column on the credit side of the cash book.

Accounting Books and Records 77

Illustration: 24

From the following transactions, you are required to Prepare Three Column Cash Book of Ramesh

for the month of Jan. 2003:

2003

Jan. 1 Cash balance Rs. 10,000

1 Bank balance Rs. 5,000

2 Paid into Bank Rs. 2,000

3 Paid office rent by cheque Rs. 500

5 Paid Salaries Rs. 5,000

7 Goods sold for cash Rs. 10,000

8 Goods purchased by cheque Rs. 7,000

11 Deposited into bank Rs. 5,000

14 Goods purchased by cash Rs. 2,000

17 Withdrawn from bank for office use Rs. 500

18 Withdrawn from bank for personal use Rs. 400

20 Nancy settled her account for Rs. 4,000 by giving a cheque for Rs. 3,850

23 Received from Sharma Rs. 4,900 in full settlement of Rs. 5,000

25 Paid into bank Rs. 4,000

26 Goods purchased from Murugan for Rs. 1,500 by cheque

30 Paid telephone charges Rs. 500

Solution:

CASH BOOK OF RAMESH (Three Columns)

Date Paniculars V.N. LF. Dis· Cash Bank Date Paniculars

count Rs. Rs.

Rs.

2003 2003

Jan.l To Balance bid 10,000 5,000 Jan.2 By Bank Ale (c)

2 To Cash Nc (c) 2,000 3 By Rent

7 To Sales Nc 10,000 5 By Salaries Nc

II To Cash (c) 5,000 8 By Purchase

17 To Bank (c) 500 II By Bank Nc (c)

20 To Nancy Nc 150 3,850 14 By Purchase

23 To Sharma Nc 100 4,900 17 By Cash Nc (c)

25 To Cash Nc (c) 4,000 18 By Drawings

25 By Bank Nc (c)

26 By Murugan

30 By TelePhOne}

500 Charges

31 By Balance c/d

250 20,500 24,750

Feb 1 To Balance bid 2,500 14,350

V.N. LF. Dis- Cash Bank

count Rs. Rs.

Rs.

2,000

500

5,000

7,000

5,000

2,000

500

400

4,000

1,500

500

500

2,500 14,350

20,500 24,750

78 A Textbook of Financial Cost and Management Accounting

U1ustration: 2S

Enter the following transactions in Cash Book with Bank and Discount Columns :

2003

Jan.l Jhon commenced business with Rs. 4,500

3 Remitted in to current account with Indian Bank Rs. 3,500

5 Issued a cheque to William for acquired a building Rs. 2,500

8 Paid to Ram for office furniture by cheque Rs. 500

12 Purchased goods by cheque Rs. 400

14 Drawn Rs. 50 from bank

17 Goods sold to Kumar for Rs. 600

22 Deposits in to bank Rs. 1,000

24 Goods purchased for Rs. 500

25 Goods sold to Wilson by Cheque Rs. 750

27 Paid Rs. 50 by cheque as the premium for insuring building against fire

28 Paid office rent Rs. 25

29 Withdrew from bank for personal use Rs. 250

30 Paid wages Rs. 45

31 Paid to James Rs. 540 in full settlement by cheque we owed to James Rs. 550 for goods purchased

31 Received from Ravi & Co. a cheque for Rs.740 in full settlement of Rs. 755

Solution:

Dr. Cash Book (Three Column)

Date Paniculars LF. Dis- Bank Cash Date Paniculars

count Rs. Rs.

Rs.

2003 2003

Jan. I To Capital 4,500 Jan.3 By Bank

" 3 To Cash C 3,500 ., 5 By Building

" 14 To Bank C 50 " 8 By Office Furniture

"17 To Sales 600 "12 By Purchases

"22 To Cash C 1,000 "14 By Cash

"25 To Sales 15 750 "22 By Bank

" 31 To Ravi &Co 740 "24 By Purchases

" 27 By Insurance Premium

"28 By Office rent

"29 By Drawings

" 30 By Wages

" 31 By James

" 31 By Balance c/d

15 5,990 5,150

Feb. 1 To Balance bid 1,700 80

Illustration: 26

Enter the following transactions in the appropriate type of cash books :

2003

Mar. 1 Opening balance :

Cash in hand Rs. 15,000

Cash at Bank Rs. 20,000

3 Rent paid by cheque Rs. 10,000

5 Cash received on account of sale of merchandise Rs. 15,000

LF.

C

C

C

10 Paid to Mahesh & Co. by cheque Rs. 10,000 and earned Rs. 1,000 as cash discount

Dis- Bank

count Rs.

Rs.

2,500

500

400

50

50

250

10 540

1,700

10 5,990

Cr.

Cash

Rs.

3.500

1,000

500

25

45

80

5,150

Accounting Booles and Records 79

14 Received from Gupta & Co. by cheque Rs.lO,OOO and allowed him Rs. 500 as cash discount

17 Cash Sales Rs. 1,00,000

25 Good purchased for cash Rs. 75,000

31 Salaries paid to office staff Rs. 25,000

Solution:

Dr. Cash Book (Three Column)

Date Particulars LF. Dis· Cash Bank Date Particulars

count Rs. Rs.

Rs.

Mar. 1 To Capital 15,000 20,000 Mar. 3 By RenlNc

"5 To Cash 15,000 "10 By Mahesh & Co. Nc

"14 To Bank 10,000 "25 By Purchase Nc

"17 To Sales "31 By Salaries Nc

"22 To Cash 500 1,00,000 "31 By Balance cld

500 1,30,000 30,000

Aprl. 1 To Balance bid 30,000 10,000

Petty Cash Book

Cr.

LF. Dis; Cash I Bank

caul." Rs. Rs.

Rs.

10,000

1,000 10,000

75,000

25,000

30,000 10,000

-

1,000 1,30,000 30,000

Petty Cash Book has been designed in order to minimize the recording of numerous-transactions in

the cash book. This is also termed as "Analytical Petty Cash Book." In a business concern many small

expenses incurred frequently relating to postage, stationery, carriage, cleaning, and travelling etc. These

small expenses are recorded and maintained in a separate cash book is known as "Petty Cash Book." .

A person who is responsible for recording and maintaining this Petty Cash Book is known as "Petty

Cashier." Accordingly all small payments supported by vouchers or receipts are recorded in the petty cash

book during a particular period.

To ensure the more convenient and efficient method of recording petty payments, it has divided in to

separate column according to their respective heads of expenses in the petty cash book. This is used to

record the total expenses incurred under each head is debited to the concerned expenses account (Nominal

Alc) and credited to the Petty Cash Account.

Specimen Ruling of Petty Cash Book

The following is a specimen ruling of Petty Cash Book:

Dr. Petty Cash Book Dr.

Cash Date Particulars Vr. Total Postage Printing Carriage Traveling Sundry

Received No Amt. Paid & Telegram & Expenses Expenses

Rs. Rs. Rs. Stationery Rs. Rs. Rs.

80 A Textbook of Financial Cost and Management Accounting

Illustration: 27

Enter the following transactions in a columnar Petty Cash book of Ram & Co. The cashier Mr.

Anand started with an imprest of Rs. 250 on 1st March 2003, and was reimbursed the total amount

expected at the end of the month. .

2003

March 2

3

5

7

10

12

15

17

19

20

23

27

29

30

Typing papers Rs. 10, Telegrams Rs. 15

Postage Rs. 6, Conveyance Rs. 17

Traveling Rs. 18, Postage Rs. 14

Postage Rs. 10

Typing Papers Rs. 7

Telephone Charges Rs. 10

Office Cleaning Rs. 8

Telegrams Rs. 9

Miscellaneous Expenses Rs. 15

Stationery Rs. 16

Conveyance Rs. 15

Postage Rs. 16

Ink and Typing Paper Rs. 10

Telegrams Rs. 10

Solution:

Petty Cash Book

Date farticulars of c.F. Total Date Particulars of V. No. Sationery Postage Telegrams Travelling Conveyance Office Misces. Total

Receipts Rs. Payments Rs. Rs. Rs. Rs. Rs. Cleaning Rs. Rs. Rs.

2003 Cash from 2003

Mar. 1 Cashier 250 Mar.2 By Typing } paper &

Telegram 10 15 25

3 Postage & }

Conveyance 6 17 23

5 Traveling & 14 18 32

Postage

7 Postage 10 10

10 Typing paper 7 7

12 Telephone 10 10

ElPenses

15 Office Cleaning 8 8

17 Telegrams 9 9

19 Miscellaneous 15 15

20 Stationery 16 16

23 Conveyance 15 15

27 Postage 16 16

29 Ink and Type 10 10

Paper

30 Telegrams 10 10

f---

~ 43 56 34 18 32 8 15 206

2003

Apl.l To balance bid 44 By Balance cld 44

1 To cash r}

from Cashier 206 250

-00

82 A Textbook of Financial Cost and Management Accounting

Illustration: 28

A petty cashier received Rs.300 as the petty cash imprest on Monday, the 2nd January 2004. During

the week his expenses were as under :

Jan. 3 Paid for carriage Rs. 12

4 Postage stamps purchased Rs. 25

6 Purchased stationery Rs. 30

8 Purchased stationery for office use Rs. 40

10 Paid newspaper Rs. 15

15 Paid Telegram Rs. 15

19 Paid for cool drinks Rs. 20

25 Purchased postal stamps Rs. 25

30 Wages to Clerk Ram Rs. 40

You are required to prepare a Petty Cash Book for the month of January 2004.

Solution:

Petty Cash Book

Date Particulars C.F. Total Date Particulars of V. No. Stationery Telegrams Postages Carr age Sundry Wages Total

ofn!ceipts Rs. Payments Rs. Rs. Rs. Rs. Expenses Rs. Rs.

2004 2004

Jan. 2 To Cash from 300 Jan.3 Carriage 12 12

Cashier "4 Postage 25 25

"6 Stationery 30 30

"8 Stationery 40 40

" 10 News Papers 15 15

" 15 Telegram 15 15

" 19 Cold Drinks 20 20

"25 Postage Stamps 25 25

"30 Wages 40 40

300 70 15 50 27 20 40 222

2004

Feb. 1 To Balance bid 78 Jan.31 To Balance cJd 78

"1 To Cash from

Cashier 222 300

84

QUESTIONS

1. What do you understand by Special Journal?

2. What are the different types of Subsidiary Books?

3. Briefly explain the purpose of Subsidiary Books?

4. What are the types of Cash Book? Explain it briefly.

5. What do you understand by Contra Entries?

6. Write short notes on :

(a) Two Column Cash Book.

(b) Contra Entries.

(c) Sales Return Book.

(d) Bills Payable Book.

A Textbook of Financial Cost and Management Accounting

7. Draw a specimen ruling of Three Column Cash Book? Explain it briefly.

8. What do you understand by Petty Cash Book?

9. How do you prepare a Petty Cash Book? Explain it briefly.

PRACTICAL PROBLEMS

(1) From the fol.1owing particulars, you are required to prepare a Cash Book with Cash and Discount Columns:

2003

Jan. 1 Cash in hand Rs. 5,000

3 Cash received from Ramesh Rs. 600 and discount allowed of Rs. 15

5 Purchased goods for cash Rs. 1,800

7 Paid Ramkumar Rs. 200 and was allowed a discount of Rs. 20

10 Purchased stationery Rs. 40

12 Received from Cash Sales Rs. 1,300

15 Brought furniture for Rs. 250

17 Paid for Advertisement Rs. 175

19 Ramesh who owed Rs. 535 settled his account by paying Rs. 500

29 Received from William Rs. 400 and allowed him a discount of Rs. 10

31 Paid Salaries Rs. 120

[Ans : Cash Balance: Rs. 4515]

(2) From the following particulars, you are required to prepare a Cash Book with Cash and Discount Columns :

2003

Jan. 1 Cash in hand Rs. 15,000

2 Paid into Bank Rs. 20,000

4 Cash withdrawn for personal use Rs. 2,400

6 Cash Sales Rs. 15,000

8 Paid Kumar Rs. 10,850 and discount allowed of Rs. 50

9 Goods sold for cash Rs. 18,000

11 Goods purchased from Ram on Credit Rs. 10,000

13 Paid Kumar Rs. 5,000 in full settlement of his account

15 Goods purchased from Ram on Credit of Rs. 4,000

22 Paid Salaries Rs. 8,000

23 Paid rent Rs. 4,000

24 Purchased goods from Ram on Credit Rs. 4,300

25 Cash Purchases Rs. 13,500

25 Paid interest Rs. 600

26 Cash withdrawn for office use Rs. 17,500

27 Paid into Bank Rs. 6,250

28 Paid cash to Ram less discount Rs. 14,200

29 Cash received from William Rs. 19,000 and was discount allowed him for Rs. 200

31 Paid cash to Sharma Rs. 2,950 and was discount received from him for Rs. 50

[Ans : Cash Balance Rs. 3,750]

(3) From the given informations, you are required to prepare Cash Book with Discount and Bank Columns:

2003

Jan. Cash in hand Rs. 5,000

Cash paid into Bank Rs. 5,900

Accou;uing Books and Records

5 Purchased goods for cash Rs. 700

7 Cash received from Bank for office use Rs. 350

9 Goods sold for cash Rs. 100 and cheque Rs. 190

11 Paid into Bank Rs. 4,000

13 Received from William Rs. 1,500 and allowed him a discount of Rs. 20

15 Paid James by cheque Rs. 570 in settlement of his account for Rs. 600

17 Received commission by cheque Rs. 220

19 Paid advertisement expenses Rs. 50

23 Cash received from Bank for personal use Rs. 170

25 Paid rent by cheque Rs. 200

27 Sam paid direct into our account in the Bank Rs. 620

29 Received from Kumar a cheque for Rs. 490 and allowed a discount of Rs. 10

30 Cash in excess of Rs. 400 was paid into Bank

[Aos : Cash Balance Rs. 400, Bank Balance Rs. 11,640]

(4) From the following transactions, you are required to prepare Simple Cash Book:

2003

Jan. 1 Cash in hand Rs. 4,000

3 Goods sold for cash Rs. 7,500

5 Goods purchased for cash Rs. 3,000

7 Cash received from Govind Rs. 20,000

8 Goods sold to Ramesh for cash Rs. 7,500

12 Purchased goods from John for cash Rs. 3,500

15 Paid salaries to office staff Rs. 6,000

18 Paid rent Rs. 2,000

19 Paid advertisement expenses Rs. 3,000

20 Goods sold for cash Rs. 10,000

21 Dividend received Rs. 6,000

23 Paid interest Rs. 3,000

25 Goods purchased from Murugan for cash Rs. 30,000

26 Cash paid into Bank Rs. 1,00,000

29 Goods purchased for cash Rs. 20,000

31 Cash received from John Rs. 90,000

[Aos : Closing Cash Balance : Rs. 75,500]

(5) Enter the fonowing transactions in the Purchase Book and Sales Book of Mr. Jain:

2003

Jan. 1 Goods sold to Murugan Rs. 50,000

3 Goods purchased from Ramu Rs. 25,000

5 Sold goods to Govind Rs. 10,000

7 Bought goods from Ramesh Rs. 20,000

9 Goods purchased from John Rs. 30,000

11 Goods sold to Sharma Rs. 50,000

15 Bought goods from Srinivasan Rs. 25,000

17 Goods sold to Ram Rs. 15,000

[Aos : Total of Purchase Book Rs. 1,00,000

Total of Sales Book Rs. 1,25,000]

85

(6) From the following particulars, you are requi!>"..d to prepare Purchase Book, Sales Book, Purchase Return Book and

Sales Return Book:

2003

Jan. 1 Goods Purchased from Gupta Rs. 15,000

2 Brought goods from Jain Rs. 25,000

3 Returned goods to Gupta Rs. 700

5 Goods sold to Reddy Rs. 5,000

7 Sold goods to Sultan Rs. 15,000

15 Purchased goods from Pandey Rs. 20,000

17 Goods retuned from Reddy Rs. 500

19 Received goods returned by Sultan Rs. 1,000

86

22 Sold goods to Kalyani Rs. 25,000

23 Bought goods from Gowda Rs. 30,000

25 Kalyani returned goods worth Rs. 1,500

29 Returned goods to Gowda Rs. 1,700

31 Goods sold to Ramesh Rs. 10,000

[Ans : Total of Purchase book Rs. 90,000

Purchase Returns Books Rs. 2,400

Sales Book Rs. 55,000, Sales Returns Book Rs. 3,000]

A Textbook of Financial Cost and Management Accounting

(7) From the following information, you are required to prepare a Petty Cash Book under Imprest System:

2003

Jan. 1 Amount received from Cashier for Petty Payments Rs. 400

3 Office cleaning Rs. 25

4 Postage Rs. 10

5 Stationery Rs. 15

6 Telegram Rs. 9

7 Cartage Rs. 12

10 Conveyance Rs. 15

12 Postage Rs. 10

13 Traveling Expenses Rs. 15

15 Cartage Rs. 10

16 Office Cleaning Rs. 15

19 Stamp Rs. 10

21 Telegrams Rs. 20

25 Stationery Rs. 17

27 Typing Paper Rs. 10

29 Ink and Typing Paper Rs. 15

31 Entertainment Rs. 20

[Ans : Closing Balance Rs. 172]

(8) From the information given below, you are required to Prepare a Petty Cash Book Under Imprest System:

2003

Jan. I Cash received from Cashier Rs. 500

2 Postage Rs. 20

3 Stationery Rs. 15

4 Office Cleaning Rs. 15

6 Typing Paper Rs. 10

7 Entertainment Rs. 25

9 Conveyance Rs. 30

10 Telegram Rs. 15

12 Cartage Rs. 20

14 Traveling expenses Rs. 15

17 Postage Rs. 10

19 Telegram Rs. 20

21 Typewriting ribbon Rs. 10

22 Office cleaning Rs. 14

23 Windowpanes Rs. 17

25 Ink Bottle Rs. 22

27 Cartage & Coolie Rs. 14

29 Postage Rs. 15

31 Stationery Rs. 10

[Ans : Closing Balance Rs. 203]

(9) Enter the following transactions in the Bills Receivable Book and Bills Payable Book and Post them in to ledger:

2003

Mar. 1 Received from Ravi his Promissory Note for Rs. 600

10 Accepted a bill of 3 months for Rs. 1,500 drawn by Vimal & Co.

15 Sent out acceptance to Rahul & Co. for Rs. 750

20 Jawahar & Co. drew upon us for 4 months and acceptance given for Rs. 690

Accounting Books and Records 87

25 Sent our draft to Kannan who returned it to us duly accepted for Rs. 300

30 Did not accept a bill drawn by Kumar & Co. for Rs. 400 payable after 3 months

(10) From the following particulars, you are required to prepare a purchase book:

2004

Jan. Bought of Ramesh & Co. Mumbai 20 bags of rice @ Rs. 1,200 per bag 40 tons of wheat @ Rs. 1,500 per ton,

Trade discount 15%

7 Purchased from Sharma & Co. Bangalore Desi Ghee 20 tins, each containing 16kg @ Rs.120 per kg.

Lubricant oil 1,000 litre @ Rs. 6 per litre Trade discount 10%

15 Purchased from Pandey & Co, Madras wheat 30 quintals @ Rs. 500 per quintal; Gram 20 qumtals @ Rs.

1,200 per quintal; rice 10 quintals @ Rs. 1,400 per quintal; cartage and other expenses paid in cash Rs. 700

25 Purchased goods from Moorthi & Co. for cash New Delhi, 50 bales of cotton @ Rs. 1,500 per bale

30 Brought furniture for office use from cartage house, Cochin, on credit, 20 Godraj chairs @ Rs. 300 per chair,

20 Godraj Tables @ Rs. 1600 per table

[Ans: Total of purchase book Rs. 1,64,360]

(11) Enter the following transactions in the Sales Book and Post them in to ledger:

2004

Mar. I Sold Goods to Murthy & Co. : 200 pieces long cloth @ 100

200 pieces shirting @ 75 Packaging and delivery Rs.50

15 Sold goods to Raman & Co.

30 pieces coating @ Rs.loo

20 Sold to Srivastava & Co.

250 blankets @ Rs.75

125 blankets @ Rs.loo

[Ans : Total Sales Book Rs. 69,350]

(12) Record the following transactions in Bills Receivable Book and Bill Payable Book of Ram Lal & Co. and post them in

to ledger:

2004

Jan. I Received a bill from Govind at 2 months for Rs. 3,000

7 Accepted a bill for Rs. 8,000 drawn by Kumaram & Co. for 3 months

15 Drew a bill for Rs. 2,600 by Murugan & Co. was accepted this date for one month

20 Acceptance received from Ram & Co. for 3 months for Rs. 2,500

25 Gave acceptance to Gopal's bill for Rs. 2,400 payable for 2 months

30 Did not accept a bill drawn by Kumar & Co. Cpr Rs. 2,500 payable after 3 months

(13) Vasudavan & Co. start business with Rs. 20,000 on I" January 2003. Of this he pays Rs. 18,000 in to his bank account.

His cash transactions during the month of July were :

July I Bought furniture for cash Rs. 4,000

4 Purchased goods for cash Rs. 65,000

7 Purchase stationery fixtures Rs. 20,000

9 Goods sold for cash Rs. 15,000

13 Received from Mishra & Co. Cash as advance Rs. 20,000

15 Paid to Varma & Co, cash Rs. 14,000

25 Paid for Signboard Rs. 13,000

27 Goods sold for cash Rs. 16,000

30 Purchased old machinery Rs. 30,000

Make out the cash book (Single Column)

[Ans : Balance in band Rs. 5,000]

(14) Tandon & Co. owned Rs. 28,000 to the bank and had cash in hand Rs. 4,600 on I" April 2003. During the month his

cash transactions were as under:

2003

Apr\. 2 Drew·cash for office use Rs. 16,000

3 Paid salaries Rs. 10,000

5 Paid rent Rs. 2,000

6 Drew for domestic use cash Rs. 3,000

88

7

8

8

9

9

10

15

17

23

24

27

30

Goods sold for cash Rs. 4.000

Goods purchased for cash Rs. 5.000

A Textbook of Financial Cost and Management Accounting

Received cheque from Basu & Co. Rs. 13.000 in full settlement of his debt of Rs. 14.000

Issued cheque in favour of Sundram & Co. in full settlement of the amount due to them of

Rs. 8.000 and 2.5 per cent discount

Received by sale of old packing cases etc. Rs. 2.000 Received from Kapur & Co. cheque for Rs. 8000;

discount allowed Rs. 200

Bought fixtures. paid by cheque Rs. 5.000

Paid rent in cash Rs. 2.000

Cheque received from Dewett & Co. returned dishonoured by bank. The bank charges Rs. 100 as expenses

Issued cheque in favour of Singh & Co. for Rs. 9.600 discount received 4 per cent

Received from the estate of Varma & Co. against debt previously written off Rs. 5.000

Own cheque to Singh & Co. returned dishonoured because of wrong stamping

Issued new cheque to Singh & Co. for full amount of original debt

Prepare triple column cash book from the above particulars. Also post the ledger accounts.

(15) Enter the following transactions in a cash book with cash. Bank and discount columns. Balance the cash book and bring

down the balance :

2003

July 1 Cash Balance Rs.350

1 Bank Balance Rs.2,450

2 Cash received on sale of shares Rs.4.000

3 Paid in to bank Rs.3.150

4 Paid to Mani & Co Rs.750 Discount allowed by him Rs.25

S Paid wages Rs.50

6 Received from Kannan Rs.350 Allowed him discount Rs.50

12 Sold goods for cash Rs.510

IS Bought goods for cash Rs.l.000

18 Cash withdrawn for personal expenses Rs.200

20 Paid in to bank Rs.SOO

22 Received from Kishore Rs.l.250 Allowed him discount Rs.60

2S Paid cheque for cash purchase Rs.350

28 Drew cheque for office use Rs.200

31 Paid cheque for office rent Rs.80

[Ans: Cash Balance Rs.I010 ; Bank balance Rs.5,470]

(16) Enter the following transactions in Kapur's Cash Book with cash. bank and discount columns and strike the balances at

the end of the period :

2003

July 1 Balances of Cash Rs.13.6OO

1 Balance at Bank Rs.36.800

4 Paid Kumar by cheque Rs.12.500

7 Goods sold for cash Rs.5.300

10 Paid in to bank Rs.4.200

IS Goods purchased and paid by cheque less 8% discount Rs.24.000

20 Received Rs.630 from Kannan in settlement of his debt for Rs.6.500

25 Bought fixtures for cash Rs.l.800

31 Withdrawn Rs.2.200 from bank and paid for purchases Rs.2.000

[Ans: Balances Rs.19.400 ; Bank Balance Rs.4.220]

(17) Record the following transactions in Peter's Three columnar cash book :

2003

Jan.l Cash Balance Rs.1,200

1 Bank Balance Rs.l4.6OO

5 Goods sold to Jhon for cash Rs.4.000

7 Paid in to bank Rs.2.000

14 Withdrew from bank Rs.lO.OOO

17 Paid wages in cash Rs.12.000

20 Received cheque Rs.16.000 from Raman & Co. and allowed discount Rs.l.6OO

Accounting Books and Records

23 Withdrew from bank Rs.l.600

25 Brought furniture by cheque Rs.400

31 Paid salary to office staff by cheque Rs.3.000

[Ans : Cash Balance Rs.18.800 ; Bank Balance R1i.l.600]

(18) Prepare a petty cash book on the imprest system from the following:

2003

Mar. 1 A Petty cashier in a firm received a cash of Rs.l50 for petty cash

2 Traveling expenses Rs.5

3 Wages to casual workers Rs.l5

4 Bus fare to workmen R$.2

5 Stationery purchased Rs.l 0

6 Paid for postage Rs.4

8 Paid for Telegram Rs.1O

10 Paid for revenue stamps Rs.5

12 Repairs to typewriter Rs.4

17 Paid electric lighting charges Rs.l7

20 Paid wages to coolies Rs.4

23 Bus fare Rs.5

25 Paid Telegram Rs.1O

27 Locks purchased Rs.8

29 Paid for stationery Rs.4

31 Refreshment to customers Rs.2

89

(19) Record the following transactions in an analytical petty cash book and balance the same. On I" January 2003. the petty

cashier started with an imprest of Rs.l00 :

2003

Jan. 1 Postage stamp purchased Rs.5

3 Sweeper and scavenger paid Rs.5

5 Conveyance to manager Rs.2

6 Telegram to Delhi Rs.l

7 Stationery purchased Rs.5

10 Lorry hire for goods sent Rs.15

11 Greeting cards purchased Rs.5

13 Cartage and coolly Rs.7

17 Salary to office boy Rs.15

18 Repairs to cycles Rs.9

19 Serving charges to Typewriters Rs.6

22 Ink and Gum purchased Rs.3

24 Advertisement charges Rs.8

27 Subscription paid to newspaper Rs.7

30 Tea to customers Rs.3

DOD

Meaning

CHAPTER 4

Final Accounts

Preparation of final account is the last stage of the accounting cycle. The basic objective of every

concern maintaining the book of accounts is to find out the profit or loss in their business at the end of the

year. Every businessman wishes to ascertain the financial position of his business firm as a whole during

the particular period. In order to achieve the objectives for the firm, it is essential to prepare final accounts

which include Manufacturing and Trading, Profit and Loss Account and Balance Sheet. The determination

of profit or loss is done by preparing a Trading, Profit and Loss Account. The purpose of preparing the

Balance Sheet is to know the financial soundness of a concern as a whole during the particular period. The

following procedure and important points to be considered for preparation of Trading, Profit and Loss

Account and Balance Sheet.

(1) Manufacturing Account

Manufacturing Account is the important part which is required to preparing Trading, Profit and Loss

Account. Accordingly, in order to calculate the Gross Profit or Gross Loss, it is essential to determine the

Cost of Goods Manufactured or Cost of Goods Sold. The main purpose of preparing Manufacturing

Account is to ascertain the cost of goods manufactured or cost of goods sold, which is transferred to the

Trading Account. This account is debited with opening stock and all items of costs including purchases

related to production and credited with closing balance of work in progress and cost of goods produced

transferred to Trading Account. The term "Cost of Goods Sold" refers to cost of raw materials consumed

plus direct related expenses.

Components of Manufacturing Account

The following are the important components to be considered for preparation of Manufacturing Accounts:

(1) Opening Stock of Raw Materials.

(2) Purchase of Raw Materials.

(3) Purchase Returns.

(4) Closing Stock of Raw Materials.

Final Accounts

(5) Work in Progress (semi-finished goods).

(6) Factory Expenses.

(7) Opening Stock of Finished Goods.

(8) Closing Stock of Finished Goods.

91

(1) Opening Stock: The term Opening Stock refers to stock on hand at the beginning of the year

which include raw materials, work-in-progress and finished goods.

(2) Purchases: Purchases include both cash and credit purchase of goods. If any purchase is

returned, the same will be deducted from gross purchases.

(3) Direct Expenses: Direct expenses are chargeable expenses or productive expenses which include

factory rent, wages, freight on purchases, manufacturing expenses, factory lighting, heating, fuel, customs

duty, dock duty and packing expenses. In short, all those expenses incurred in bringing the raw materials to

the factory and converting them'into finished goods will constitute the direct expenses that are to be shown

on the debit side of the trading account.

Calculation of Cost of Goods Sold

Cost of Goods Sold can be calculated as under :

Cost of Goods Sold = Value of Opening Stock + Cost of Purchases + Direct Expenses

- Value of Closing Stock

Illustration: 1

From the following information, calculate cost of goods sold :

Solution:

Stock of materials on 1.1.2003

Stock of materials on 31.12.2003

Purchases of materials

Purchase Returns

Wages

Factory expenses

Freight and Carriage

Other direct expenses

Rs.

35,000

5,000

62,000

2,000

10,000

3,500

4,000

2,500

Calculation of Cost of Goods Sold

Particulars

Opening Stock of raw materials

Add: Purchases

Less: Purchase Return

Freight and Carriage

Less: Closing stock of raw materials

Cost of Raw Materials Consumed

Add: Direct Expenses :

Wages

Factory Expenses

Other direct expenses

Cost of Goods Sold

Rs. Rs.

35,000

62,000

2,000 60,000

4,000

99,000

5,000

94,000

10,000

3,500

2,500 16,000

1,10,000

..

92 A Textbook of Financial Cost and Management Accounting

1rading, Profit and Loss Account

Trading Account and Profit and Loss Account are the two important parts of income statements.

Trading Account is the first stage in the final account which is prepared to know the trading results of

gross profit or loss during a particular period. In other words, it is a summary of the purchases, and sale of

a business or production cost of goods sold and the value of sales. The difference between the elements

establishes the gross profit or loss which is then carried forward to the profit or loss account for calculation

of net profit or net loss. Accordingly, if the sales revenue is higher than the cost of goods sold the

difference is known as 'Gross Profit,' Similarly, if the sales revenue is less than the cost of goods sold the

difference is known as 'Gross Loss.'

Specimen Proforma of 1rading Account

The following Specimen Proforma of a Trading Account which is widely used in practice:

TRADING ACCOUNT

For the year ended 31.1

............... ..

Particulars Amount Rs. Particulars

To Opening Stock \* \* \* By Gross Sales

To Purchases \* \* \* Less " Sales Return

Less,' Purchase Return Net Sales

To Direct Expenses: By Closing Stock

Carriage Inward \* \* \* By Gross Loss c/d

Wages (Transferred to Freight

Freight P & LAIc)

Custom Duty

Fuel and Power

Factory Expenses

Royalty on Production

Other Direct Expenses

To Gross Profit c/d \* \* \*

(Transferred to P & LAIc)

\* \* \*

Balancing figure will be either Gross Profit or Gross Loss

Elements of 1rading Account (Debit Side)

(1) Opening Stock.

(2) Purchases and Purchase Returns.

(3) Direct Expenses.

(4) Gross Profit is the excess value of sales over the cost of Sales.

Elements of Trading Account (Credit Side)

Amount Rs.

\* \* \*

\* \* \*

\* \* \*

(1) Sales: The term sales refers to the total of sales of goods which include both cash sales and credit

sales during the particular period.

(2) Sales Return: If any goods returned from the customers will be deducted from the total sales.

(3) Closing Stock: Closing Stock refers to the goods remaining unsold at the end of the particular

period. The closing stock may be raw materials, work-in-progress and finished goods. Generally closing

stock does not appear in the Trial Balance. Therefore, the closing stock is not brought into the books of

Final Accounts 93

accounts but it is credited to Trading Account and also recorded in the assets side of the Balance Sheet.

The value of closing stock is ascertained by means of stock taking and the value is brought in the books by

means of an adjusting entry as

Closing Stock Account

To Trading Account

Dr. \* \* \*

\* \* \*

The closing stock is valued at cost price or market price whichever is less.

Gross Loss: Gross Loss refers to excess of cost of sales over the sales revenue.

Equation of Trading Account

The purpose of preparing the Trading Account is to calculate the Gross Profit or Gross Loss of a

concern during a particular period. The following equations are highly useful for determination of Gross

Profit or Gross Loss :

Calculation of Gross Profit or Loss

Gross Profit

Sales

Sales

=

=

=

Sales - Cost of Sales

Cost of Sales + Gross Profit

(or)

Stock in the beginning + Purchases + Direct Expenses

- Stock at the end + Gross Profit

(or)

Stock in the beginning + Purchases + Direct Expenses

+ Gross Profit = Sales + Stock at the end

PROFIT AND LOSS ACCOUNT

The determination of Gross Profit or Gross Loss is done by preparation of Trading Account. But it

does not reveal the Net Profit or Net Loss of a concern during the particular period. This is the second part

of the income statement and is called as Profit and Loss Account. The purpose of preparing the profit and

loss account to calculate the Net Profit or Net Loss of a concern. Net profit refers to the surplus which

remains after deducting related trading expenses from the Gross Profit. The trading expenses refer to

inclusive of office and administrative expenses, selling and distribution expenses. In other words, all

operating expenses such as office and administrative expenses, selling and distribution expenses and nonoperating

expenses are shown on the debit side and all operating and non operating gains and incomes are

shown on the credit side of the Profit and Loss Account. The difference of two sides is either Net Profit or

Net Loss. Accordingly, when total of all operating and non-operating expenses is more than the Gross

Profit and other non-operating incomes, the difference is the Net Profit and in the reverse case it is known

as Net Loss. This Net Profit or Net Loss is transferred to the Capital Account of Balance Sheet.

Specimen Proforma of a Profit and Loss Account

The following Specimen Proforma which is used for preparation of Trading, Profit and Loss

Account.

94 A Textbook of Financial Cost and Management Accounting

Particulars

To Opening Stock

To Purchases

Less : Purchases Returns

To Carriage Inwards

To Wages

To Gross Profit c/d

To Gross Loss bId

To Office & Administrative

Expenses:

Office Salaries

Office Rent and Rates

Printing and Stationery

Telephone Charges

Legal Charges

Audit fees

General Expenses

To Selling Expenses:

Advertisement

Discount Allowed

Commission Paid

Salesmen Salaries

Godown Rent

Carriage Outward

Agent Commission

Traveling Expenses

To Distribution Expenses:

Depreciation on Vehicle

Upkeep of Motor Van

Travelers' Salaries

Repairs and Maintenance

To Non-Operating Expenses:

Discount on Issue of Shares

Preliminary Expenses

Trading, Profit and Loss Account

for the year ending 31st Dec ••••

Amount Rs. Particulars

••• By Sales

Less : Sales Returns

••• By Closing Stock

• • • By Gross Loss c/d

•••

• •• By Gross Profit bId • • • By Non-Operating Incomes:

Interest Received

Discount Received

Dividend Received

Income from Investment

Interest on Debenture

Any other incomes

By Net Loss c/d

••• (Transferred to Capital

Account)

• • •

•••

To Net Profit c/d } • • •

(Transferred to Capital Nc) •••

Components appearing on Debit Side of the P & L Alc

Amount Rs. .\*.

• • •

•••

• ••

• • •

• ••

•••

Those expenses incurred during the manufacturing process of conversion of raw materials into

finished goods will be treated as direct expenses which are recorded in the debit side of Trading Account.

Any expenditure incurred subsequent to that will be known as indirect expenses to be shown in the debit

side of the Profit and Loss Account. The indirect expenses may be classified into: (1) Operating Expenses

and (2) Non-Operating Expenses.

(1) Operating Expenses: It refers to those expenses as the day-to-day expenses of operating a

business include office & administrative expenses, selling and distribution expenses.

Final Accounts 95

(2) Non-Operating Expenses: Those expenses incurred other than operating expenses. NonOperating

expenses which are related to a financial nature. For example, interest payment on loans and

overdrafts, loss on sale of fixed assets, writing off fictitious assets such as preliminary expenses, under

writing commission etc.

Components appearing on Credit Side of P&L Alc

The following are the components as shown on the Credit Side:

(1) Gross Profit brought down from Trading Account

(2) Operating Income: It refers to income earned from the operation of the business excluding

Gross Profit and Non-Operating incomes.

(3) Non-Operating Income: Non-Operating incomes refer to other than operating income. For

example, interest on investment of outside business, profit on sale of fixed assets and dividend received

etc.

BALANCE SHEET

According to AICPC (The American Institute of Certified Public Accountants) defines Balance Sheet

as a tabular Statement of Summary of Balances (Debit and Credits) carried forward after an actual and

constructive closing of books of accounts and kept according to principles of accounting. The purpose of

preparing balance sheet is to know the true and fair view of the status of the business as a going concern

during a particular period. The balance sheet is on~ of the important statement which is used to owners or

investors to measure the financial soundness of the concern as a whole. A statement is prepared to show

the list of liabilities and capital of credit balances of the business on the left hand side and list of assets and

other debit balances are recorded on the right hand side is known as "Balance Sheet."

The Balance Sheet is also described as a statement showing the sources of funds and application of

capital or funds. In other words, liability side shows the sources from where the funds for the business

were obtained and the assets side shows how the funds or capital were utilized in the business.

Accordingly, it describes that all the assets owned by the concern and all the liabilities and claims it owes

to owners and outsiders.

Specimen Form of Balance Sheet

Companies Act 1956 has prescribed a particular form for showing assets and liabilities in the Balance

Sheet for companies registered under this Act. There is no prescribed form of Balance Sheet for a sole

trader and partnership firm. However, the assets and liabilities can be arranged in the Balance Sheet into

(a) In the Order of Liquidity

(b) In the Order of Performance

(a) In the Order of Liquidity: When assets and liabilities are arranged according to their order of

liquidity and ability to meet its short-term obligations, such an arrangement of order is called "Liquidity

Order." The Specimen form of Balance Sheet arranged in the Order of Liquidity is given below:

96 A Textbook of Financial Cost and Management Accounting

Balance Sheet (I) as on ••••

Liabilities Amount Rs. Assets Amount Rs.

Current Liabilities : \*\*\* Current Assets : \* \* \*

Sundry Creditors Cash in Hand

Bills Payable Cash at Bank

Bank Overdraft Sundry Debtors

Outstanding Expenses Short Term Investments

Long-Term Liabilities : \* \* \* Stock in Trade

Loan from Bank Bills Receivable

Loan from Mortgage Prepaid Expenses

Debenture Accrued Incomes

Any other Long Term Fixed Assets : \* \* \*

Total Liabilities \*\*\* Plant and Machinery

Capital Account : \* \* \* Furniture & Fixtures

Add: Net Profit Buildings

Add : Interest on Capital Loose Tools

Less : Drawings Motor Cars

Reserves and Surplus : \*\*\* Intangible Assets : \* \* \*

General Reserve Goodwill

Reserve for Contingency Patents

Reserve for Sinking Fund Copy Rights

Trade Marks

Fictitious Assets : \* \* \* ;

Preliminary Expenses

Advertisement

Misc. Expenses

\*\*\* \* \* \*

(b) In the order of Performance: This method is commonly used by the companies. The specimen

fonn of Balance Sheet arranged in the order of Perfonnance is given below :

Balance Sheet (II) as on ••••

Liabilities Amount Rs.

Current Liabilities

Fixed Liabilities

Long-Term Liabilities

Capital, Reserves and Surplus

Classification of Assets and Liabilities

I. Assets

\*\*\*

\* \* \*

\* \* \*

\*\*\*

\* \* \*

Assets

Current Assets

Fixed Assets

Fictitious Assets

Any other Investments

Amount Rs.

\* \* \*

\*\*\*

\* \* \*

\* \* \*

\* \* \*

Business assets are resources or items of values owned by the business and which are utilized in the

nonnal course of business operations to produce goods for sale in order to yield a profit. The assets are

grouped into:

(1) Fixed Assets

(2) Current Assets or Floating Assets

(3) Fictitious Assets

(4) Liquid Assets

(5) Contingent Assets

Final Accounts 97

(1) Fixed Assets: This class of assets include those of a tangible nature having a specific value and

which are not consumed during the normal course of business and trade but provide the means for

producing saleable goods or providing services.

Components of Fixed Assets

(1) Goodwill

(2) Land and Buildings

(3) Plant and Machinery

(4) Furniture and Fixtures

(5) Patents and Copy Rights

(6) Livestock

(7) Leaseholds

(8) Long-term Investments

(9) Vehicles

(2) Current Assets or Floating Assets : The assets of a business of a transitory nature which are

used for resale or conversion into a cash during the course of business operation. In other words, those

assets which are easily converted into cash in normal course of business during the shorter period say, less

than one year are treated as current or floating assets.

Components of Current Assets

(1) Cash in hand

(2) Cash at Bank

(3) Inventories:

Stock of raw materials

Stock of work-in-progress

Stock of finished goods.

(4) Sundry Debtors

(5) Bills Receivable

(6) Short-Term Marketable Securities

(7) Short-Term Investments

(8) Prepaid Expenses

(3) Fictitious Assets : Fictitious Assets refer to any deferred charges. They are really not assets.

Preliminary expenses, Share issue expenses, discount on issue of shares and debentures, and debit balance

of profit and loss account etc. are the important components of fictitious assets.

(4) Contingent Assets : It refers to a right to property which may come into existence on the

happening of some future event. For example, a right to obtain for shares in another company on

favourable terms, a right to sue for infringement of patents and copy rights etc.

(5) Liquid Assets: Liquid Assets which are immediately converted into cash. In other words, these

assets are easily encashable in the normal course of business. Cash in hand, Cash at bank, Bills Receivable,

98 A Textbook of Financial Cost and Management Accounting

Sundry debtors, Marketable Securities, Short-term investments etc. are the important components of liquid

assets. While measuring Liquid Assets, Stock of raw materials, work-in-progress, finished goods and

prepaid expenses are excluded from the components of Current assets.

II. Liabilities

According to Accounting Principles Board, define liabilities as an economic obligations of an

enterprise that are recognized and measured in conforming with generally accepted accounting principles.

The liabilities are classified into:

(1) Non-Current Liabilities

(2) Capital

(3) Current Liabilities

(1) Non-Current Liabilities: Non-Current Liabilities otherwise known as Long-Term Liabilities.

Liabilities which are become due for payment beyond a period of one year say, five to ten years, are treated

as Long-Term Liabilities. The following are the examples of

Non-Current Liabilities:

(a) Long-Term Debit.

(b) Debenture.

(c) Long-Term Loan from Bank.

(d) Long-Term Loan from Financial Institutions.

(e) Long-Term Loan raised by Issue of Public Deposits.

(0 Long-Term Debt raised by Issue of Securities.

(2) Capital: Capital refers to the value of assets owned by a business and which are used during the

course of business operations to generate additional Capital or Wealth. It is also known as Owner's Equity

or Net Worth. When a business first comes into existence the initial capital may be provided by the

proprietor. The initial influx of capital will normally be in the form of cash which need to be converted into

plant and machinery, building and stock of materials prior to commencing operations. Thus, capital is

equal to the total assets.

(3) Current Liabilities: Any amount owing by the business which are currently due for payment are

referred to as current liabilities. In other words, these liabilities which are paid within one year are treated

as current liabilities. The following are the components of current liabilities :

(1) Bills Payable.

(2) Sundry Creditors.

(3) Short-Term Bank Loans.

(4) Dividend Payable.

(5) Provision for Taxes Payable.

(6) Short-Term Bank Overdraft.

(7) Trade Liabilities and Accrued Expenses.

(8) Outstanding Expenses.

Final Accounts 99

ADJUSTMENT ENTRIES

The preparation of income statements, i.e., Trading, Profit and Loss Account and Balance Sheet is

the last stage of accounting process. According to the principles of double entry system of accounting all

the expenses and incomes relating to a particular period whether incurred or not should be taken into

account. In order to give the true and fair view of the state of affairs of the business concern, it is essential

to consider various adjustments while preparing Trading, Profit and Loss Account and Balance Sheet. The

following are the various adjustments usually related to :

(1) Closing Stock

(2) Outstanding Expenses

(3) Prepaid Expenses

(4) Accrued Income

(5) Income Received in Advance

(6) Depreciation

(7) Interest on Capital

(8) Interest on Drawings

(9) Bad Debts

(10) Provision for Doubtful Debts

(11) Provision for Discount on Debtors

(12) Provision for Discount on Creditors

(1) Closing Stock: The term Closing Stock refers to stock of raw materials, work in progress and

finished goods at the end of the year valued at cost price or market price whichever is less. The following

adjustment entry is

Closing Stock Account - Dr. \* \* \*

To Trading Account \* \* \*

The stock at the end appears in the balance sheet and the balance in the stock is carried forward to the

next year as opening stock. The opening stock account balance will appear in the Trial Balance and would

be closed and transferred to the debit of the Trading Account.

(2) Outstanding Expenses: Outstanding expenses refer to those expenses incurred and remain

unpaid during the accounting period. For example, salary, rent, interest etc. are expenses which are

incurred but remain unpaid during the accounting period. In order to ascertain the correct profit and loss

made during the year, it is essential that such related expenses are treated as Salary Outstanding, Interest

Outstanding and Rent Outstanding etc. The following necessary adjustment entry is :

Expenses (Salaries) Account Dr. \* \* \*

To Outstanding Expenses (Salaries) Nc \* \* \*

As per the rules, respective expenses are nominal account therefore it be charged to profit and loss

account and also shown in the balance sheet on the liability side.

(3) Prepaid Expenses: Prepaid expenses are also known as unexpired expenses. Those expenses

which are incurred and paid in advance. Such expenses are actually related to a future period. In order to

]00 A Textbook of Financial Cost and Management Accounting

ascertain the correct picture of the profit and loss accounts the following adjustment entry is required for

adjusting such prepaid expenses.

Prepaid Expenses Account

To Expenses Account

Dr \* \* \*

\* \* \*

The amount paid in advance will be deducted from the actual amount paid because it is related to the

future accounting period. And the net amount will be debited to profit and loss account and the balance in

the prepaid expenses account is shown the advance payment indicates as an amount due to the business

concern.

(4) Accrued Income: Accrued Income otherwise known as Outstanding Income. Such incomes are

accrued during the accounting period but not actually received in cash during that period. The adjustment

entry will be as follows :

Accrued Income Account Dr. \* \* \*

To Concerned Income Account \* \* \*

The accrued income is added to the respective income account. And the total accrued amount will be

credit to profit and loss account and is shown on the asset side of the balance sheet.

(5) Income Received in Advance: Any income received in advance which is not earned during the

accounting period. Therefore, if any income received in advance, it should be treated as income for the

subsequent year. The adjustment entry will be :

Income Account Dr. \* \* \*

To Income Received in Advance Account \* \* \*

The Income Received in Advance is treated as a liability because an amount due to the party.

Therefore, it shown on the liability side of the balance sheet. The income actually earned alone will appear

on the credit side of Profit and Loss Account.

(6) Depreciation: The term depreciation refers to loss on account of reduced value of assets due to

wear and tear, obsolescence, effluxion of time or accident. Depreciation is treated as the cost or loss arised

when the asset is used in the normal course of time. In order to ascertain the correct value of the assets in

the balance sheet, it is essential to make to following adjustment entry as :

Depreciation Account Dr. \* \* \*

To Fixed Assets Account \* \* \*

The amount of depreciation is charged to debit side of the profit and loss account and is deducted

from the respected assets shown on the asset side of the balance sheet.

(7) Interest on Capital: In order to ascertain true profitability of the business concern, it is essential

that profit is determined after deducting interest on the capital provided by proprietor. Interest on capital is

included in the capital expenditure and thus the adjustment entry will be :

Interest on Capital Account

To Capital Account

Dr. \* \* \*

\*\*\*

Interest on Capital is an expenditure charged to debit side of profit and loss account and it is added to

capital shown on the liability side of the balance sheet.

Final Accounts 10/

(8) Interest on Drawings: It is like a interest on capital provided by the proprietor. Any amount

charged as interest on drawings made by the proprietors for his personal use during the particular period is

treated as interest on drawings. Interest on drawings should be taken as an income for ascertaining the true

profit for a period. The adjustment entry will be :

Capital Account Dr. \* \* \*

To Interest on Drawings Account \* \* \*

Interest on drawings is charged on the credit side of the profit and loss account and it is deducted

from the capital account shown on the liability side of the Balance Sheet.

(9) Bad Debts: The term bad debts refer to any amount which are definitely irrecoverable are termed as

Bad Debts. It may be treated as actual loss of the business. Any amount irrecoverable due to inability of the

debtors, it should be written off from the accounts of debtors. The necessary adjustment entry will be :

Bad Debts Account Dr. \* \* \*

To Debtor's Personal Account \* \* \*

Being bad debts are treated as expenses is charged to debit side of profit and loss account. And the

amount deducted from debtors account shown on the assets side of the balance sheet.

(10) Provision for Doubtful Debts: It is like a bad debt but recovery is doubtful. Thus doubtful

debts should not be written off from the books of accounts. Doubtful debts are treated as anticipated loss

therefore making suitable provisions required to be made in the books of accounts. In order to ascertain the

correct picture of the debtor's balance, it is essential to make an adjustment entry :

Profit and Loss Account Dr. \* \* \*

To Provision for Doubtful Account \* \* \*

The provision for doubtful debts is an anticipated expenses charged to the debit side of the profit and

loss account and it is deducted from the debtor's account shown on the asset side of the balance sheet.

(11) Provision for Discount on Debtor: Discount allowed to debtor is treated as expenses of a

business concern. Such discounts are allowed to encourage for prompt payment made by the debtors on

credit sales. When discount allowed, an adjustment entry is :

Discount Allowed Account Dr. \*\*\*

To Debtor's Personal Account \* \* \*

The provision for discount is charged to debit side of profit and loss account and it i~ deducted from

the debtor's account shown on the assets side of balance sheet.

(12) Provision for Discount on Creditors: It is like a discount on debtors, such discounts are

allowed to make prompt payment due to it creditors. The firm receives such discounts when the payment

made to its creditors in time. It is an anticipated income or profit which is required to create a suitable

provision's in order to ascertain the correct picture of the creditor's balance, to make an adjustment entry

will be :

(a) For Receipt of Discount:

Sundry Creditor's Account Dr. \*\*\*

To Discount Received Account \* \* \*

102 A Textbook of Financial Cost and Management Accounting

(b) For Provision for Discount on Creditors:

Provision for Discount on Creditor's Account Dr. \* \* \*

To Profit and Loss Account \* \* \*

The provision for discount on creditors treated as an anticipated profit charged to the credit side of

profit and loss account. And it is deducted from sundry creditors shown on the liability side of the balance

sheet.

Summary of Adjustment Entries :

(1) For Closing Stock:

Closing Stock Nc Dr. \* \* \*

To Trading Account \* \* \*

(2) For Outstanding Expenses:

Expenses Account Dr. \*\*\*

To Outstanding Expenses Account \* \* \*

(3) For Prepaid Expenses:

Prepaid Expenses Account Dr. \* \* \*

To Expenses Account \*\*\*

(4) For Accrued Incomes:

Accrued Income Account Dr. \* \* \*

To Concerned Income Account \* \* \*

(5) For Income Received in Advance:

Income Account .. Dr. \* \* \*

To Income Received in Advance Account \* \* \*

(6) For Depreciation on Fixed Assets:

Depreciation Account Dr. \* \* \*

To Fixed Assets Account \*\*\*

(7) For Interest on Capital:

Interest on Capital Account Dr. \*\*\*

To Capital Account \*\*\*

(8) For Interest Oil Drawillgs:

Capital Account Dr. \* \* \*

To Interest on Drawing Account \* \* \*

(9) For Bad Debts:

Bad Debts Account Dr. \* \* \*

To Debtor's Personal Account \* \* \*

Final Accounts /03

(10) For Provision for Doubtful Debts:

Profit and Loss Account Dr. \* \* \*

To Provision for Bad and Doubtful Debts Account \* \* \*

(11) For Provision for Discount on Debtor:

Discount Allowed Account Dr. \* \* \*

To Debtors Personal Account \*\*\*

(12) Provision for Discount on Creditors:

(a) For Receipt of Discount:

Sundry Creditor Account Dr. \* \* \*

To Discount Received Account \* \* \*

(b) For Provision for Discount on Creditors:

Provision for Discount on Creditor's Account Dr. \* \* \*

To Profit and Loss Account \* \* \*

Difference between Profit and Loss Account and Balance Sheet

Profit and Loss Account Balance Sheet

(1) It is prepared with the debit or credit balance of (1) It shows the assets and liabilities on a

Nominal Account. particular date.

(2) Profit and Loss Account reveals the Net Profit or (2) It is a statement of financial position on a

Net Loss of a concern during the particular period. particular date.

(3) The difference between the two sides of Trading (3) The difference between the two sides of profit

Account will be gross profit and loss account will be Net Profit or Net Loss

transferred to Profit and Loss Account. transferred to liability side of Balance Sheet.

(4) The debit or credit balances of nominal accounts (4) It is the statement of static in nature thus,

are closed by transferring Profit and Loss Account. accounts do not require to close them.

Illustration: 2

From the following informations of Jansons Ltd. on 31 sl March, 2003 you are required to prepare the

Trading, Profit and Loss Nc and Balance Sheet:

Rs. Rs.

Opening Stock 5,000 Capital 89,500

Bills Receivable 22,500 Commission (Cr.) 2,000

Purchases 1,95,000 Return Outward 2,500

Wages 14,000 Trade Expenses 1,000

Insurance 5,500 Office Fixtures 5,000

Sundry Debtors 1,50,000 Cash in Hand 2,500

Carriage Inward 4,000 Cash at Bank 23,750

Commission (Dr.) 4,000 Rent & Rates 5,500

Interest on Capital 3,500 Carriage Outward 7,250

Stationery 2,250 Sales 2,50,000

Return Inward 6,500 Bills Payable 15,000

Creditors 98,250

Closing Stock 12,500

104

Solution:

A Textbook of Financial Cost and Management Accounting

Dr. Trading, Profit & Loss Ale of Jansons Ltd. for the year ending 31st March, 2003 Cr.

Particulars Amount Rs. Particulars Amount Rs.

To Opening Stock 5,000 By Sales 2,50,000

To Purchase 1,95,000 Less : Sales Return 6,600 2,43,500

Less: Pu'rchase Return 2,500 1,92,500 By Closing Stock 1,25,000

To Wages 14,000

To Carriage Inward 4,000

To Gross Profit cld 1,53,000

3,68,500 3,68,500

To Insurance 5,500 By Gross Profit bId 1,53,000

To Commission 4,000 By Commission 2,000

To Interest on Capital 3,500

To Stationery 2,250

To Trade Expenses 1,000

To Rent & Taxes 5,500

To Carriage Outward 7,250

To Net Profit c/d 1,26,000

1,55,000 1,55,000

Balance Sheet of Jansons Ltd.

Liabilities Amount Rs. Assets Amount Rs.

Creditors 98,250 Cash in Hand 2,500

Bills Payable 15,000 Cast at Bank 23,750

Capital 89,000 Bills Receivable 22,500

Add : Net Profit 1,26,000 2,15,500 Stock 1,25,000

Sundry Debtors 1,50,000

Office Fixtures 5,000

3,28,750 3,28,750

Illustration: 3

From the Trial Balance in illustration 12 of Chapter on Trial Balance you are required to prepare a

Trading, Profit and Loss Account and Balance Sheet.

Final Accounts 105

Solution:

Dr. Trading, Profit and Loss Account for the year ending 31.4.2003 (Rs. in lakhs) Cr.

Particulars Amount Rs. Particulars Amount Rs.

To Purchase 1,500 By Sales 1,250

Less: Sales Return 100 1,150

To Gross Loss cld 350

1,500 1.500

To Gross Loss bId 350 By Discount 2

To Telephone Rent 40 By Net Loss cld 758

To Stationery 20 (Balancing figure)

To Rent 100

To Salaries 250

760 760

Balance Sheet as on 31.4.2003

Liabilities Amount Rs. Assets Amount Rs.

Capital 4,500 Cash 1,242

Less : Net Profit 758 Bank 1,400

3,742 Furniture 500

Less: Drawings 100 3,642 Sundry Debtors 600

Sundry Creditors 100

3,742 3,742

Illustration: 4

From the Trial Balance in illustration 14 of Chapter on Trial Balnce you are required to Prepare

Trading, Profit and Loss Account and Balance Sheet :

Solution:

Dr. Trading, Profit and Loss Account for the year ending 31.3.2003 Cr.

Particulars Amount Rs. Particulars Amount Rs.

To Purchases 6.000 By Sales 11,500

To Freights 500

To Gross Profit cld 5,000

11,500 11.500

To Discount allowed 150 By Gross Profit bId 5,000

To Rent Paid 400 By Dividend Received 300

To Salaries 1.000 By Interest on Investment 1,500

To Depreciation 1,000

To Net Profit cld 4.250

(Balancing figure) 6,800 6.800

/06 A Textbook of Financial Cost and Management Accounting

Balance Sheet as on 31.3.2003

Liabilities Amount Rs. Assets Amount Rs.

Capital 65,000 Cash Account 33,970

Add: Net Profit 4,250 Stock 10,000

69,250 Machinery 9,000

Less: Drawings 500 68,750 Furniture 5,000

Sundry Creditors 5,000 Building 5,000

Share Capital 970 Bank 4,500

Sundry Debtors 7,250

74,720 74,720

IIIustration: 5

From the following particulars of Mrs. Raman & Co., you are required to prepare Trading, Profit and

Loss Account and Balance Sheet for the year ended 31 st Dec. 2003 :

Sales

Sales Return

Stock at the beginning

Purchases

Purchases Return

Direct Wages

Direct Expenses

Carriage Inwards

Capital at the beginning

Drawings

Sundry Debtors

Sundry Creditors

Additional Information

(1) Outstanding Salaries Rs. 500

(2) Interest on Capital at 10% P.A.

Rs.

65,000 Discount Allowed

500 Discount Received

8,000 Salaries

29,000 Interest paid

300 Furniture

5,000 Buildings

5,000 Plant and Machinery

4,000 Cash in Hand

30,000 Bills Payable

5,000 Reserve for Bad and Doubtful Debts

10,000 Bad Debts

12,000 Closing stock at the end

(3) Depreciation on Plant and Machinery at 10% P.A. and Buildings at 5% P.A.

(4) Prepaid of Interest Rs. 100

(5) Provision for Bad and Doubtful Debts at 10% on Debtors

Rs.

100

500

3,000

400

3,000

20,000

20,000

1,000

6,200

500

300

8,000

Final Accounts 107

Solution:

Dr. Trading, Prpfit and Loss Account for the year ended 31st Dec. 2003 Cr.

Particulars Amount Rs. Particulars Amount Rs.

To Opening Stock 8,000 By Sales 65,000

To Purchases 29,000 Less: Sales Return 590 64,500

Less : Purchases Return 300 28,700 By Closing Stock 8,000

To Carriage Inward 4,000

To Dintct Wages 5,000

To Direct Expenses 5,000

To Gross Profit cld 21,800

72,500 72,500

To Discount allowed 100

To Salaries 3,000 By Gross Profit bId 21,800

Add : Outstanding 500 3,500 By Discount Received 500

To Interest paid 400

Less: Prepaid Expenses 100 300

To Bad Debts 300

Add : 10% of ProviSiOn}

For Doubtful Debts 1,000

1,300

Less : Existing of } Doubtful Debits 500 800

To Interest on Capital } at 10% P.A 3,000

To Depreciation :

10% on Plant and } Machinery 2,000

5% on Buildings 1,000

To Net Profit cld 11,600

22,300 22,300

Balance Sheet as on 3151 Dec. 2003

Liabilities Amount Rs. Assets Amount Rs.

Capital 30,000 Cash in hand 1,000

Add: Net Profit 11,600 Furniture 3,000 - 41,600 Closing Stock 8,000

Add: Interest on Capital 3,000 Plant and Mach. 20,000

44,600 Less : Depreciation 2,000 18,000

Less : Drawings 5,000 39,600 Buildings 20,000

Sundry Creditors 12,000 Less : Depreciation 1,000 19,000

Outstanding Salary 500 Prepaid Interest 100

Bills Payable 6,200 Sundry Debtors 10,000

Less : Provision for}

Doubtful Debts 800 9,200

58,300 58,300

108

Illustration: 6

A Textbook of Financial Cost and Management Accounting

From the foIl owing transactions of Mrs. Sharma & Co., you are required to Prepare Trading, Profit

and Loss Account and Balance Sheet for the year ended 31st Dec. 2003 :

Rs.

Sales 3,55,000 Sundry Debtors

Sales Return 5,000 Rent Received

Purchases 2,52,000 Discount Received

Return Outwards 2,000 Discount Allowed

Carriage Outward 1,000 Commission Allowed

Carriage Inward 5,000 Taxes and Insurance

Opening Stock 40,000 Provision for Doubtful Debts

Direct Expenses

Capital

Furniture

Bank Overdraft

Buildings

Plant and Machinery

Sundry Creditors

Bills Payable

Additional Informations

(1) Stock at the end Rs. 42,000

(2) Depreciation made on

Plant and Machinery

Buildings

Rs.2oo0

Rs. 1000

5,000 Bad Debts

60,000 Salaries

5,000 Dividend Paid

10,000 General Expenses

45,000 Rent Paid

40,000 Bills Receivable

25,000

30,000

(3) Provision for Doubtful Debts at 5% on Sundry Debtors

(4) Outstanding Rent Rs. 1000

(5) Prepaid Salaries Rs. 1000

(6) Interest on Capital at 5%

Solution:

Trading, Profit and Loss Account for the year ended 31st Dec. 2003

Particulars Amount Rs. Particulars

To Opening Stock 40,000 Sales 3,55,000

To Purchases 2,52,000 Less " Sales Return 5,000

Less " Purchase Return 2,000 2,50,000 By Closing Stock

To Carriage Inward 5,000

To Direct Expenses 5,000

To Gross Profit cld 92,000

3,92,000

To Carriage outward 1,000 By Gross Profit bid

To Discount allowed 2,000 By Rent Received

To Commission allowed 1,000 By Discount Received

To Dividend Paid 5,000

To General Ex pe nses 5000

Rs.

30,000

3,000

3,000

2,000

1,000

3,000

2,000

1,500

20,000

5,000

5,000

3,000

21,500

Amount Rs.

3,50,000

42,000

3,92,000

92,000

3,000

3,000

Final Accounts /09

To Depreciation on Plant & Machinery 2,000

Buildings 1,000

To Salaries 20,000

Less: Prepaid 1,000 19,000

To Rent Paid 3,000

Add : Outstanding Rent 1,000 4,000

To Bad Debts 1,500

Add : Bad & Doubtful Debts 1,500

3,000

Less : Existing Doubtful Debts 2,000 1,000

To Taxes and Insurance 3,000

To Interest on Capital 3,000

To Net Profit c/d 51,000

98,000 98,000

Balance Sheet as on 31s1 Dec. 2003

Liabilities Amount Rs. Assets Amount Rs.

Capital 60,000 Sundry Debtors 30,000

Add: Net Profit 51,000 Less : Provision for

1,11,000 Bad & Doubtful Debts 1,500 28,500

Add : Interest on Capital 3,000 1,14,000 Furniture 5,000

Bank Overdraft 10,000 Buildings 45,000

Sundry Creditors 25,000 Less : Depreciation 1,000 44,000

Bills Payable 30,000 Plant & Machinery 40,000

Outstanding Rent 1,000 Less: Depreciation 2,000 38,000

Prepaid Salaries 1,000

Stock at end 42,000

Bills Receivable 21,500

1,80,000 1,80,000

Illustration: 7

The following are the particulars of Mr. I. M. Pandey for the year ended 3151 Dec. 2003 :

Capital 1,00,000 Sundry Creditors 50,000

Land & Building 1,00,000 Plant & Machinery 30,000

Goodwill 30,000 Investments 25,000

Furniture & Fixtures 15,000 Cash in Hand 20,000

Bills Receivable 15,000 Cash at Bank 5,000

Bills Payable 24,000 Drawings 20,000

Sundry Debtors 40,000 Long-Term Loan 2,00,000

Commission Paid 5,000 Salaries 20,000

Dividend Paid 4,000 Coal and Fuel 15,000

Bank Overdraft 23,000 Factory rent & rates 20,000

Discount Allowed 3,000 General Expenses 4,000

Carriage Inwards 15,000 Advertisement 5,000

Carriage Outwards 7,000 Provision for Bad & } Opening Stock: Doubtful Debts 2,000

Raw Materials 1,50,000 Sales 8,50,000

Finished goods 75,000 Sales Return 10,000

Purchase of Raw Materials 5,00,000

llO A Textbook of Financial Cost and Management Accounting

Purchase Returns

Direct Wages (Factory)

Power

Additional Information

5,000

80,000

30,000

(1) Stock at the end of the year Rs. 1,00,000

(2) A provision for doubtful depts. at 5% on Sundry Debtors

(3) Interest on Capital at 5% P.A.

(4) Depreciation on building Rs. 1,000 and Rs. 3,000 on Machinery to be provided

(5) Accrued commission Rs. 12,500

(6) Interest has accrued on investment Rs. 15,000

(7) Salary Outstanding Rs. 2,000

(8) Prepaid Interest Rs. 1,500

You are required to prepare Manufacturing, Trading and Profit and Loss Account for the year ended

31st Dec. 2003.

Solution:

Manufacturing Account

Particulars Amount Rs. Particulars Amount Rs.

To Opening Stock of

Raw Materials 1,50,000 By Cost of Manufactured

To Purchase 5,00,000 goods transferred to Trading A1c 8,05,000

Less: Purchase Return 5,000 4,95,000

To Carriage Inwards 15,000

To Direct Wages 80,000

To Power 30,000

To Coal and Fuel 15,000

To Factory Rent and Rates 20,000

8,05,000 8,05,000

Trading, Profit and Loss Account

Particulars Amount Rs. Particulars Amount Rs.

To Opening Stock of finished goods 75,000 Sales 8,50,000

To Cost of goods transferred } Less : Sales Return 10,000 8,40,000

from Manufacturing A1c 8.05,000 By Closing Stock 1,00,000

To Gross Profit cld 60,000

9,40,000 9,40,000

To Carriage Outward 7,000 By Gross Profit bId 60,000

To Discount Allowed 3.000 By Accrued Commission 12,500

To Commission Paid 5,000 By Accrued Interest 15,000

To Dividend Paid 4,000

To General Expenses 4,000

To Advertisement 5,000

Final Accounts 11/

To Salaries 20,000

Add : Outstanding 2,000 22,000

To Interest Paid 7,000

Less : Prepaid 1,500 5,500

To Provision for Bad & } Doubtful Debts 2,000

Add: Bad Debts 4,000

6,000

Less: Old Provision for }

Doubtful Debts 2,000 4,000

To Depreciation on

Building 1,000

Machinery 3,000 4,000

To Interest on Capital @ 5% P.A. 5,000

To Net Profit c/d 19,000

87,500 87,500

Balance Sheet as on 31S

\ Dec. 2003

Liabilities Amount Rs. Assets Amount Rs.

Capital 1,00,000 Sundry Debtors 40,000

Add : Net Profit 19,000 Less : Provision for

1,19,000 Bad & Doubtful Debts 2,000 38,000

Add: Interest on Capital 5,000 Goodwill 30,000

1,24,000 Furniture & Fixtures 15,000

Less : Drawings 20,000 1,04,000 Bills Receivable 15,000

Bills Payable 24,000 Land & Building 1,00,000

Sundry Creditors 50,000 Less : Depreciation 1,000 99,000

Salary Outstanding 2,000 Plant & Machinery 30,000

Long-Term Loans 2,00,000 Less : Depreciation 3,000 27,000

Bank Overdraft 23,000 Accrued Commission 12,500

Accrued Interest 15,000

Prepaid Interest 1,500

Cash in Hand 20,000

Cash at Bank 5,000

Investments 25,000

Stock at the end 1,00,000

4,03,000 4,03,000

Illustration : 8

From the following information, you are required to prepare Trading and Profit and Loss Account

and Balance Sheet

Rs. Rs.

Raman's Capital 2,28,800 Stock 1.4.2003 38,500

Raman's Drawings 13,200 Wages 35,200

Plant and Machinery 99,000 Sundry Creditors 44,000

Freehold Property 66,000 Postage and Telegram 1,540

Purchases 1,10,000 Insurance 1,760

Purchase Return 1,100 Gas and Fuel 2,970

112

Salaries

Office Expenses

Office Furniture

Discount allowed

Sundry Debtors

Loan to Mr. Kumar }

At 10% p.a. balance on

1.4.2003

Cash at Bank

BiIIs Payable

13,200

2,750

5,500

1,320

29,260

44,000

29,260

5,500

A Textbook of Financial Cost and Management Accounting

Bad Debts

Office Rent

Freight

Loose Tools

Factory Lighting

Provision for bad and }

doubtful debts

Interest on loan to }

Mr. Kumar

Cash on hand

Sales

660

2,860

9,900

2,200

1,100

880

1,100

2,640

2,31,440

Additional Information

(I) Stock on 1.3.2004 was valued at Rs.72,6oo

(2) A new machine was installed during the year costing Rs.15,400 but it was not recorded in the books as no

payment was made for it. Wages Rs.l,loo paid for its erection have been debited to wage account

(3) Depreciation on plant and machinery by 33 113% ; furniture by 10% ; Freehold property by 5%

(4) Loose Tools were valued at Rs.I,76O on 31.3.2004

(5) Of the sundry debtors Rs.600 are bad and should be written off

(6) Maintain a provision of 5% on sundry debtors for doubtful debts

(7) The manager is entitled to a commission of 10% of the net profit after charging such commission

ICA Inter. 2oo1J

Solution: .

Dr.

Particulars

To Opening Stock (1.4.2003)

To Purchases

Less : Returns

To Wages

Less : Erection of } Machinery

To Gas and Fuel

To Freight

To Factory Lighting

To Gross Profit cld

To Salaries

To Office Expenses

To Postage & Telegram

To Insurance

To Office Rent

To Discount

To Bad Debts

Add : Bad debts

Add : New Provision

Shri Raman

Trading, Profit and Loss Account

for the year ended 31.3.2004

Amount Rs. Particulars

38,500 By Sales

1,10,000 By Closing Stock

1,100 1,08,900

35,200

1,100 34,100

2,970

9,900

1,100

1,08,570

3,04,040

13,200 By Gross Profit bId

2,750 By Interest

1,540 Add : Outstanding

1,760

2,860

1,320

660

600

1,430

2,690

Cr.

Amount Rs.

2,31,440

72,600

3,04,040

1,08,570

1,100

3,300 4,400

Final Accounts

Less: Old Provision

To Depreciation :

Machinery

Furniture

Freehold Property

Loose Tools

To Commission to Manager

To Net Profit c/d }

(Transferred to Balance sheet)

880

38,500

550

3,300

440

1,870

42,790

4,080

40,800

1,12,970

Balance Sheet

As at 31.3.2004

Liabilities Amount Assets

Rs.

Capital 2,28,800 Plant &Machinery

Add : Net Profit 40,800 Add: New Machinery

99,000

16,500

2,69,600 (15400 +1100) 1,15,500

Less: Drawings 13,200 2,56,400 Less : Depreciation

Bills Payable 5,500 Freehold property

Sundry Creditors 59,400 Less: Depreciation

Manager's Commission } Office Furniture

Outstanding 4,080 Less : Depreciation

Loose Tools

Less : Depreciation

Closing Stock

Sundry Debtors

Less : bad debts

Less : Provision for }

doubtful debts

Loan to Mr. Kumar

Add: Interest accrued}

And outstanding

Cash at Bank

Cash in hand

3,25,380

Illustration: 9

On 31st December, 2003 the Trial Balance of William & Co. was as follows:

Debt Balance

Stock on I" January 2003 :

Raw Materials

Work in Progress

Finished goods

Sundry Debtors

Carriage on Purchases

Rs.

21,000

9,500

15,500

24,000

1,500

Credit Balances

Sundry Creditors

Bills Payable

Sale of Scrap

Commission

Provision for doubtful debts

38,500

66,000

3,300

5,500

550

2,200

440

29,260

660

28,600

1,430

44,000

3,300

J/3

1,12,970

Amount

Rs.

77,000

62,700

4,950

1,760

72,600

27,170

47,300

29,260

2,640

3,25,380

Rs.

15,000

7,500

2,500

450

1,650

114

Bills Receivable 15,000

Wages 13,000

Salaries 10,000

Telephone, Postage etc. 1,000

Repairs to Office Furniture 350

Cash at Bank 17,000

Office Furniture 10,000

Lighting 1,350

3,02,800

The following additional information is available :

(a) Stocks on 31" December, 2003 were:

Raw Materials 16,200

Finished goods 18,100

Semi finished goods 7,800

A Textbook of Financial Cost and Management Accounting

Capital Account I ,00,000

Sales 1,67,200

Current Asset of William 8,500

Repairs to Plant 1,100

Purchases 85,000

Plant and Machinery 70,000

Rent 6,000

General Expenses 1,500

3,02,800

(b) Salaries and wages unpaid for December 2003 were respectively, Rs. 900 and Rs. 2,000

(c) Machinery is to be depreciated by 10% and office furniture by 7 1/2 %

(d) Provision for doubtful debts is to be maintained @ 1 % of sales

(e) Office premises occupy Y2 of total area. Lighting is to be charged as to 2/3 to factory and 113 to office.

Prepare the Manufacturing Account Trading Account, Profit and Loss Account and the Balance Sheet

relating to 2003.

Solution:

Dr.

Particulars

Raw material consumed:

To Opening Stock

of Raw Materials

Add " Purchases

Less " Closing Stock

To Opening Stock of WIP

To Wages

Add: Outstanding}

Wages

To Carriage on Purchases

To Repairs to Plant

To Rent (3/4)

To Lighting (213)

To Depreciation of Plant

Manufacturing Account of William & Co.

for the year ended 3151 December 2003

Amount Particulars

By Closing Stock of

21,000 Work in Progress

85,000 By Sale of Scrap

1,06,000 By Cost of goods

16,200 89,800 Manufactured (Transferred

9,500 to Trading Account)

13,000

2,000 15,000

1,500

1,100

4,500

9O<t

7,000

1,29,300

Cr.

Amount

7,800

2,500

1,19,000·

1,29,300

Final Accounts U5

Trading, Profit and Loss Account of William & Co. for the year ended 31st December 2003

Dr. Cr.

Particulars Amount Particulars Amount

To Opening Stock of Finished

Goods 15,500 By Sales 1,67,200

To Cost of goods By Closing Stock

Manufactured 1,19,000 (finished goods) 18,100

To Gross Profit c/d 50,800

1,85,300 1,85,300

To Salaries 10,000 By Gross Profit bId 50,800

Add: Outstanding 900 10,900 By Commission 450

To Telephone & Postage 1,000

To Repairs to Furniture 350

To Depreciation of furniture 750

To Rent (114) 1,500

To Lighting (113) 450

To General Expenses 1,500

To Provision for doubtful

Debts: Required (1 % of

Rs. 1,67,2(0) 1,672

Less: Existing

Provision 1,650 22

To Net Profit transferred 34,778

to William's AlC

51,250 51,250

Dr. Balance Sheet of William & Co. as at December 31.2003 Cr.

Liabilities Amount Assets Amount

Rs. Rs.

Sundry Creditors 15,000 Fixed Assets :

Bills Payable 7,500 Plant & Machinery

Expenses Payable : Rs. Balance 70,000

Salaries 900 Less: Depreciation 7,000 63,000

Wages 2,000 2,900 Office Furniture 10,000

Current Account of William 8,500 Less: Depreciation 750 9,250

Capital Account 1,00,000 Current Assets :

Net Profit 34,778 Sundry Debtors 24,000

Less: Provision for }

Doubtful debts 1,672 22,328

Bill Receivable 15,000

Closing Stock of :

Raw Materials 16,200

Working Progress 7,800

Finished goods 18,100

1,68,678 1,68,678

116

QUESTIONS

A Textbook of Financial Cost and Management Accounting

I. What do you understand by Manufacturing Account?

2. What is the Significance of Preparing Manufacturing Account?

3. Briefly explain the components of Manufacting Account.

4. What do you understand by Trading Account?

5. Briefly explain the Profit and Loss Account.

6. What do you understand by Balance Sheet?

7. What are the main features of final accounts?

8. What are adjusting entries? Why are these necessary for preparing final accounts?

9. Write Short notes on :

(a) Closing Stock

(b) Outstanding Expenses

(c) Prepaid Expenses

(d) Accrued Income

(e) Provision for Discount on Creditors.

10. What is the difference between Profit and Loss Account?

II. What do you understand by Provision for Bad and Doubtful Debts?

12. Briefly explain the classification of Assets and Liabilities.

13. Write short notes on :

(a) Liquid Assets (b) Current Assets (c) Current Liabilities

(d) Fictitious Assets (e) Capital

14. Explain briefly the equation of Trading Account.

15. What do you understand by cost of goods sold?

16. Draw a specimen ruling of Manufacturing, Trading and Profit and Loss

Account and Balance Sheet. Explain them Briefly.

PRACTICAL PROBLEMS

(1) From the following informations, you are required to prepare Trading, Profit and Loss Account and Balance Sheet :

Dr.

Rs.

Salaries 5,500

Rent 1,300

Cash in hand 1,000

Debtors 40,000

Trade Expenses 600

Purchases 25,000

Advances 2,500

Bank Balance 5,600

81,500

Additional Information

(I) The Closing Stock amounted to Rs. 9000

(2) One month's is salary outstanding

(3) One month's rent has been paid in advance

(4) Provide 5 per cent for doubtful debts

Creditors

Sales

Capital

Loans

[Ans: Gross Profit Rs. 16,000 ; Net Profit Rs. 6,200 and Balance Sheet Rs. 56,200]

Cr.

Rs.

9,500

32,000

30,000

10,000

81,500

(2) From the following information, you are required to Prepare Trading, Profit and Loss Account and Balance Sheet of

Mrs. D.P. Pandey & Co. Ltd. for the year ending 31" Dec. 2003 :

Dr. Cr.

Rs. Rs.

Sundry Debtors 30.600 Sundry Creditors 10.000

Bills Receivable 5,000 Capital Account 70,000

Plant and Machinery 75,000 Bad Debts Provision 350

Purchases 1,90,000 Bills Payable 7,000

Freehold Premises 50,000 Reserve 20,000

Final Accounts

Salaries

Wages

Postage and Stationery

Carriage Inward

Carriage Outward

Bad Debts

Office General Charges

Cash at Bank

Cash in hand

Closing Stock

21,000

24,400

1,750

1,750

1,000

950

1,500

5,300

800

30,000

4,39,050

The following adjustments are required :

(a) Pandey gets a salary of Rs. 12,000 per annum

(b) Allow 10% interest on Capital

Sales

(c) Bad Debts provision to be adjusted to 2 Y, % on debts

(d) 10% of the Net Profit to be credited to the reserve

JJ7

3,31,700

4,39,050

(e) It was discovered in April, 2002 that stock sheets as on 31" March 2002 were. less valued by Rs. 1000. However,

no entry was passed in April 2002.

(f) Depreciate Plant and Machinery by 10% p.a and Freehold Premises @ 2% p.a.

[Ans : Gross Profit Rs. 1,14,550; Net Profit Rs. 60,435 ; Balance Sheet Rs. 1,87,435]

(3) From the following Trial Balanc of M & S Co., you are required to Prepare Trading, Profit and Loss Account and

Balance Sheet for tile year ended 31" Dec. 2003:

Rs.

Opening Stock 20,000

Purchases 25,500

Factory Wages 13,000

Carriage Inwards 500

Salaries 17,500

Carriage Outwards 250

General Expenses 225

Rent 1,750

Sales Returns 1,000

Interest 1,500

Commission 550

Maintanence 1,150

Bad Debts 600

Drawings 22,500

Good will 20,000

Loose Tools 5,000

Copy Rights 20,000

Land & Buildings 30,000

Machinery 20,000

Bills Receivable 3,000

Furniture 3,000

Debtors 22,500

Cash at Bank 13,300

2,42,825

Additional Information

(I) Make Provision 5% on debtors for bad debts.

(2) Depreciation on Machinery & Furniture by 10%.

(3) Stock at the end Rs. 17,500.

(4) Prepaid Rent Rs. 250.

(5) Outstanding Wages Rs. 750.

[Ans : Gross Profit

Net Profit

Balance Sheet

Rs.67,075;

Rs.40,375;

Rs. 1,51,123]

Rs.

Sales 1,09,000

Purchase Returns 1,325

Creditors 2,000

Bills Payable 10,000

Short-Term Loan 7,500

Bank Overdraft 1,500

Capital 80,000

General Reserve 13,500

2,42,825

118 A Textbook of Financial Cost and Management Accounting

(4) From the following particulars of MIs Ramesh & Co as on 31~ March 2003, you are required to prepare Trading, Profit

and Loss Account and Balance Sheet as on that date :

Dr.

Rs.

Drawings 18,000 Capital

Buildings 15,000 Loan from Ravi @ 12% interest

Furniture & Fittings 7,500

Motor Van 25,000 Sales

Interest paid on Loan 900 Commission Received

Purchases 75,000 Sundry Creditors

Opening Stock 25,000

Establishment Charges 15,000

Wages 2,000

Insurance 1,000

Sundry Debtors 28,100

Bank Balance 20,000

2,32,500

Adjustments

(a) The value of stock on 31~ March 2003 was Rs.32000

(b) Outstanding wages Rs.500

(c) Prepaid Insurance Rs.300

(d) Commission received in advance Rs.800

(e) Allow interest on Capital @ 10%

(f) Depreciate: Building 21-2 %, Furniture & Fittings 10%, Motor Van 10%

(g) Charge interest on drawings Rs. 500

[Ans : Gross Profit

Net Profit

Balance Sheet total

Rs.29,500;

Rs.5,575;

Rs. 1,24,275]

Cr

Rs.

1,00,000

15,000

1,00,000

7,500

10,000

2,32,500

(5) From the following Trial Balance, prepare Trading and Profit and Loss Account for the year ended 31" Dec. 2003 and

Balance Sheet as on that date :

Dr.

Rs.

Purchll&C 2.75,000 Sales

Return Inwards 15,000 Return Outwards

Carriage 12,400 Rent Received

Wages 58,600 Creditors

Trade Expenses 2,200 Bills Payable

Insurance' 2,000 Commission

Audit Fees 1,200 Bank Loan

Debtors 1,10,000 Capital

Bills Receivable 3,300

Advertising 5,500

Opening Stock 36,000

Cash in hand 12,800

Cash at Bank 26,800

Interest on Loan 1,500

Drawings 15,000

Fixed Assets 3,00,000

8,77,300

Adjustments

(1) Stock at the end Rs. 60,000

(2) Depreciation on fixed assets is 10%

(3) Commission earned but not received amounts to Rs. 400

(4) Rent received in advance Rs. 1,000

(5) Interest on bank loan @ 15% p.a. is unpaid for the last six months

(6) Allow 8% interest on capital and charge Rs. 900 as interest on drawings

[Ans: Gross Profit Rs.l,92,OOO; Net Profit Rs. 1,42,400; Balance Sheet Rs. 4,83,400]

Cr.

Rs.

5,20,000

9,000

13,000

62,100

2,200

1,000

20,000

2,50,000

8,77,300

Final Accounts 119

(6) On 31" March 2003, the following Trial Balance was extracted from the books of ABC Ltd.:

Dr. Rs. Cr. Rs.

Capital Account - 50,000

Plant & Mac~inery BO,OOO -

Sales - 1,77,000

Purchases 60,000 -

Returns 1,000 750

Opening Stock 30,000 -

Discount 350 -

Bank Charges 75 -

Sundry Debtors 45,000 -

Sundry Creditors - 25,000

Salaries 6,000 -

Manufacturing Wages 10,000 -

Carriage Inward 750 -

Carriage Outward 1,200 -

Bad Debts Provision - 525

Rent, Rates and Taxes 10,000 -

Advertisement 2,000 -

Cash in hand 900 -

Cash at Bank 6,000 -

2,53,275 2,53,275

You are required to prepare, Trading, Profit and Loss account for the year ended 31" March 2003 and the balance sheet

as on that date.

Tbe following adjustments are required :

(1) Closing Stock Rs.35,OOO

(2) Depreciate Plant and Machinery at 6%

(3) Bad debts provision to be adjusted to Rs.500

(4) Interest on Capital to be allowed at 5% per annum

lAns : Gross Profit Rs.l,ll,OOO

Net Profit Rs.B4,loo

Balance sheet total Rs.l,61,6001

(7) MIs Patel starts business on I" April 2003 with a Capital of Rs.30,OOO. The following trial balance was drawn up from

his book at the end of the year'

Dr. Rs. Cr. Rs.

Capital - 40,000

Salaries - 1,60,000

Sundry Creditors - 12,000

Bills Payable - 9,000

Drawings 4,500 -

Plant & Fixtures B,OOO -

Purchases 1,16,000 -

Carriage Inwards 2,000 -

Returns Inwards 4,000 -

Wages B,OOO -

Salaries 10,000 -

Printing and Stationery BOO -

Advertisement 1,200 -

Trade Charges 600 -

Rent and Taxes 1,400 -

Sundry Debtors 25,000 -

Bills Receivable 5,000 -

Investments 15,000 -

Discount 500 -

Cash at Bank 16,000 -

Cash in hand 3,000 -

2,21,000 2,21,000

120 A Textbook of Financial Cost and Management Accounting

The value of stock as at 31~ March 2004 was Rs.26,ooo. You are required to prepare Trading, Profit and Loss Account

for the year ended 31~ March 2004, and a Balance Sheet as on that date after taking the following facts into account:

(I) Interest on capital is to be provided @ 6% p.a.

(2) An additional capital of Rs.IO,ooo was introduced by MIs Patel on I" October 2003

(3) Plant and fixtures are to be depreciated by 10%

(4) Salaries outstanding on 31.3.2004 amounted to Rs.5oo

(5) Accrued interest on investment amounted to Rs.750

(6) Rs.5oo are bad debts and a reserve for doubtful debts is to be created at 5% of the balance of debtors

[Ans: Gross profit Rs.56,ooo ; Net Profit Rs.37,125 ; Balance Sheet total Rs.96,225]

(8) The following balances extracted from the books of Rajan & Co. as on 31" December 2003; you are required to prepare

Trading, Profit and Loss Account and Balance Sheet:

Rs.

Rajan & Co's Capital 2,00,000 Loan on Mortgages

Interest (Dr) 7,500 Wages

Office Rent 2,500 Stock (1.1.2003)

Taxes & Insurance 1,000 Salaries

Machinery & Plant 1,00,000 Bills Payable

Sundry Debtors 2,00,000 Loose Tools

Bank Balances (Cr) 10,000 Cash on hand

Bills Receivable 15,000 Stock of books and Stationery

Sundry Creditors 1,00,000 Office Expenses

Purchases 2,10,000 Sales

Additional Information

(I) The Stock at close was RsAO,ooo

(2) Wages Outstanding Rs.3,ooo

(3) Salary Outstanding Rs.I,ooo

(4) Rent Outstanding Rs.750

(5) Insurance prepaid amounted to 250

[Ans: Gross Profit Rs.1,34,ooo, Net Profit Rs. 83,000, Total of Balance Sheet Rs.5,67,750]

(9) The following are the Balances extracted from the ledger of Meenakshi & Co. as on 31" March 2004 :

Rs.

Capital AlC 2,00,000

Drawings 35,000

Buildings 1,00,000

Machinery 25,000

Furniture & Fixtures 6,000

Loose Tools 4,000

Opening Stock 1,25,000

Purchases 7,50,000

Sales 12,50,000

Sales Returns

Duty Paid Purchase

Sundry Debtors

Sundry Creditors

Reserve for Bad and

Doubtful debts

Additional Information

(I) Stock as on 31.3.2004 Rs.I,40,ooo

(2) Rent Outstanding Rs.2,500

(3) Wages Outstanding Rs.6,ooo

(4) Salary Outstanding Rs.4,ooo

50,000

1,50,000

1,00,000

75,000

4,000

Reserves for discount on

debtors

Loans at 9%

Salaries

Wages

Rent

Traveling Expenses

Postage and Telegrams

Rates and Taxes

Carriage Inwards

Carriage Outwards

General Charges

Interest Paid

Bad Debts

Cash on hand

Cash at bank

(5) Maintain the reserve for doubtful debts are 5% and reserve for discounts on debtors at 2.5%

Rs.

! ,50,{)I)()

1,50,000

25,000

35,000

20,000

5,000

5,000

2,500

3,500

4,82,000

Rs.

2,000

50,000

44,000

75,000

27,500

12,500

1,350

900

25,000

7,500

9,000

3,750

3,000

2,500

24,000

Final Accounts

(6) Provide Depreciations:

Building - 2 'h%

Machinery - 10%

Furniture - 6%

Loose Tools - 15%

121

Prepare Trading, Profit and Loss Account for the year ended 31 M March 2004 and a Balance Sheet as on that date.

(10) Prepare Trading, Profit and Loss Account for the year ended 31 M March 2004 and Balance Sheet as at that date from the

following Trial Balance of Gupta & Co. :

Debt Balance Rs. Credit Balances Rs.

Drawings 45,000

Goodwill 90,000

Capital 1,60,000

Bills Payable 33,800

Land & Building 60,000

Plant & Machinery 40,000

Creditors 70,000

Purchase Returns 2,650

Loose Tools 3,000

Bills Receivable 3,000

Sales 21,800

Stock (1.4.2003) 40,000

Purchases 51,000

Wages 20,000

Carriage Outwards 500

Carriage Inward 1,000

Coal 5,800

Salaries 35,000

Rent, Rates & Taxes 2,800

Discount 1,500

Cast at bank 25,000

Cash in hand 400

Sundry Debtors 45,000

Repairs 1.800

Printing and Stationery 500

Bad Debts 1,200

Advertisement 3,500

Sales Returns 2,000

Furniture 1,200

General expenses 5,250

Additional Information

(1) Closing Stock on 31" March 2004 was 35,000

(2) Depreciate Plant & Machinery, Tools and Furniture by 10% and Land and Building by 2 'h%

(3) Provide Rs.l,5oo for Wages Outstanding

(4) Advertisement prepaid are Rs.5oo

(5) Provide 5% on Debtors !Igainst bad debts and 2% against discount.

000

Meaning and Definition

CHAPTER 5

Depreciation

The term depreciation refers to fall in the value or utility of fixed assets which are used in operations

over the definite period of years. In other words, depreciation is the process of spreading the cost of fixed

assets over the number of years during which benefit of the asset is received. The fall in value or utility of

fixed assets due to so many causes like wear and tear, decay, effluxion of time or obsolescence,

replacement, breakdown, fall in market value etc.

According to the Institute of Chartered Accountant of India, "Depreciation is the measure of the

wearing out, consumption or other loss of value of a depreciable asset arising from use, effluxion of time

or obsolescence through technology and market changes.

Depreciation, Depletion and Amortization

In order to correct measuring of depreciation it is essential to know the conceptual meaning of

depreciation, depletion and amortization.

Depreciation: Depreciation is treated as a revenue loss which is recorded when expired utility fixed

assets such as plant and machinery, building and equipment etc.

Depletion: The term depletion refers to measure the rate of exhaustion of the natural resources or

assets such as mines, iron ore, oil wells, quarries etc. While comparing with depreciation, depletion is

generally applied in the case of natural resources to ascertllin the rate of physical shrinkage but in the case

of depreciation is used to measure the fall in the value or utility of fixed assets such as plant and machinery

and other general assets.

Amortization: The term Amortization is applied in the case of intangible assets such as patents,

copyrights, goodwill, trade marks etc., Amortization is used to measure the reduction in value of intangible

assets.

Obsolescence: Obsolescence means a reduction of usefulness of assets due to technological changes,

improved production methods, change in market demand for the product or service output of the asset or

legal or other restrictions.

Depreciation

Purpose of Charging Depreciation

The following are the purpose of charging depreciation of fixed assets:

(1) To ascertain in the true profit of the business.

(2) To show the true presentation of financial position.

(3) To provide fund for replacement of assets.

(4) To show the assets at its reasonable value in the balance sheet.

Factors Affecting the Amount of Depreciation

The following factors are to be considered while charging the amount of depreciation :

(1) The original cost of the asset.

(2) The useful life of the asset.

(3) Estimated scrap or residual value of the asset at the end of its life.

(4) Selecting an appropriate method of depreciation.

Methods of Charging Depreciation

The following are the various methods applied for measuring allocation of depreciation cost:

(1) Straight Line Method

(2) Written Down Value Method

(3) Annuity Method

(4) Sinking Fund Method

(5) Revaluation or Appraisal Method

(6) Insurance Policy Method

(7) Depletion Method

(8) Sum of tne Digits Method

(9) Machine Hour Rate Method

(1) Straight Line Met~od

123

This method is also termed as Constant Charge Method. Under this method, depreciation is charged

for every year will be the constant amount throughout the life of the asset. Accordingly depreciation is

calculated by deducting the scrap value from the original cost of an asset and the balance is divided by the

number of years estimated as the life of the asset. The following formula for calculating the periodic

depreciation charge is :

Depreciation =

Depreciation =

Original Cost of Asset - Scrap Value

Estimated Life of Asset

(or)

C-S Where

D = Depreciation Rate

N C = Original Cost of Asset

S = Salvage or Scrap Value

N = Estimated Useful Life

124

Illustration: 1

A Textbook of Financial Cost and Management Accollnting

From the following infonnation you are required to calculate depreciation rate :

Solution:

Cost of the Machine

Erection Charges

Estimated useful life

Estimated Scarp Value

Rs.30,ooO

Rs.3,ooo

IO years

Rs. 3000

Calculation of depreciation rate for every year :

Depreciation =

=

Original Cost of Asset - Scrap Value

Estimated Life of an Asset

Rs. 33,000 - Rs. 3,000

IO

= Rs.30,ooo

IO

Thus, the amount of depreciation would be Rs. 3,000 for every year.

Merits

(1) Simple and easy to calculate.

= Rs.3,000

(2) Original cost of asset reduced up to Scrap Value at the end of estimated life.

(3) Estimated useful life of the asset can be estimated under this method.

Demerits

(1) It does not consider intensity of use of assets.

(2) It ignores any additions or opportunity cost while calculating depreciations.

(3) It ignores effective utilization of fixed assets, it becomes difficult to calculate correct depreciation

rate.

(4) Under the assumption of constant charges of maintance of assets it is impossible to calculate

true depreciation.

Illustration: 2

A company charges depreciation on plant and machinery under constant charge method @ 25% per

annum. On 151 January, 2000 Machinery was Purchased for Rs. 1,00,000 is estimated to have a life of four

years.

From the above infonnation, you are required to prepare a Machinery account.

Depreciation 125

Solution:

Dr. Machinery Account Cr.

Date Particulars Amount Date Particulars Amount

Rs. Rs.

2000 2000

Jan. 1 To Bank Nc 1,00,000 Dec. 31 By Depreciation

25% on Rs.l.00,ooo 25,000

" By Balance cld 75,000

1,00,000 1,00,000

2001 2001

Jan. 1 To Balance bId 75,000 Dec. 31 By Depreciation

25% on Rs.l,OO,ooo 25,000

" By Balance cld 50,000

75,000 75,000

2002 2002

Jan. 1 To Balance bId 50,000 Dec. 31 By Depreciation

25% on Rs.l,OO,ooo 25,000

" By Balance cld 25,000

50,000 50,000

2003 2003

Jan. 1 To Balance bId 25,000 Dec. 31 By Depreciation

25% on Rs.l,OO,ooo 25,000

25,000 25,000

Illustration: 3

On 151 January, 2000, a finn purchased 1st January, 200 I and on 1st July 2003 to the value of

Rs. 28,500 and Rs. 25,200. Residual values being Rs. 1.500 and Rs. 1,200 respectively. You are required to

prepare a Machinery Account for the first four years if depreciation is written off according to Straight

Line Method assuming that the estimated Working life of the asset is 10 years and its Scrap Value

Rs. 15,000 at the end of its life.

Solution:

Calculation of depreciation for every year:

Depreciation

I year Depreciation (Original Cost of Asset)

II year Depreciation (for additional

Value of Asset)

=

=

=

=

Original Cost of Asset - Scrap Value

Estimated Life of an Asset

Rs.l,65,000 - Rs.15,000

10

Rs.l,50,000

10

Rs.28,500 - Rs.l ,500

10

Rs.15,000 P.A.

126

Dr.

III year Depreciation (for additional

Value of Asset)

Date Particulars

2000 To BankNC

Jan. 1 (for original Cost

of machine)

2001 To Balance bId

Jan. 1 To Bank Nc

(Additional Cost

of machine)

By Balance cld

2002 To Balance bId

Jan. 1

2003 To Balance bId

Jan. 1 To Bank Nc

(Additional Cost

of Machine)

2004

Jan. 1 To Balance bId

A Textbook of Financial Cost and Management Accounting

Rs.27,ooO

10

Rs. 25,200 - Rs. 1,200

10

Rs.24,ooo

10

= Rs. 2,700 p.A.

= Rs. 2,400 P.A.

Machinery Account

Amount Date Particulars

Rs.

1,65,000 2000 By Depreciation

Dec. 31 By Balance cld

1,65,000

1,50,000 2001 By Depreciation

(Original Machine)

28,500 Dec. 31 By Depreciation

(for additional

Machine)

1,60,800

1,78,500

1,60,800 2002 By Depreciation

Dec. 31 By Depreciation

(Additional Cost of

Machine)

By Balance cld

1,60,800

1,43,100 2003 By Depreciation

Dec. 31 (for Original Cost

Machine)

25,200 By Depreciation

(for additional Cost

Machine)

By Depreciation

(for additional Machine)

By Balance cld

1,68,300

1,49,400

Cr.

Amount

Rs.

15,000

1,50,000

1,65,000

15,000

2,700

1,78,500

15,000

2,700

1,43,100

1,60,800

15,000

2,700

1,200

1,49,400

1,68,300

Note: Depreciation Calculated for additional cost of machine of Rs. 25,200 is only six months for Rs. 1,200.

(2) Written-Down Value Method (WDV)

This method is also known as Fixed Percentage On Declining Base Method (or) Reducing

Installment Method. Under this method depreciation is charged at fixed rate on the reducing balance (i.e.,

Cost less depreciation) every year. Accordingly the amount of depreciation gradually reducing every year.

Depreciation 127

The depreciation charge in the initial period is high depreciation charge in the initial period is high and

negligible amount in the later period of the asset. The following formula used for computing depreciation

rate under Written-Down Value Method.

r = I-nH C

x 100 =

= Rate of Depreciation

= Estimated Scrap Value

= Estimated Life of the Asset

x 100

Where,

R

S

N

C = Original Cost of the Machine or Asset

Illustration: 4

From the following information you are required to calculate depreciation rate under WDV Method.

Solution:

Cost of the Machine

Estimated Useful Life

Estimated Scrap or Salvage Value

Rs. lO,ooO

3 years

Rs. 1,000

Calculation of Depreciation Rate Under Declining Base Method

, • I - "J ~ x 100

Where

R

S

C

n

, = I - 3 J 1,000

lO,ooo

r =

= Rate of Depreciation

= Scrap Value

= Cost of the Machine

= Estimated Useful Life

=

1

r = 1- = I - -- = I - 464 = 0.536

2.154

128

Rate of Depreciation =

Amount of Depreciation =

A Textbook of Financial COSI and Management Accounting

0.536 x 100 = 53.6 %

53.6

10,000 -- = Rs. 5,360

100

Illustration: 5

From the following information you are required to calculate depreciation rate for two years under

Written Down Value Method:

Original Cost of the Machine

Erection Charges

Estimated Useful Life

Estimated Scrap Value

Rs.30,000

Rs.3,000

10 years

Rs.3,000

Depreciation to be charged at 10% on the WDV Method.

Solution:

Calculation of Depreciation charges under Written Down Value Method.

Original Cost of the Machine

Less: Salvage Value at the end

Depreciation for the First year at 10% of Rs. 10,000

Depreciation for the Second year at 10% of Rs. 9,000

Merits

(1) This method is accepted by Income Tax Authorities.

(2) Impact of obsolescence will be reduced at minimum level.

(3) Fresh calculation is not required when additions are made.

33,000

3,000

30,000

3,000

27,000

2,700

24,300

(4) Under this method the depreciation amount is gradually decreasing and it will affect the

smoothing out of periodic profit.

Demerits

(1) Residual Value of the asset cannot be correctly estimated.

(2) It ignores interest on investment on opportunity cost which will lead to difficulty while

detennining the rate of depreciation.

(3) It is difficult to ascertain the true profit because revenue contribution of the asset are not

constant.

(4) The original cost of the asset cannot be brought down to zero.

Depreciation 129

Illustration: 6

On lSI January 2001, Hindustan Ltd. purchased machinery for Rs. 12,00,000 and on 30lh June 2002,

one more machine of worth Rs. 2,00,000. On 31 sl March 2003, one of the original machinery which had cost

Rs. 50,000 was found to have become obsolete and was sold as scrap for Rs. 7,000. It was replaced on that

date by a new machine costing Rs. 80,000. Depreciation is to be provided @ 15% p.a. on written down value

(WDV) Method. Accounts are closed on 31 S1 December every year. Show machinery account for 3 years.

Solution:

Machinery Account

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 2001

Jan. 1 To Bank Nc 12,00,000 .D. ec. 31 By Depreciation 1,80,000 By Balance cld 10,20,000

12,00,000 12,00,000

2002 2002

Jan. I To Balance bId 10,20,000 Dec. 31 By Depreciation 1,68,000

June. 30 To Bank Nc 2,00,000 .. By Balance cld 10,52,000

12,20,000 12,20,000

2003 2003

Jan.l To Balance bId 10,52,000 Dec. 31 By Bank (Sale) 7,000

Mar.31 To Bank Nc 80,000 .. .. By Depreciation 1,350 .. By P & L Nc Loss 27,770 By Depreciation

(1,52,380 + 9,000) 1,61,380

By Balance c/d 9,34,500

11,32,000 11,32,000

2004

Jan.l To Balance bId 9,34,500

Illustration: 7

On lSI April 2000, Machinery was purchased by Modi Ltd., for Rs. 1,00,000. The rate of depreciation

was charged at 20% under diminishing balance method. Show the machinery account for four years from

2000 to 2004.

Solution:

Date Particulars

2000

Apr\. To Bank Nc

2001

Apr\. 1 To Balance bId

Under Diminishing Balance Method

Machinery Account

Amount Rs. Date Particulars

2001

1,00,000 Mar. 31 By Depreciation

.. (20% on Rs. 1,00,000) By Balance c/d

1,00,000

2001

80,000 Mar. 31 By Depreciation

.. (20% on Rs.80,OOO) By Balance cld

80,000

Amount Rs.

20,000

80,000

1,00,000

16,000

64,000

80,000

130 A Textbook of Financial Cost and Management Accounting

2002 2002

Aprl.l To Balance bId 64,000 .M. ar. 31 By Depreciation .. (20% on Rs. 64,000) 12,800 By Balance cld 51,200

64,000 64,000

2003 , 2004

Aprl. to Balance bId 51,200 Mar. 31 By Depreciation .. .. (20% on Rs. 51,2(0) 10,240 By Balance cld 40,960

51,200 51,200

2004

Aprl.l To Balance bId 40,960

(3) Annuity Method

This method is most suitable for a firm where capital is invested in the least hold properties. Under this

method, while calculating the amount of depreciation, a fixed amount of depreciation is charged for every

year of the estimated useful life of the asset in such a way that at a fixed rate of interest is calculated on the

same amount had been invested in some other form of capital investment. In other words, depreciation is charged

for every year refers to interest losing or reduction in the original cost of the fixed assets. Under the annuity

method where the loss of interest is due to the investment made in the form of an asset is considered while

calculating the depreciation. The amount of depreciation is calculated with the help of an Annuity Table.

Illustration: 8

A firm purchases a lease for 5 years for Rs. 40,000. It decides to write off depreciation on the Annuity

Method charging the rate of interest at 5% per annum. The annuity table shows that annual amount necessary

to write off Re.1 for 5years at 5% is 0.230975.

Solution:

Dr. Lease Account Cr.

Particulars Amount Rs. Particulars Amount Rs.

To Cash Alc 40,000.00 By Depreciation Alc 9,239.00

To Interest Alc 2,000.00 By Balance c/d 32,761.00

42,000.00 42,000.00

To Balance bId 32,761.00 By Depreciation Alc 9,239.00

To Interest Alc 1,638.05 By Balance cld 25,160.05

34,399.05 34,399.05

To Balance bId 25,160.05 By Depreciation Alc 9,239.00

To Interest Alc 1,258.00 By Balance cld 17,179.05

26,418.05 26,418.05

To Balance bId 17,179.05 By Depreciation Alc 9,239.00

To Interest Alc 858.95 By Balance cld 8,799.00

18,038.00 18,038.00

To Balance bId 8,799.00 By Depreciation Alc 9,239.00

To Interest Alc 440.00

9,239.00 9,239.00

Depreciation J3J

Illustration: 9

On 1st April 2001, a firm purchased a three year lease of premises for Rs.lO,OOO and it was decided

to depreciate the lease by annuity method calculating interest at 5 per cent per annum. Show the lease hold

property account for 3 years. The annuity table shows that annual amount necessary to write off Re.I for

3 years at 5% is 0.367208.

Solution:

Machinery Account

Date Particulars Amount Rs. Date Particulars Amount Rs.

2000 2001

Aprl. 1 To Cash Nc 1,0000 Mar. 31 By Depreciation Nc 3,672.08

Mar.31 To Interest Nc 500 " By Balance c/d 6,827.92

10,500 10,500

2001 2001

Aprl.1 To Balance bId 6,827.92 Mar.31 By Depreciation 3,672.08

Mar.31 To Interest Nc 341.40 " By Balance c/d 3,497.24

7169.32 7,169.32

2002 2001

Aprl. 1 To Balance bId 3,497.32 Mar. 31 By Depreciation 3,672.08

Mar.31 To Interest Nc 174.84

3672.08 3,672.08

Note: The annual depreciation is calculated as = 0.367208 x 10,000 Rs.3672.08

(4) Sinking Fund Method

Like the Annuity Method, the amount of depreciation is charged with the help of Sinking Fund

Table. Under this method an amoilnt equal to the amount written off as depreciation is invested in outside

securities in order to facilitate to replace the asset at the expiry useful life of the asset. In other words, the

amount of depreciation charged is debited to depreciation account and an equal amount is credited to

Sinking Fund Account. At the estimated expiry useful life of the asset, the amount of depreciation each

year is invested in easily realizable securities which can be readily available for the replacement of the

asset.

Journal Entries Under this Method: The following are the journal entries recorded under this

method:

First Year

(1) When the asset is purchased:

Asset Account Dr. \* \* \*

To Bank Account \* \* \*

(2) For Providing depreciation at the end of first year:

Depreciation Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

132 A Textbook of Financial Cost and Management Accounting

(3) For investing the amount:

Sinking Fund Investment Account Dr. \* \* \*

To Bank Account \* \* \*

Subsequent Years

(1) For Receipt of Interest on Investment:

Bank Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

(2) For Transferring Interest to Sinking Fund:

Interest on Sinking Fund Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

(3) For Providing Depreciation:

Depreciation Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

(4) For Investing the Amount:

Sinking Fund Investment Account Dr. \* \* \*

To Bank Account \* \* \*

Last Years

(1) For Receipt of Interest on Investment:

Bank Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

(2) For Transferring Interest to Sinking Fund Acpount:

Interest on Sinking Fund Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

(3) For Providing Depreciation:

Depreciation Account Dr. \* \* \*

To Sinking Fund Investment Account \* \* \*

(4) For Sale of Investment:

Bank Account Dr. \* \* \*

To Sinking Fund Investment Account \* \* \*

(5) For Transferring Profit and Sale of Investment:

Sinking Fund Investment Account Dr. \* \* \*

To Sinking Fund Account \* \* \*

Depreciation

(6) For Transferring Loss on Sale of Investment:

Sinking Fund Account

To Sinking Fund Investment Account

(7) For Closing the Asset Account by Transferring Balance

of Sinking Fund Account to Asset Account:

Sinking Fund Account

To Asset Account

Illustration: 10

/33

Dr. \* \* \*

\* \* \*

Dr. \* \* \*

\* \* \*

A company purchased a machinery on January 1 1998 for a sum of Rs. 1,00,000 for a useful life of

5 years. It is decided to provide for the replacement of machinery at the end of 5 years by setting up a

depreciation fund. It is expected that the investment will fetch interest at 5%. Sinking fund table shows

that Re.0.180975 if invested yearly at 5% p.a. produces Re. 1 at the end of 5th year. It is also estimated that

the machinery will have a scrap value of Rs. 16,000. On 31 51 December 2002, the investment was sold for

Rs. 65,000. On 1"1 January 2004, the new machinery was purchased for Rs. 1,20,000. The scrap of the old

machinery realizes Rs. 17,000.

Show the Journal entries and give the machinery account, depreciation fund account; depreciation

fund investment account and the new machinery account.

Solution:

The amount to be charged to the profit and loss Alc has been arrived as follows:

Original Cost of the Machinery

Less : Estimated Scrap Value

Depreciation on the plant for its whole life

The amount to be charged to the Profit and Loss Alc

Rs.

1,00,000

16,000

84,000

= Rs. 84,000 x 0.180975

= Rs. 15,201.90 (or)

= Rs. 15,202

Journal Entries

Date Particulars L.F. Debit

Rs.

1998 Machinery Alc Dr. 1,00,000

Jan.l To Bank Alc

(Being the purchase of Machinery)

Dec.31 Depreciation Alc Dr. 15,202

To Depreciation Fund Alc

(Being annual depreciation as per

sinking fund table)

Dec.31 Depreciation Fund Investment Alc Dr. 15,502

To Bank alc

(Being investment purchased from

depreciation fund)

Credit

Rs.

1,00,000

15,202

15,502

134

Dec.31

1999

Dec. 31

Dec. 31

Dec. 31

Dec. 31

2000

Dec.31

Dec.31

Dec.31

Dec.31

2001

Dec. 31

Dec. 31

Dec.31

Dec. 31

2002

Dec.31

A Textbook of Financial Cost and Management Accounting

Profit and Loss Nc Dr. 15,502

To Depreciation Nc 15,502

(Being depreciation charged from

Profit and Loss Nc)

Bank Nc Dr. 760

To Depreciation Fund Nc 760

(Being interest received @ 5% on Rs. 15,202)

Depreciation Nc Dr. 15,502

To Depreciation Fund Nc 15,202

(Being annual depreciation as per

sinking fund table)

Depreciation Fund Investment Nc Dr. 15,962

To Bank Nc 15,962

(Being the purchase of investment)

Profit and Loss Nc Dr. 15,962

To Depreciation Nc 15,962

(Being depreciation charged from

Bank Nc Dr. 1,558

To Depreciation Fund Nc 1,558

(Being interest received @ 5% on Rs. 31,164)

Depreciation Nc Dr. 15,202

To Depreciation Fund Nc 15,202

(Being annual depreciation as per

sinking fund table)

Depreciation Fund Investment Nc Dr. 16,760

To Bank Nc 16,760

(Being the purchase of investment)

15,202 + 1,558)

Profit and Loss Nc Dr. 16,760

To Depreciation Nc 16,760

(Being depreciation charged from

Bank Nc Dr. 2,396

To Depreciation Fund Nc 2,396

(Being interest received @ 5% on Rs. 47,924)

Depreciation Nc Dr. 15,202

To Depreciation Fund Nc 15,202

(Being annual depreciation as per

sinking fund table)

Depreciation Fund Investment Nc Dr. 17,598

To Bank Nc 17,598

(Being the purchase of investment)

(15,202 + 2,396)

Profit and Loss Nc Dr. 17,598

To Depreciation Nc 17,598

(Being depreciation charged from, P & L Nc)

Bank Nc Dr. 3,726

To Depreciation Fund Nc 3,726

(Being interest receive @ 5% on Rs. 65,522)

IJi?preciation 135

Dec.31 Depreciation Alc Dr. 15,202

To Depreciation Fund Alc 15,202

(Being annual depreciation as per

sinking fund table)

Dec. 31 Bank Alc Dr. 65,000

To Depreciation Fund Investment 65,000

(Being the sale investments)

Dec. 31 Depreciation Fund Alc Dr. 522

To Depreciation Fund Investment Alc 522

(Being the loss on sale of investment

transferred to depreciation fund Alc . (65,522 - 65,000)

Dec.31 Depreciation Fund Alc Dr. 1,00,000

To Machinery Alc 1,00,000

(Amount of Machinery written off by transfer

to depreciation fund Alc)

Dec.31 Profit and Loss Alc Dr. 478

To Depreciation Fund Alc 478

(Being balance left in depreciation fund

alc transferred to P & L Alc)

2003 New Machinery Alc Dr. 1,20,000

Jan. 1 To Bank Alc 1,20,000

(Being the purchase of new machinery)

Dr. Machinery Account Cr.

Date Paniculars Amount Date Paniculars Amount

Rs. Rs.

1998 1998

Jan. 1 To Bank Alc .1,00,000 Dec. 31 By Balance c/d 1,00,000

1,00,000 1,00,000

1999 1999

Jan. 1 To Balance bId 1,00,000 Dec. 31 By Balance c/d 1,00,000

1,00,000 1,00,000

2000 2000

Jan.l To Balance Alc 1,00,000 Dec.31 By Balance c/d 1,00,000

1,00,000 1,00,000

2001 2001

Jan.l To Balance Alc 1,00,000 Dec.31 By Balance c/d 1,00,000

1,00,000 1,00,000

2002 2002

Jan. 1 To Balance bId 1,00,000 Dec.31 By Depreciation

Dec.31 ToP&L Alc Fund Alc 83,478

(Profit) 478 " By Bank (Scrap

Sold) 17,000

1,00,478 1,00,478

/36

Dr.

Dr.

Dr.

Date

1998

Dec.31

1999

Dec.31

Mar.31

2000

Dec.31

2001

Dec.31

2002

Dec.31

Dec.31

Date

2003

Jan. 1

Date

1998

Dec.31

1999

Jan. 1

Mar.3

2000

Jan.l

Mar.31

A Textbook of Financial Cost and Management Accounthtg

Depreciation Fund Account Cr.

Particulars Amount Rs. Date Particulars Amount Rs.

1998

To Balance cld 15,502 Dec. 31 By Profit & Loss Alc 15,502

15,502 15,502

1999

To Balance cld 31,164 Jan.! By Balance bId 15,502

To Interest Alc Dec.31 By Bank (Interest) 760

Dec.31 By Profit & Loss Alc 15,502

31,164 31,164

2000 .

To Balance cld 47,924 Jan.l By Balance bId 31,164

Dec.31 By Bank (Interest) 1,558

.. 31 By Profit & Loss Alc 15,202

47,924 47,924

2001

To Balance cld 65,522 Jan. 1 By Balance bId 47,294

Dec.31 By Bank (Interest) 2,396

.. 31 By Profit & Loss Alc 15,202

65,522 65,522

2002

To Depreciation Fund 522 Jan.! By Balance bId 65,522

Investment Alc Dec.31 By Bank (Interest) 3,276

(loss on sale of investment) .. 31 By Profit & Loss Alc 15,202

To Machinery Alc 83,478

(accumulated depreciation)

84,000 84,000

Machinery Account Cr.

Particulars Amount Rs. Date Particulars Amount Rs.

To Bank Alc 1,20,000

Depreciation Fund Investment Account Cr.

Particulars Amount Rs. Date Particulars Amount Rs.

1998

To Bank Ale 15,202 Dec.31 By Balance cld 15,202

15,202 15,202

1999

To Balance bId 15,202 Mar.31 By Balance cld 31,164

To Bank (15202 + 760) 15,962

31,164 31,164

2000

To Balance bId 31,164 Mar.31 By Balance cld 47,924

To Bank (15202+1558) 16,760

47,924 47,924

Depreciation 137

2001 2001

Jan. 1 To Balance bid 47,924 Mar.31 By Balance cld 65,522

Mar.31 To Bank (15202+2396) 17,598

65,522 65522

2002 2002

Jan. 1 To Balance bid 65,522 Mar.31 By Bank Alc 65,000

By Depreciation

Fund Ale 522

(loss on sale of investment)

65,522 65,522

Illustration: 11

Mr. Shanna brought a plant on 1.1.2001 for a sum of Rs. 2,00,000 having useful life of 3 years. The

estimated Scrap Value of machine is Rs. 20,000. Depreciation is calculated on the basis of Sinking Fund

Method. The Sinking Fund Investments are expected to earn interest @ 5 % P.A. Sinking Fund Table

shows that Re. 0.317208 if invested yearly at 5% P.A. produces Re.l at the end of 3 years. The investments

are sold at the end of 3rd year for a sum of Rs. 1,50,000. A new plant is purchased for Rs. 2,30,000 on

1.1.2004. The scrap of the old Plant sold for Rs. 15,000, you are required to prepare the necessary accounts

in the books of James.

Dr. Plant Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 . 2001

Jan. 1 To Bank Alc 2,00,000 31" Dec. By Balance cld 2,00,000

2,00,000 2,00,000

2001 2001

Jan. 1 To Balance bid 2,00,000 31" Dec. By Balance cld 2,00,000

2,00,000 2,00,000

2001 2003

Jan.l To Balance bid 2,00,000 Dec.31 By Depreciation } Fund Account 1,50,000

Dec.31 By Bank Alc } (scrap sold) 15,000

Dec.31 By Profit & Loss AlC} 35,000

(Loss)

2,00,000 2,00,000

Dr. New Plant Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

-

2004

Jan. 1 To Bank Alc 2,30,000

/38

Dr.

Dr.

Date

2001

Dec.31

2002

Dec.31

2003

Dec.31

Dec.31

Date

2001

Dec.31

2002

Jan. 1

Dec.31

2003

Jan. 1

Dec.31

Particulars

To Balance cld

To Balance c/d

To Depreciation

Fund Investment Nc

(loss on sale of

investment)

To Plant Nc

(Accumulated

Depreciation)

Particulars

To Bank Nc

To Balance bid

To Bank Nc

(57097 + 2855)

To Balance bid

To Bank Nc

(57097 + 5854)

A Textbook of Financial Cost and Management Accounting

Sinking Fund Account Cr.

Amount Rs. Date Particulars Amount Rs.

2001

57,097 Dec. 31 By Profit & Loss Nc 57,097

57,097 57,097

2002

1,17,049 Jan.! By Balance bid 57,097

Dec.31 By Bank (Interest 5%) 2,855

Dec.31 By Profit & Loss Nc 57,097

1,17,049 1,17,049

2003

Jan. I By Balance bid 1,17,049

30,000 Dec.31 By Bank (Interest 5%) 5,854

Dec.31 By Profit & Loss Nc 57,097

1,50,000

1,80,000 1,80,000

Sinking Fund Investment Account Cr.

Amount Rs. Date Particulars Amount Rs.

2001

57,097 Dec.31 By Balance cld 57,097

57,097 57,097

2002

57,097 Dec.31 By Balance cld 2,00,000

59,952

1,17,049 1,17,049

2003

1,17,049 Dec.31 By Bank Nc 1,50,000

Dec.31 By Depreciation 30,000

62,951 Fund Nc (Loss on

sale of Investment)

1,80,000 1,80,000

Working Notes

The amount charged to the Profit and Loss Account calculated is as follows :

Original cost of the plant

Less: Estimated Scrap Value

Depreciation on the plant for its whole life

The amount charged to the Profit and Loss Account

The Amount Charged to the Profit and Loss Account is

=

=

=

=

=

=

Rs.

2,00,000

20,000

1,80,000

1,80,000 x 0.317208

Rs. 57097.44

Rs. 57097.44

Depreciation /39

(5) Revaluation Method

This method is specially designed to revalue the assets in the case of livestock, loose tools, patents

etc. This method also termed as Appraisal Method. The calculation of depreciation of these assets is valued

at the end of the accounting year by comparing the opening value of the asset of the additional if any, the

difference is treated as depreciation.

Illustration: 12

From the following particulars you are required to calculate depreciation of Loose Tools under

Revaluation Method and Prepare a Loose Tools Account. The Loose Tool is estimated as follows :

2001 2002 2003

Loose Tools 1st Jan. 50,000 12,000 24,000

Loose Tools revalued on 31 Dec. 25,000 32,000 40,000

Solution:

Dr. Loose Tools Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 2001

1" Jan. To Bank Nc 50,000 Dec.31" By Depreciation 25,000

(Balancing Figure)

Dec.31" By Balance cld 25,000

50,000 50,000

2002 2002

I" Jan. To Balance bId 25,000 Dec.31" By Depreciation

1st Jan. To Bank Nc 12,000 (Balance Figure) 5,000

Dec.31" By Balance cld 32,000

37,000 37,000

2003 2003

I" Jan. To Balance bId 32,000 Dec.31S1 By Depreciation

I" Jan. To Bank Nc 24,000 (Balance Figure) 16,000

Dec.31" By Balance cld 40,000

56,000 56,000

2004

Jan.l To Balance bId 40,000

(6) Insurance Policy Method

Under this method an asset to be replaced by taking required amount of insurance policy from an Insurance

Company. A fixed premium is paid which is equal to the amount of depreciation for every year. At the end of

the agreed sum, i.e., on the maturity of the policy, the amount will be used for replacing the existing assets.

Accounting Entries

First Year and Subsequent Years

(1) When Premium paid in the beginning of the year:

Depreciation Insurance Policy Account Dr. \* \* \*

To Bank Account \* \* \*

140 A Textbook of Financial Cost and Management Accounting

(2) When Depreciation provided at the end of the year:

Profit and Loss Account Dr. \* \* \*

To Depreciation Reserve Account \* \* \*

In the Last Year (In addition to above two entries):

(3) When Policy amount received from Insurance Company:

Bank Account Dr. \* \* \*

To Depreciation Insurance Policy Account \* \* \*

(4) When Profit is made on Policy:

Depreciation Insurance Policy Account Dr. \* \* \*

To Depreciation Reserve Account \* \* \*

(5) When Closing down of Old Asset:

Depreciation Reserve Account Dr. \* \* \*

To Old Asset Account \* \* \*

(6) When Purchase of New Asset:

New Asset Account Dr. \* \* \*

To Bank Account \* \* \*

Illustration: 13

Misra Ltd. Purchased a machinery for Rs. 2,00,000 on 151 January 2000, and it is decided to make provision

for replacement of the machinery by taking an Insurance policy for an annual premium of Rs. 64,000. After

three years the machinery is to be replaced. You are required to prepare a Joumal and show the ledger account

of (a) Machinery Account (b) Depreciation fund Account and (c) Depreciation Insurance Policy Account.

Solution:

Journal

Date Particulars LF. Debit Rs. Credit Rs.

2000 Machinery Account Dr. 2,00,000

Jan.l To Bank Account 2,00,000

(Being Machinery purchased for 3 years)

" Depreciation Insurance Policy Nc Dr 64,000

To Bank Nc 64,000

(Being insurance policy taken for replacement)

2000

Dec.31 Profit and Loss Account Dr. 64,000

To Depreciation Fund Nc 64,000

(Being charge of premium against profit)

2001

Jan.l Depreciation Insurance Policy Nc Dr. 64,000

To Bank Account 64,000

(Being premium paid on machinery

insurance policy)

Depreciation 141

2001

Dec.31 Profit and Loss Account Dr. 64,000

To Depreciation Fund Alc 64,000

(Being charge of premium against profit)

2002

Jan. 1 Depreciation Insurance Policy Alc Dr. 64,000

To Bank Account 64,000

(Being premium paid on machinery

insurance policy)

2002

Dec.31 Profit and Loss Account Dr. 64,000

To Depreciation Fund Alc 64,000

(Being charge of premium against profit) .. Depreciation Fund Alc Dr . 2,00,000

To Machinery Account 2,00,000

(Being closing down of old asset) .. Bank Account Dr . 2,00,000

To Depreciation Fund Account 2,00,000

(Being policy money received on maturity) .. Depreciation Insurance Policy Alc Dr . 8,000

To Depreciation Fund Alc 8,000

(Being transfer of policy account

to depreciation fund Alc)

Dr. Depreciation Fund Investment Account Cr.

Date Particulars Amount Rs. Date Particulars AmOunt Rs.

2000 2000

Dec.31 To Balance cld 64,000 Dec.31 By Profit & Loss Alc 64,000

64,000 64,000

2001 2001

Dec.31 To Balance cld 1,28,000 Jan. 1 By Balance bId 64,000

Dec.31 By Profit & Loss Alc " 64,000

1,28,000 1.28,000

2002 2002

Dec.31 To Balance cld 2,00,000 Jan. 1 By Balance bId 1,28,000

D.. ec.31 By Profit & Loss Alc 64,000 By Depreciation Insurance

Policy Alc 8,000

(Profit on the Realisation

of Policy)

2,00,000 2,00,000

2003

Jan.! By Balance bId 2,00,000

142

Dr.

Dr.

Date

2000

Jan.!

2001

J..a n.1

2002

J..a n.!

Dec.31

2003

Jan. 1

Date

2000

Jan.!

2001

Jan.1

2002

Jan.1

2003

Jan.!

Illustration: 14

A Textbook of Financial Cost and Management Accounting

Depreciation Insurance Policy Account Cr.

Particulars Amount Rs. Date Particulars Amount Rs.

2000

To Bank Nc 64,000 Dec.31 By Balance cld 64,000

64,000 64,000

2001

To Balance bId 64,000 Dec.31 By Balance cld 1,28,000

To Bank Nc 64,000

1,28,000 1,28,000

2002

To Balance bId 1,28,000 Dec.31 By Balance cld 2,00,000

To Bank Nc 64,000

To Depreciation

Fund Nc 8,000

(Profit on the

Realisation of Policy)

2,00,000 2,00,000

To Balance bId 2,00,000

Machinery Account Cr.

Particulars Amount Rs. Date Particulars Amount Rs.

2000

To Bank Nc 2,00,000 Dec.31 By Balance cld 2,00,000

2,00,000 2,00,000

2001

To Balance bId 2,00,000 Dec.31 By Balance cld 2,00,000

2,00,000 2,00,000

2002

To Balance bId 2,00,000 Dec.31 By Balance cld 2,00,000

2,00,000 2,00,000

To Balance bId 2,00,000

On lSI Jan. 2001 Mrs. Murugan & Co. Purchases a lease for three years on payment of Rs. 1,00,000.

And it is decided to make provision for its replacement by means of an insurance policy for Rs. 1,00,000.

The annual premium is Rs. 30,000. On 101 Jan. 2004, the lease is renewed for further period of 3 years for

Rs. 1,00,000. You are required to prepare the necessary ledger account.

Depreciation 143

Solution:

Dr. Lease Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 2001

Jan. 1 To Bank Nc 1,00,000 Dec.31 By Balance cld 1,00,000

1,00,000 1,00,000

2002 2002

Jan. 1 To Balance hId 1,00,000 Dec.31 By Balance cld 1,00,000

1,00,000 1,00,000

2003 2003

Jan.l To Balance hId 1,00,000 Dec.31 By Depreciation Nc 1,00,000

(Reserve Nc)

1,00;000 1,00,000

Dr. Depreciation Reserve Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 2001

Dec.31 To Balance cld 30,000 Jan. 31 By Profit & Loss Nc 30,000

30,000 30,000

2002 2002

Dec. 1 To Balance cld 60,000 Jan.l By Balance hId 30,000

Dec.31 By Profit & Loss Nc 30,000

60,000 60,000

2003 2003

Dec.31 To Lease Nc 1,00,000 Jan. 1 By Balance hId 60,000

Dej:.31 By Profit & Loss Nc 30,000

Dec.31 By Depreciation

Insurance Policy Nc 10,000

1,00,000 1,00,000

Dr. Depreciation Insurance Policy Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001 2001

Jan.l To Bank Premium 30,000 Dec.31" By Balance cld 30,000

30,000 30,000

2002 2002

Jan. 1 To Balance hId 30,000 Jan.l By Balance cld 60,000

Jan.l To Bank Premium 30,000

60,000 60,000

2003 2003

Jan. 1 To Balance hId 60,000 Dec.31" By Bank Nc 1,00,000

Jan.l To Bank Premium 30,000

Dec.31 To Depreciation

Reserve Nc 10,000

(Profit Transferred)

1,00,000 1,00,000

144

Dr.

A Textbook of Financial Cost and Management Accounting

Lease (New) Account Cr.

Date Particulars Amount Rs. Date Particulars Amount Rs.

2001

Jan. 1 To Bank Nc 1,00,000

(7) Depletion Method

Depletion Method is mostly used for natural resources such as mines, quarries, oil and gas etc. from

which certain quantity of he resources can be obtained on the basis of the availability of minerals. The

quantity of output exhaust to reaches a stage of depletion. The rate of depreciation is determined on the

basis of the quantity obtained for every year. The formula is :

Cost of Mines

Rate of Depreciation =

Estimated Minerals to be Extracted

Depreciation = Annual Quantity x Rate of Depreciation

Illustration: 15

A mine was purchased for Rs. 20,00,000 on lSI Jan. 2000. And it was estimated content of being

1,00,000 tones. The actual quantity was 2001 - 20,000 tonnes, 2002 - 25,000 tonnes and 2003 - 30,000

tonnes. You are required to prepare a Mine Account using Depletion Method of depreciation for the above

said years.

Solution:

Dr.

Date

2001

Jan.l

2002

Jan. 1

Calculation for Rate of Depreciation

Rate of Depreciation

Rate of Depreciation

Particulars

To Bank Nc

To Balance bId

=

=

Cost of Mines

Estimated Minerals to be Extracted

Rs. 20,000,000

Rs. 1,00,000

= Rs. 20 Per tone

= Rs. 20 Per tone.

Mine Account

Amount Rs. Date Particulars

2001

20,00,000 Dec.31 By Depreciation Nc

(20,000 x 20)

Dec.31 By Balance c/d

20,00,000

2002

16,00,000 Dec.31 By Depreciation Nc

(25,000 x 20)

Dec.31 By Balance c/d

16,00,000

Cr.

Amount Rs.

4,00,000

16,00,000

20,00,000

5,00,000

11,00,000

16,00,000

Depreciation 145

2003 2003

Jan.l To Balance bid 11,00,000 Dec.31 By Depreciation Alc

(30,000 x 20) 6,00,000

Dec.31 By Balance cld 5,00,000

11,00,000 11,00,000

2004

Jan.l To Balance bid 5,00,000

(8) Sum of Years Digits (SYD) Method

This method also termed as SYD Method. The Sum of years Digits Method is designed on the basis

of Written-Down Value Method. Under this method the amount of depreciation to be charged to the Profit

and Loss Account goes on decreasing every year throughout the life of the asset. The formula for

calculating the amount of depreciation is as follows :

Remaining Life of the Asset

(Including current year)

Rate of Depreciation = ------------ x Original Cost of the Asset

Illustration: 16

Sum of all the digits of the life

of the assets in years

A machine was purchased for a sum of Rs.20,OOO having useful life of 3 years. From the above

particulars, you are required to calculate depreciation under Sum of Years Digits Method.

Solution:

Calculation of Depreciation Under SYD Method :

Remaining Life of the Asset

(Including current year)

Rate of Depreciation = -------------------- x Original Cost of the Asset

I Year =

II Year =

III Year =

(9) Machine Hour Rate Method

Sum of all the digits of the life

of the assets in years

3

--------- x Rs. 20,000

1+2+3

3

-------- x Rs. 20,000 = Rs.lO,OOO

6

2

------ x Rs. 20,000 = Rs.6,667

6

---- x Rs. 20,000 = Rs.3,333.33

6

This method is similar to the Depletion Method but instead of taking estimated available quantities

in advance, the working life of the machine is estimated in terms of hours. The hourly rate of depreciation

is determined by dividing the cost of the machine minus scrap value of the machine by the estimated total

number of hours utilized every year.

146

Illustration: 17

A Textbook of Financial Cost and Management Accounting

A machine was purchased on 1'1 Jan. 2001 at a cost of Rs. 1,50,000, the cost of installation being

Rs. 10,000. The estimated working life of the machine was 40,000 hours. During 2001 it was worked for

5,000 hours and during 2002 for 10,000 hours. You are required to prepare Machine Account for the above

said years.

Solution:

Calculation of Machine Hour Rate :

Machine Hour Rate =

=

Cost of the Machine

Estimated Total Hours of Life

Rs. 1,50,000 + Rs. 10,000

Rs.40,OOO

Rs. 1,60,000

= = Rs. 4 Per hour.

Rs.40,000

Dr. Machine Account

Date Particulars Amount Rs. Date Particulars

2001 2001

Jan. 1 To Bank Alc 1,60,000 Dec.31 By Depreciation Alc

(Rs.l,50,OOO + 10,000) (5000 hours x Rs.4)

Dec.31 By Balance c/d

1,60,000

2002 2002

Jan.l To Balance bid 1,40,000 Dec.31 By Depreciation Alc

(10,000 hrs x Rs.4)

Dec.31 By Balance cld

1,40,000

2003

Jan.! To Balance bid 1,00,000

QUESTIONS

1. What do you understand by Depreciation?

2. Define Depletion and Amortization.

3. What are the purpose of charging depreciation?

4. Explain briefly the various methods of charging depreciation.

S. Write short notes on :

(a) Straight Line Method. (d) Insurance Policy Method.

(b) Written - Down Value Method. (e) Depletion Method.

(c) Annuity Method. (0 Revaluation Method.

6. What do you understand by Sinking Fund Method? Explain it briefly.

7. Discuss the merits and demerits of Straight Line Method.

S. What do you understand by Machine Hour Rate method of depreciation?

9. What are the factors affecting the amount of depreciation?

Cr.

Amount Rs.

20,000

1,40,000

1,60,000

40,000

1,00,000

1,40,000

Depreciation 147

PRACTICAL PROBLEMS

(1) On 1" March 2003, a machinery was purchased by Govind for Rs. 1,00,000 and installation expenses of Rs. 10,000. On

1" June 2003 a new machine was purchased for a sum of Rs. 40,000. Assuming that rate of depreciation is @ 15% premium. You are

required to prepare Machinery Account for 5 years under (1) Straight Line Method and (2) Diminishing Balance Method.

(2) On 1" Jan. 2003 A Ltd. Company purchased a lease for three years for Rs. 80,000. It is decided to provide write off

depreciation on Annuity Method. Assuming that rate of depreciation is @ 5% P.A. Annuity Table shows that Re. 367208 at 5% rate

of interest is required for an Annuity of Re.l in three years.

[Ans : Balance fo Rs. 27,978.40]

(3) You are asked to calculate the depreciation for the first three years under Sum of Years Digit Method. Mrs. Govind & Co.

purchased an asset for Rs. 2,10,000. Estimated life of the asset is 6 years. The Scrap Value of an asset is estimated for Rs. 10,000.

[Ans: Balance at the end of third years Rs. 28571.41]

(4) Y Co. Ltd. purchased a lease of mine worth of Rs. 2,00,000 onlst Jan. 2003. It is estimated that total quantity of output

available in the mine is 50,000 tones. The annual output is as follows ;

Year Quantities

1999

2000

2001

2002

8,000

15,000

12,000

10,000

From the above information, you are required to prepare Mine Account using the Depletion Method of Depreciation.

(5) X Y z Ltd. purchased a machine for Rs. 14,400 on 1" Jan. 2003. It is estimated that the Scrap Value of Rs. 3,400 at the

end of ten years. Find out depreciation and written down value by equal installments of every year. And also you are required to

calculate rate of depreciation and prepare Machinery Account for the above said years.

[Ans : Balance of Machinery Nc Rs. 11,100; Rate of Depreciation 7.64%]

(6) A Company purchased a lease worth of Rs. 60,000 on 1" Jan. 2000 for 3 years. It decided to provide for its replacement

by means of Insurance policy for Rs. 60,000. The annual premium is Rs. 19,000. On 1" Jan. 2003 the lease is renewed for a further

period of 3 years for Rs. 60,000. You are required to show the necessary ledger accounts.

[Ans : Lease Nc Balance at the end of 3'" year Rs. 60,000; Depreciation Reserve Nc Rs. 3,000; Depreciation Insurance

Policy Nc Rs. 3000; (Profit transferred to Depreciation Reserve Nc)]

(7) A & B Ltd. purchased a lease for 3 years for Rs. 3,00,000. On 1" Jan. 2000 it decided to provide for its replacement by

taking an insurance policy for Rs. 3,00,000. The annual premium was Rs. 95,000. On I" Jan. 2003 the lease is renewed for a further

period of 3 years for Rs. 3,00,000 show necessary accounts.

[Ans : Profit Rs. 15,000]

(8) Gowda & Co. purchased a machine for Rs. 2,00,000 on 1" Jan. 2000. The estimated useful life at 3 years with a Scrap

Value Rs. 20,000. You are required to calculate depreciation charged from Profit and Loss Account by Sinking Fund Method. The

Sinking Fund Table shows that 0.317208 at 5% P.A. will be in 3 years accumulate to Re.1.

[Ans : Depreciation Rs. 57097.44]

(9) Gupta Ltd. purchased a machine for sum of Rs. 9,000 on 1" April 2001 and it spend installation charge of Rs. 1000.

Estimated total life of working hours will be 2000 hours. During 2001 it worked for 1600 hours and 2002 for 2400 hours. You are

required to prepare Machinery Account for 2002 and 2003.

[Ans : Balance Rs. 8,000]

(10) Himalaya Ltd. purchased a lease worth of Rs. 2,00,000 on I" Jan. 1999 for a term of 4 years. You find from Annuity tables

that in order to write off lease on the Annuity Method at 6% P.A. interest, the amount to be written off annually works out to be Re.

0.288591 for every rupee. Prepare Lease Nc for 4 years.

[Ans : Balance at the end of 411> year is Rs.54452]

(11) A Company purchased an old lorry for Rs. 1,00,000 on IS, April 1996 and wrote off depreciation @ 15% on the

diminishing value balance. At the end of 1996, it decided that the depreciation should be on the basis of 15% of the original cost from

the very beginning and write off necessary amount in 1996. Assuming the company closes the books on 31 s, March, write up the lorry

account up to the end of 2003.

[Ans: Balance Rs. 40,000; Excess depreciation to be written off for 1996-97 Rs. 6412.50]

148 A Textbook of Financial Cost and Management Accounting

(12) A Machinery was required on 1St January 2003 at a cost of Rs. 40,000. The life of the machinery was 5 years. It was

decided to establish a depreciation fund to provide funds for replacement. Investments are expected to yield net 5% P.A. Sinking Fund

Table shows that Rs. 1,80,975 invested annually at 5% provides Re.1 in five years. Prepare the necessary ledger accounts for all the

five years, assuming that new machinery costs Rs. 43,000 on 1St January 2008.

(13) On I" January 2002, Gupta Ltd. purchased machinery for Rs. 1,20,000 and on 30'" June 2003, it acquired additional

machinery at a cost of Rs. 20,000. On 31" March 2004 one of the original machines which had cost Rs. 5,000 was found to have

become obsolete and was sold as scrap for Rs. 500. It was replaced by a new machine costing Rs. 8,000. Depreciation is provided at

a rate of 15% on written down value method. Accounts are closed on 31" December every year. Prepare machinery account for 3

years.

(14) Rathasamy Ltd. bought one machine for Rs. 4,00,000 on I" April 2003. The useful life was estimated at 3 years with a

scrap value Rs. 4Q,OOO. Find out Depreciation charged from profit and loss account by sinking fund method. The sinking fund table

shows that 0.317208 at 5% P.A. wi\l be in 3 years accumulate to Re.1.

[Ans: Depreciation Rs.1l4194.88)

(15) A lease was purchased on 1.4.2004 for five years at a cost of Rs.50,OOO. It is proposed to depreciate the lease by

Annuity method charging 5% interest. Show the lease account for 5 years and also the relavent entries in the profit and loss account.

The reference of the annuity table shows that to depreciate Re.l by annuity method over 5 years by charging interest @ 5 % one must

write off a sum of Re.O.230975 every year.

[Ans: Annuity Depreciation Rs. 11549)

(16) A plant is purchased for Rs. 1,28,000. Depreciation is to be provided at 25% P.A. on written down value method. The

tum in value of plant at the end of its economic life of 4 years.

(17) You are required to prepare the Machineries account in the books of Sharma & Co. for 3 years ending 31.12. 2003 from

the following informations:

1. X machine was purchased on 1.4.200 I for Rs.40,OOO

2. Y machine was purchased on 1.4.200 I for Rs. 30,000

3. X machine was sold on 30.09.2002 for Rs. 35,000

4. R machine was purchased on 30.09.2003 for Rs. 40,000

All the machines are to be depreciated @ 10% on reducing balance method.

[Ans: Depreciation in 2001 Rs. 3,000; in 2002 Rs. 4,275; in 2003 Rs. 3,850; profit on sale Rs. 775; balance on

31.12.2003 Rs. 64,650)

000

CHAPTER 6

Financial Statements: Analysis and Interpretation

Meaning of Financial Statements

Every business concern wants to know the various financial aspects for effective decision making.

The preparation of financial statement is required in order to achieve the objectives of the firm as a whole.

The term financial statement refers to an organized collection of data on the basis of accounting principles

and conventions to disclose its financial information. Financial statements are broadly grouped in to two

statements:

I. Income Statements (Trading, Profit and Loss Account)

II. Balance Sheets

In addition to above financial statements supported by the following statements are prepared to meet

the needs of the business concern:

(a) Statement of Retained Earnings

(b) Statement of Changes in Financial Position

The meaning and importance of the financial statements are as follows :

(1) Income Statements: The term 'Income Statements' is also known as Trading, Profit and Loss

Account. This is the first stage of preparation of final accounts in accounting cycle. The purpose of

preparing Trading, Profit and Loss Accounts to ascertain the Net Profit or Net Loss of a business concern

during the accotinting period.

(2) Balance Sheet: Balance Sheet may be defined as "a statement of financial position of any

economic unit disclosing as at a given moment of time its assets, at cost, depreciated cost, or other

indicated value, its liabilities and its ownership equities." In other words, it is a statement which indicates

the financial position or soundness of a business concern at a specific period of time. Balance Sheet may

also be described as a statement of source and application of funds because it represents the source where

the funds for the business were obtained and how the funds were utilized in the business.

(3) Statement of Retained Earnings: This statement is considered to be as the connecting link

between the Profit and Loss Account and Balance Sheet. The accumulated excess of earning over losses

150 A Textbook of Financial Cost and Management Accounting

and dividend is treated as Retained Earnings. The balance of retained earnings shown on the Profit and

Loss Accounts and it is transferred to liability side of the balance sheet.

(4) Statement of Changes in Financial Position: Income Statements and Balance sheet do not

disclose the operational efficiency of the concern. In order to measure the operational efficiency of the

concern it is essential to identify the movement of working capital or cash inflow or cash outflow of the

business concern during the particular period. To highlight the changes of financial position of a particular

firm, the statement is prepared may emphasize of the following aspects :

(c) Fund Flow Statement is prepared to know the changes in the firm's working capital.

(d) Cash Flow Statement is prepared to understand the changes in the firm's cash position.

(e) Statement of Changes in Financial Position is used for the changes in the firm's total

financial position.

Nature of Financiai Statements

Financial Statements are prepared on the basis of business transactions recorded in the books of

Original Entry or Subsidiary Books, Ledger, and Trial Balance. Recording the transactions in the books of

primary entry supported by document proofs such as Vouchers, Invoice Note etc.

According to the American Institute of Certified Public Accountants, "Financial Statement reflects a

combination of recorded facts, accounting conventions and personal judgments and conventions applied

which affect them materially." It is therefore, nature and accuracy of the data included in the financial

statements which are influenced by the following factors :

(1) Recorded Facts.

(2) Generally Accepted Accounting Principles.

(3) Personal Judgments.

(4) Accounting Conventions.

Objectives of Financial Statements

The following are the important objectives of financial statements :

(1) To provide adequate information about the source of finance and obligations of the finance

firm.

(2) To provide reliable information about the financial performance and financial soundness of the

concern.

(3) To provide sufficient information about results of operations of business over a period of time.

(4) To provide useful information about the financial conditions of the business and movement of

resources in and out of business.

(5) To provide necessary information to enable the users to evaluate the earning performance of

resources or managerial performance in forecasting the earning potentials of business.

Limitations of Financial Statements

(1) Financial Statements are normally prepared on the basis of accounting principles, conventions

and past experiences. Therefore, they do not communicate much about the profitability,

solvency, stability, liquidity etc. of the undertakers to the users of the statements.

Financial Statements: Analysis and Interpretation 151

(2) Financial Statements emphasise to disclose only monetary facts, i.e., quantitative information

and ignore qualitative information.

(3) Financial Statements disclose only the historical information. It does not consider changes in

money value, fluctuations of price level etc. Thus, correct forecasting for future is not possible.

(4) Influences of personal judgments leads to opportunities for manipulation while preparing of

financial statements.

(5) Information disclosed by financial statements based on accounting concepts and conventions.

It is unrealistic due to difference in terms and conditions and changes in economic situations.

Analysis and Interpretations of Financial Statements

Presentation of financial statements is the important part of accounting process. To provide more

meaningful information to enable the owners, investors, creditors or users of financial statements to

evaluate the operational efficiency of the concern during the particular period. More useful information are

required from the financial statements to make the purposeful decisions about the profitability and

financial soundness of the concern. In order to fulfil the needs of the above. it is essential to consider

analysis and interpretation of financial statements.

Meaning of Analysis anrl Interpretations

The term "Analysis" refers to rearrangement of the data given in the financial statements. In other

words, simplification of data by methodical classification of the data given in the financial statements.

The term "interpretation" refers to "explaining the meaning and significance of the data so

simplified."

Both analysis and interpretations are closely connected and inter related. They are complementary to

each other. Therefore presentation of information becomes more purposeful and meaningful-both

analysis and interpretations are to be considered.

Metcalf and Tigard have defined financial statement analysis and interpretations as a process of

evaluating the relationship between component parts of a financial statement to obtain a better understanding

of a firm's position and performance.

The facts and figures in the financial statements can be transformed into meaningful and useful

figures through a process called "Analysis and Interpretations."

In other words, financial statement analysis and interpretation refer to the process of establishing the

meaningful relationship between the items of the two financial statements with the objective of identifying

the financial and operational strengths and weaknesses.

Types of Analysis and Interpretations

The analysis and interpretation of financial statements can be classified into different categories

depending upon :

I. The Materials Used

II. Modus Operandi (Methods of Operations to be followed)

1. On the basis of Materials Used:

(a) External Analysis.

(b) Internal Analysis.

152

II. On the basis of Modus Operandi

(a) Vertical Analysis.

(b) Horizontal Analysis.

A Textbook of Financial Cost and Management Accounting

The following chart shows the classification of financial analysis:

Financial Statement Analysis

!

On the Basis of Materials Used

External

Analysis

!

1

Internal

Analysis

!

1

On the Basis of Modus Operandi

Horizontal

Analysis

!

1

Vertical

Analysis

I. On the Basis of Materials Used

On the basis of materials used the analysis and interpretations of financial statements may be

classified into (a) External Analysis and (b) Internal Analysis.

(a) External Analysis: This analysis meant for the outsiders of the business firm. Outsiders may be

investors, creditors, suppliers, government agencies, shareholders etc. These external people have to rely

only on these published financial statements for important decision making. This analysis serves only a

limited purpose due to non-availability of detailed information.

(b) Internal Analysis: Internal analysis performed by the persons who are internal to the organization.

These internal people who have access to the books of accounts and other informations related to the

business. Such analysis can be done for the purpose of assisting managerial personnel to take corrective

action and appropriate decisions.

II. On the basis of Modus Operandi

On the basis of Modus operandi, the analysis and interpretation of financial statements may

be classified into: (a) Horizontal Analysis and (b) Vertical Analysis.

(a) Horizontal Analysis: ~orizontal analysis is also termed as Dynamic Analysis. Under this type of

analysis, comparison of the trend of each item in the financial statements over the number of years are

reviewed or analyzed. This type of comparison helps to identify the trend in various indicators of

performance. In this type of analysis, current year figures are compared with base year for figures are

presented horizontally over a number of columns.

(b) Vertical Analysis: Vertical Analysis is also termed as Static Analysis. Under this type of analysis,

a number of ratios used for measuring the meaningful quantitative relationship between the items of financial

statements during the particular period. This type of analysis is useful in comparing the performance,

efficiency and profitability of several companies in the same group or divisions in the same company.

Rearrangement of Income Statements

Financial statements should be rearranged for proper analysis and interpretations of these statements.

It enables to measure the performance of operational efficiency and profitability of a concern during

Financial Statements: Analysis and Interpretation 153

particular period. The items of operating revenues, non-operating revenues, operating expenses and nonoperating

expenses are rearranged into different heads and sub-heads are given below:

Income Statement (Operating Statement)

for the year endings . .•...

Particulars

Opening stock of Raw Materials

Add: Purchases

Less: Purchases Returns

Freight and Carriage

Less: Closing Stock of Raw Materials

Raw Materials Consumed (1)

Add: Direct wages (Factory)

Factory Rent and Rates

Power and Coal

Depreciation of Plant and Machinery

Depreciation of Factory Building

Work Manager's Salary

Other Factory Expenses

Add: Opening Stock of working progress

Opening Stock of Finished goods

Less: Closing Stock of work in progress

Closing Stock of Finished goods

Cost of Goods Sold (2)

Less: Net Sales (Less sales return and Sales tax) (3)

Gross Profit: (4) = (3 - 2)

(Net Sales - Cost of Goods Sold)

Less: Operating Expenses: (5)

Office Expenses

Administrative Expenses

Selling Expenses

Distribution Expenses

Net Operating Profit: (6) = (4-5)

Add: Non-Operating Income : (7)

Interest Received

Discount Received

Dividend Received

Income Form Investment

Interest on Debenture

Any other Non-Trading Income

Amount Rs. Amount Rs.

...

...

.. . ...

...

...

.. .

...

...

...

...

...

...

...

... . ..

.. .

...

...

.. .

...

... . ..

...

...

...

...

...

...

s. . ..

...

...

...

...

...

.. . •

...

.. . ...

. ..

154 A Textbook of Financial Cost and Management Accounting

Particulars Amount Rs. Amount Rs.

Less: Non.Operating Expenses : (8)

Discount on Issue of Shares Written off ...

Interest on Payment on Loan and Overdraft ...

Loss on Sale of Fixed Assets ... . ..

.. .

Net Profit Before Interest and Tax (9) ...

Less: Interest on Debenture (10) ...

Net Profit Before Tax (11) = (9 - 10) ...

(Net Profit Before Interest and Tax-Interest on Debenture)

Less: Tax Paid (12) ...

Net Profit After Interest and Tax (13) ...

or Net Loss After Interest and Tax

(Transferred to Capital Account)

Income Statement Equations

From the above rearrangement of operating statements, the following accounting equations may be

given:

(1) Net Sales

(2) Gross Profit

(3) Operating Expenses

(4) Operating Expenses

(5) Sales - Net Operating Profit

(6) Net Operating Profit

(7) Net Profit Before Interest and Tax

(8) Sales

(9) Net Profit

Rearrangement of Balance Sheet

=

=

=

=

=

=

=

=

=

Cost of Sales + Operating Expenses

+ Non-Operating Expenses

Net Sales - Cost of Goods Sold

Office and Administrative Expenses

+ Selling and Distribution Expenses

(or)

Gross Profit - Net Operating Profit

Cost of Sales + Operating Expenses

Gross Profit - Operating Expenses

Net Operating Profit - Non-Operating Expenses

Cost of Sales + Operating Expenses

+ Non-Operating Expenses

Net Sales - (Cost of Sales + Operating Expenses

+ Non-Operating Expenses)

Balance sheet is a statement consisting of assets and liabilities which reflected the financial

soundness of a concern at a given date. In order to judge the financial position qf a concern, it is also

necessary to rearrange the balance sheet in a proper set of form. For analysis and interpretation, the figures

in Balance Sheet rearranged in a Vertical Form and given below.

Financial Statements: Analysis alld Interpretation 155

Balance Sheet as on 31"1 Dec.

Particulars Amount Rs. Amount Rs.

Cash in Hand ...

Cash at Bank ...

Bills Receivable ...

Sundry Debtors ...

Marketable Securities ...

Other Short-Term Investments .. . ...

Liquid Assets (1) ...

Add: Stock in Trade ...

(Closing Stock of Raw Materials

Closing Stock of Work in Progress

Closing Stock of Finished goods)

Prepaid Expenses ... . ..

Current Assets (2) ...

Less: Current Liabilities :

Bills Payable ...

Sundry Creditors ...

Bank Loans (Short-term) ...

Bank Overdraft ...

Outstanding Expenses ...

Accrued Expenses ...

Trade Liabilities ...

Other Liabilities Payable within year ... . ..

Total Current Liabilities : (3) ...

Add: Provisions: (4)

Provision for Tax ...

Proposed Dividend ...

Provision for Contingent Liabilities ...

Total Current Liabilities and Provisions (5) = (3 + 4) .. . ...

Net Working Capital (6) = (2 - 5) ...

(Current Assets - Total Current Liabilities & Provision)

Add: Fixed Assets : (6)

Goodwill ...

Land and Buildings ...

Plant and Machinery ...

Loose Tools ...

Furniture and Fixtures ...

Patents and Copyrights ...

Live Stock ...

Investment in Subsidies .. . ...

Capital Employed (7) = (5 + 6) ...

(Net Working Capital + Fixed Assets)

Add: Other Assets : (8)

InvestmeJ1! in Govt. Securities ...

Unquoted Investments ...

Other Non-Trading Investments ...

Advances to Directors ... . ..

Company's Net Assets (9) = (7 + 8) ...

(Capital Employed + Other Assets)

156 A Textbook of Financial Cost and Manageme,1t Accounting

Particulars Amount Rs. Amount Rs.

Less: Long-Term Liabilities (10)

Debenture ...

Long-Term Debt ...

Long-Term Loan from Bank}

& Financial Institutions ...

Long-Term Debt Raised by Issue of SeCUrities}

& Public Deposits ...

Other Long-Term Loan payable after a year ... . ..

Share Holders Net Worth (11) = (9 - 10)

(or) Total Tangible Net Assets - SharehOlderS} ., .

Net Worth

Less: Preference Share Capital (12) ., .

Equity Shareholders Net Worth (13) = (11 - 12) ...

(Total Tangible Net Worth - Preference Share Capital)

Balance Sheet Equations :

From the above Balance Sheet the following accounting equations may be drawn:

(1) Liquid Assets

(2) Net Working Capital

(3) 'Current Assets

(4) Capital Employed

Capital Employed

=

=

=

=

=

Capital Employed =

(5) Shareholders' Net Worth =

(6) Equity Shareholders' Net Worth =

Current Assets - Stock and Prepaid Expenses

Current Assets - Current Liabilities

Net Working Capital - Current Liabilities

Net Working Capital + Fixed Assets

(or)

(Current Assets - Current Liabilities) + Fixed Assets

(or)

Total Assets - Current Liabilities

Company's Net Assets - Shareholders' Net Worth

Total Tangible Net Worth - Preference Share Capital

Methods or Tools of Analysis and Interpretations

The following are the various techniques can be adopted for the analysis and interpretations of

financial statements.

(1) Comparative Financial Statements.

(2) Common Size Statements.

(3) Trend Analysis.

(4) Ratio Analysis.

(5) Fund Flow Analysis.

(6) Cash Flow Analysis.

Financial Statements; Analysis and Interpretation 157

(1) Comparative Financial Statements

Under this form of comparative financial statements both the comparative Profit and Loss Account

and comparative Balance sheet are covered. Such comparative statements are prepared not only to the

comparison of the vanous figures of two or more periods but also the relationship between various

elements embodied in profit and loss account and balance sheet. It enables to measure operational

efficiency and financial soundness of the concern for analysis and interpretations. The following

information may be shown in the comparative statements:

(a) Figures are presented in the comparative statements side by side for two or more years.

(b) Absolute data in money value.

(c) Increase or Decrease between the absolute figures in money value.

(d) Changes or trend in various figures in terms of percentage.

Illustration: 1

From the following Profit and Loss Account AVS Ltd., for the years 2002 and 2003, you are required

to prepare a Comparative Income Statement.

Statements of Profit and Loss Account

Particulars 2002 2003

Rs. Rs.

Net sales 4,000 5,000

Less " Cost of goods sold 3,000 3,750

Gross Profit 1,000 1,250

Less,' Operating Expenses

Office and Administrative Expenses 200 250

Selling and Distribution Expenses 225 300

Total Operating Expenses 425 550

Net Profit 575 700

Solution: AVS Ltd.

Statements of Profit and Loss Account

Particulars 2002 2003 Increase or Decrease in 2003

Rs. Rs. Absolute Percentage

in 2003 Rs. (%)

Net sales 4,000 5,000 + 1,000 + 25

Less " Cost of Goods Sold 5,000 3,750 + 1,500 + 25

Gross Profit 1,000 1,250 + 250 + 25

Less " Operating Expenses :

Office and Administrative Expenses 200 250 + 50 + 25

Selling and Distribution Expenses 225 300 + 75 + 33.33

Total Operating Expenses 425 550 + 125 + 29.41

Net Profit (Gross Profit-Total Operating Expenses) 575 700 + 125 + 21.73

158

Interpretation

A Textbook of Financial Cost and Management Accounting

From the above statement, it is observed that the sales has increased to the extent of 25%. The cost of

goods sold and its percentage increased by 25%. Administrative and selling & distribution expenses have

been increased by 25% and 33.33% respectively. The rate of net profit is also increased to the extent of

21.73%. This indicates that the overall profitability of the concern is good.

Illustration: 2

From the following Profit and Loss Account, you are required to convert into Comparative Profit and

Loss Account for the year 2002 and 2003:

Dr. Profit and Loss Account for the Year 2002 and 2003 Cr.

Particulars 2002 2003 Particulars

Rs. Rs.

To Cost of goods sold 1,18,000 1,47,000 By Net Sales

To Gross Profit cld 82,000 78,000

2,00,000 2,25,000

To General & s} By Gross Profit bId

Administrative Expenses 5,000 6,000 By Non-Operating

To Selling & Distribution } Income

Expenses 7,000 8,000

To Non-Operating Expenses 5,000 7,000

To Net Profit cld 75,000 72,000

92,000 93,000

Solution: Comparative Income Statement

for the year ending 2002 and 2003

Particulars 2002 2003

Rs. Rs.

Net sales 2,00,000 2,25,000

Less : Cost of Goods Sold 1,18,000 1,47,000

Gross Profit 82,000 78,000

Less : Operating Expenses :

General & Administrative Expenses 5,000 6,000

Selling & Distribution Expenses 7,000 8,000

Total Operating Expenses 12,000 14,000

Net Profit 70,000 64,000

Add: Non-Operating Income 10,000 15,000

Total Income 80,000 79,000

Less: Non-Operating Expenses 5,000 7,000

Net Profit 75,000 72,000

2002 2003

Rs. Rs.

2,00,000 2,25,000

2,00,000 2,25,000

82,000 78,000

} 10,000 15,000

92,000 93,000

Increase or Decrease in 2003

Absolute Percentage

in 2003 Rs. (%)

+ 25,000 + 12.5

+ 29,000 + 24.57

-4,000 - 4.87

+ 1,000 + 20

+ 1,000 -+ 14.28

+ 2,000 + 16.66

- 6,000 - 8.57

+ 5,000 + 50

- 1,000 - 1.25

+ 2,000 + 40

- 3,000 -4

Financial Statements: Analysis and Interpretation 159

Interpretation

The rate of increase in sales is to extent of (12.5%) while cost of sales increased by (33.5%). The

gross profit has declined by (- 4.87%). It indicates that performance of operational efficiency is not much

better and the cost of sales has not been under control.

The Operating Profit and Net Profit have declined by (- 8.57%) and (- 4%) respectively. The

increase in operating and non operating expenses are to extent of + 16.66 % and + 40%. This indicates that

the overall profitability of a concern is not good.

Illustration: 3

From the following Balance sheet of ABC Ltd., for the year ending 31 51 Dec. 2002 and 2003. you are

required to prepare a Comparative Balance Sheet:

Particulars 2002 200J

Rs. Rs.

Assets :

Cash in Hand 5,000 5,500

Cash at Bank 3,500 5,000

Sundry Debtors 45,000 40,000

Stock 35,000 40,000

Bills Receivable 11,000 11,500

Prepaid Expenses 2,500 3,000

Fixed Assets 1,5Q,OOO 1,65,000 . 2,52,000 2,70,000

Liabilities & Capital :

Share Capital 1,35,000 1,45,000

Short-Term Loan 32,000 35,000

Long-Term Debt 45,000 42,000

Bills Payable 7,000 5,000

Sundry Creditors 6,000 8,000

Bank Overdraft 27,000 35,000

2,52,000 2,70,000

Solution:

Comparative Balance Sheet

Particulars 2002 2003 Increase or Percentage of Increase

Rs. Rs. Decrease in 2003 Rs. or Decrease in 2003

Assets :

Liquid Assets :

Cash in Hand 5,000 5,500 + 500 +10%

Cash at Bank 3,500 5,000 + 1500 + 42.85 %

Sundry Debtors 45,000 40,000 -5000 -11.11 %

Bills Receivable 11,000 11,500 + 500 + 4.54 %

Total Liquid Assets 64,500 62,000 - 2500 - 3.87 %

Add: Stock 35.000 40,000 + 5000 + 14.28 %

Prepaid Expenses 2,500 3,000 + 500 +20 %

Total Current Assets 1,02,000 1,05,000 + 3000 + 2.94 %

Fixed Assets 1,50,000 1,65,000 + 15000 +10%

160 A Textbook of Financial Cost and Management Accounting

Particulars 2002 2003 Increase or Percentage of Increase

Rs. Rs. Decrease in 2003 Rs. or Decrease in 2003

Total Assets 2,52,000 2,70,000 + 18000 + 7.14 %

Liabilities and Capital

Current Liabilities :

Short-Term Loan 32,000 35,000 +3000 + 9.37 %

Bills Payable 7,000 5,000 -2000 - 28.57 %

Sundry Creditors 6,000 8,000 + 2000 + 33.33 %

Bank Overdraft 27,000 35,000 +8000 + 29.62 %

Total Current Liabilities 72,000 83,000 + 11000 + 15.27 %

Long Term Liabilities :

Long-Term Debts 45,000 42,000 -3000 - 6.66 %

Total Liabilities 1,17,000 1,25,000 + 8000 + 6.83 %

Share Capital 1,35,000 1,45,000 +10000 + 7.40 %

Total Liabilities & Capital 2,52,000 2,70,000 + 18000 + 7.14 %

Illustration: 4

The Following is the Balance Sheet ABC Ltd. for the year 2002 amd 2003. Prepare Comparative

Balance sheet:

Balance Sheet of ABC Ltd. for the year 2002 and 2003

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Current Liabilities 37,000 50,000 Cash in Hand 3,000 5,000

Debenture 50,000 60,000 Cash at Bank 10,000 20,000

Long-Term Debts 2,00,000 2,50,000 Bills Receivable 7,000 10,000

Capital: Sundry Debtors 10,000 15,000

Preference Share} Stock 20,000 25,000

Capital 1,00,000 1,50,000 Fixed Assets 4,90,000 6,25,000

Equity Capital 1,25,000 1,60,000

General Reserve. 28,000 30,000

5,40,000 7,00,000 5,40,000 7,00,000

Solution: ABC Ltd.

Comparative Balance Sheet as on 315

' Dec. 2002 & 2003

Particulars 2002 2003 Increase or Percentage of Increase

Rs. Rs. Decrease in 2003 Rs. or Decrease in 2003 (%)

Assets :

Cash in Hand 3,000 5,000 +2000 + 66.66

Cash at Bank 10,000 20,000 +10000 + 100

Bills Receivable 7,000 10,000 + 3000 + 42.85

Sundry Debtors 10,000 15,000 +5000 + 50

Total Liquid Assets 30,000 50,000 + 20000 + 66.66

Add,' Stock 20,000 25,000 + 5000 + 25

Total Current Assets 50,000 75,000 + 25000 + 50

Financial Statements: Analysis and Interpretation 161

Particulars 2002 2003 Increase or Percentage of Increase

Rs. Rs. Decrease in 2003 Rs. or Decrease in 2003 (%)

Fixed Assets 4,90,000 6,25,000 + 1,35,000 + 27.55

Total Assets 5,40,000 7,00,000 + 1,60,000 + 29.62

Liabilities and Capital :

Current Liabilities 37,000 50,000 + 13,000 + 35.13

Total Current Liabilities 37,000 50,000 + 13,000 + 35.13

Long-Term Liabilities:

Debenture 50,000 60,000 + 10,000 + 20

Long-Term Debts 2,00,000 2,50,000 + 50,000 + 25

Total Long-term Liabilities 2,50,000 3.}O,OOO + 60,000 + 24

Total Liabilities 2,87,000 3,60,000 + 73,000 + 25.43

Capital and Reserve :

Preference Share Capital 1,00,000 1,50,000 + 50,000 + 50

Equity Share Capital 1,25,000 1,60,000 + 35,000 + 28

General Reserves 28,000 30,000 + 2,000 + 7.14

Total Capital & Reserve 2,53,000 3,40,000 + 87,000 + 34.38

Total Liabilities & Capital 5,40,000 7,00,000 + 1,60,000 + 29.62

Interpretation

The total current assets of the company have increased by 50% in 2003 as compared to 2002. The

current liabilities has increased only to the extent of 33.15 %. This indicates that the company will have no

problem to meet the day-to-day expenses. It also observed that the current financial position of the concern

has considerably increased.

The fixed assets has increased by 29.62% compared to 2002. At the same time, long-term liabilities,

share capital and reserve have considerably increased by 34.38%. It shows that the company has taken up

expansion plans in a big way.

(2) Common Size Statements

In order to avoid the limitations of Comparative Statement, this type of analysis is designed. Under

this method, financial statements are analysed to measure the relationship of various figures with some

common base. Accordingly, while preparing the Common Size Profit and Loss Account, total sa!es is taken

as common base and other items are expressed as a percentage of sales. Like this, in order to prepare the

Common Size Balance Sheet, the total assets or total liabilities are taken as common base and all other

items are expressed as a percentage of total assets and liabilities.

162

Illustration: 5

A Textbook of Financial Cost and Management Accounting

From the following particulars of AVS Ltd., for the year 2002 and 2003, you are required to prepare

a comparative Income Statement :

Statement of Profit and Loss Account

Particulars 2002 2003

Rs. Rs.

Net Sales 4,000 5,000

Less : Cost of Goods Sold 3,000 3,750

Gross Profit 1,000 1,000

Less : Operating Expenses :

Office & Administrative Expenses 200 250

Selling & Distribution Expenses 225 300

Total Operating Expenses 425 550

Net Profit 575 700

Solution:

Common Size Income Statement

Particulars 2002 Percentage 2003 Percentage

Rs. (% ) Rs. ( %)

Net sales 4,000 100 5000 lOO

Less : Cost of Goods Sold 3,000 75 3750 75

Gross Profit 1,000 25 1250 25

Less: Operating Expenses:

Office and Administrative Expenses lOO- 2.5 lOO 2

SeIling and Distribution Expenses 150 3.75 200 4

Total Operating Expenses 250 6.25 300 6

Net Profit 750 18.75 950 19

Illustration: 6

From the following Balance Sheet, prepare a Common Size Statement:

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 2,64,000 2,80,000 Cash in Hand lO,OOO lO,750

Current Liabilities 65,000 70,000 Cash at Bank 3,500 5,000

Long-term Debt 1,00,000 87,500 Bills Receivable 22,500 22,750

Bills Payable 12,500 - Sundry Debtors 90,000 85,000

Sundry Creditors lO,OOO 16,000 Inventories 70,000 83,000

Bank Overdraft 50,000 71,500 Fixed Assets 3,00,000 3,07,500

Prepaid Expenses 5,500 lO,500

5,01,500 5,25,000 5,01,500 5,25,000

Financial Statements: Analysis and Interpretation 163

Solution:

Common Size Balance Sheet

Particulars 2002 Percentage 2003 Percelltage

Rs. (% ) Rs. (% )

Assets :

Current Assets :

Cash in Hand 10,000 1.99 10,750 2.05

Cash at Bank 3,500 0.69 5,000 0.95

Sundry Debtors 90,000 17.95 85,000 16.29

Inventories 70,000 13.96 83,000 15.81

Bills Receivable 22,500 4.48 22,750 4.3

Prepaid Expenses 5,500 1.09 10,500 2.00

Total Current Assets 2,01,500 40.18 2,17,500 41.43

Fixed Assets 3,00,000 59.82 3,07,500 58.57

Total Assets 5,01,500 100 % 5,25,000 100%

Common Size Balance Sheet

Particulars 2002 Percentage 2003 Percentage

Rs. (% ) Rs. (% )

Liabilities & Capital :

Current Liabilities 65,000 12.96 70,000 13.33

Bills Payable 12,500 2.50 - -

Sundry Creditors 10,000 1.99 16,000 3.05

Bank Overdraft 50,000 9.97 71,500 13.62

Total Current Liabilities : 1,37,500 27.42 1,57,500 30

Long. Term Liabilities :

Long-Term Debts 1,00,000 19.94 87,500 16.66

Capital and Reserve :

Share Capital 2,64,000 52.64 2,80,000 53.34

Total Liabilities 5,01,500 100 % 5,25,000 100%

Illustration: 7

From the following Profit· and Loss account and Balance sheet, you are required to prepare

(a) Comparative Income Statements (b) Comparative Balance sheet (c) Common size Income Statement

and (d) Common size Balance sheet.

Profit and Loss Account

Particulars 2002 2003 Particulars 2002 2003

Rs. Rs. Rs. Rs.

To opening Stock }

of Materials 25,000 30,000 By Net Sales 2,00,000 2,25,000

To Purchases 1,00,000 1,25,000 By Closing Stock 25,000 30,000

To Direct Wages 15,000 17,000 By Non-operating}

To Freight and Carriage 2,000 3,000 Income 10,000 15,000

To Other Factory }

Expenses 1,000 2,000

164 A Textbook of Financial Cost and Management Accounting

To Office & Admi.}

Expenses 5,000 6,000

To Selling and }

Distribution Expn. 7,000 8,000

To Non-operating}

Expenses 5,000 7,000

To Net Profit c/d 75,000 72,000

2,35,000 2,70,000

Balance Sheet as on 31s1 Dec ...... .

Liabilities 2002 2003 Assets

Rs. Rs.

Bills Payable 5,000 7,000 Cash in hand

Sundry Creditors 10,000 15,000 Cash at Bank

Provision for Tax 7,000 10,000 Bills Receivable

Proposed Dividend 5,000 8,000 Sundry Debtors

Bank Overdraft 10,000 10,000 Stock in Trade

Debenture 50,000 60,000 Land & Buildings

Preference Share Goodwill

Capital 1,00,000 1,50,000 Furniture & Fixtures

Equity Share Capital 1,25,000 1,60,000 Plant & Machinery

Long-Term Loans 2,00,000 2,50,000

General Reserve 28,000 30,000

5,40,000 7,00,000

Solution:

(A) Comparative Income Statement

For the year ending •••••••

Particulars 2002 2003 Increase or

Rs. Rs. Decrease in 2003 Rs.

Opening stock of Raw Material 25,000 30,000 + 5,000

Add " Purchases 1,00,000 1,25,000 + 25,000

1,25,000 1,55,000 + 30,000

Add " Freight and Carriage 2,000 3,000 + 1,000

1,27,000 1,58,000 + 31,000

Less,' Closing Stock 25,000 30,000 + 5,000

Raw Materials Consumed (1) 1,02,000 1,28,000 + 36,000

Add " Direct Wages 15,000 17,000 + 2,000

ther Factory Expenses 1,000 2,000 + 1,000

Cost of Goods Sold (2) 1,18,000 1,47,000 + 39,000

Net Sales (3) 2,00,000 2,25,000 + 25,000

Gross Profit (3 - 2) = (4) 82,000 78,000 - 4,000

(Net Sales - Cost of Goods Sold)

Less " Operating Expenses :

Office & Administrative Expenses 5,000 6,000 + 1,000

Selling & Distribution Expenses 7,000 8,000 + 1,000

Total Operating Expenses (5) 12,000 14,000 + 2,000

2,35,000 2,70,000

2002 2003

Rs. Rs.

3,000 5,000

10,000 20,000

7,000 10,000

10,000 15,000

20,000 25,000

2,00,000 2,50,000

1,00,000 1,25,000

40,000 50,000

1,50,000 2,00,000

5,40,000 7,00,000

Percentage of Increase

or Decrease in 2003

+20%

+25%

+24%

+50%

+ 24.40%

+20%

+ 35.29%

+ 13.33%

+50%-

+ 33.05%

+ 12.5%

- 4.87%

+20%

+ 14.28%

+ 16.66%

Financial Statements: Analysis and Interpretation 165

Net Operating Profit (4 - 5) = (6) 70,000 64,000 - 6,000 - 8.57%

(Gross Profit - Net Operating Profit)

Add: Non-Operating Income 10,000 15,000 + 5,000 +50%

Total Operating Income (7) 80,000 79,000 - 1,000 - 1.25%

Less: Non-Operating Expenses 5,000 7,000 + 2,000 +40%

Net Profit (8) 75,000 72,000 - 3,000 -4%

(B) Comparative Balance sheet

as on 31s1

•••••••

Particulars 2002 2003 Increase or Percentage of Increase

Rs. Rs. Decrease in 2003 Rs. or Decrease in 2003

Assets :

Liquid Assets

Cash in hand 3,000 5,000 + 2,000 + 66.66%

Cash at Bank 10,000 20,000 + 10,000 + 10%

Bills Receivable 7,000 10,000 + 3,000 + 42.85%

Sundry Debtors 10,000 15,000 + 5,000 + 50%

Thtal Liquid Assets (1) 30,000 50,000 + 20,000 + 66.66%

Add : Stock-in-trade 20,000 25,000 + 5,000 +25%

Total Current Assets (2) 50,000 75,000 + 25,000 +50%

Fixed Assets :

Land and Buildings 2,00,000 2,50,000 + 50,000 + 25%

Plant and Machinery 1,50,000 2,00,000 + 50,000 + 33.33%

Goodwill 1,00,000 1,25,000 + 25,000 +25%

Furniture and Fixtures 40,000 50,000 + 10,000 + 25%

Total Fixed Assets (3) 4,90,000 6,25,000 + 1,35,000 + 27.55%

Thtal\_~ (2 + 3) = (4) } 5,40,000 7,00,000 + 1,60,000 + 29.62%

(Total Current Assets +

Fixed Assets)

Liabilities and Capital :

Current Liabilities. :

Bills Payable 5,000 7,000 + 2,000 +40%

Sundry Creditors 10,000 15,000 + 5,000 +50%

Bank Overdraft 10,000 10,000 - -

Provision for tax 7,000 10,000 + 3,000 + 42.85%

Proposed Dividend 5,000 8,000 + 3,000 +60%

Total Current Liabilities (1) 37,000 50,000 + 13,000 + 35.13%

Long-Term Liabilities:

Debenture 50,000 60,000 + 10,000 + 20%

Long-Term Loans 2,00,000 2,50,000 + 50,000 : +25%

Tot~ Long-Term Liabilities (2) 2,50,000 3,10,000 + 60,00Q +24%

Total Liabilities (2 + 1) = (3) 2,87,000 3,60,000 + 73,000 + 25.45%

Capital and Reserve :

Preference Share Capital 1,00,000 1,50,000 + 50,000 +50%

Equity Share Capital 1,25,000 1,60,000 + 35,000 + 28%

General Reserve 28,000 30,000 + 2,000 + 7.14%

Total Shareholders Fund (4) 2,53,000 3,40,000 + 87,000 + 34.38%

Total Liabilities and Capital (5) } 5,40,000 7,00,000 + 1,60,000 + 29.62%

= (3 + 4)

166 A Textbook of Financial Cost and Management Accounting

(C) Common Size Income Statements

Particulars 2002 Perr:entage 2003 Perr:entage

Rs. (% ) Rs. (% )

Opening stock of Raw Material 25,000 12.5% 30,000 13.33%

Add: Purchases 1,00,000 50% 1,25,000 55.55%

Freight and Carriage 2,000 1% 3,000 1.33%

1,27,000 63.5% 1,58,000 70.22%

Less : Closing Stock 25,000 12.5% 30,000 13.33%

Raw Materials Consumed (1) 1,02,000 51% 1,28,000 56.88%

Add: Direct Wages 15,000 7.5% 17,000 7.55%

Other Factory Expenses 1,000 0.5% 2,000 0.88%

Cost of Goods Sold (2) 1,18,000 59% 1.47,000 65.33%

Gross Profit (4) 82,000 41% 78,000 34.67%

Net Sales (3) 2,00,000 100% 2,25,000 100%

Less : Operating Expenses :

Office & Administrative Expenses 5,000 2.5% 6,000 2.66%

Selling & Distribution Expenses 7,000 3.5% 8,000 3.55%

Total Operating Expenses (5) 12,000 6% 14,000 6.22%

Net Operating Profit (6) 70,000 35% 64,000 28.44%

(Gross Profit - Total Operating Expenses)

Add : Non-Operating Income 10,000 5% 15,000 6.66%

80,000 40% 79,000 35.11%

Less: Non-Operating Expenses 5;000 2.5% 7,000 3.11%

Net Profit (7) 75,000 37.5% 72,000 32%

Current Liabilities :

Short-Term Loan 65,000 12.96% 70,000 13.33%

Bills Payable 12,500 2.50% - -

Sundry Creditors 10,000 1.99% 16,000 3.05%

Bank Overdraft 50,000 9.97% 71,500 13.62%

Total Current Liabilities 1,37,500 27.42% 1,57,500 30%

Long-Term Liabilities :

Long-Term debts 1,00,000 19.94% 87,500 16.66%

·Capital and Reserve :

Share Capital 2,64,000 52.64% 2,80,000 53.34%

Total Liabilities and Capital 5,01,500 100% 5,25,000 100%

(D) Common Size Balance Sheet

Particulars 2002 Perr:entage 2003 Perr:entage

Rs . (%) Rs. (% )

. ,~ts

-'LIquid AsSets:

" :. . . Cash in ihand 3,000 0.55% 5,000 0.71%

Cash at Bank 10,000 1.85% 20,000 2.85%

Bills Rece~vable 7,000 1.29% 10,000 1.42%

Sundry Debtors 10,000 1.85% 15,000 2.14%

, '

Total Liquid Assets (1) 30,000 5.55% 50,000 7.14%

AiJd : 'Stock in trade' 20,000 3.70% 25,000 3.57%

. . 'Tp1!ll Current Assets (2) 50,000 9.25% 75,000 10.72%

. ' ' .

. ",-.,,' ..

'; ,

f ....... ~' 'i. , "

Financial Statements: Analysis and Interpretation 167

Fixed Assets:

Land and Building 2,00,000 37.03% 2,50,000 35.71%

Plant and Machinery 1,50,000 27.78% 2,00,000 28.57%

Goodwill 1,00,000 18.50% 1,25,000 17.85%

Furniture and Fixtures 40,000 7.40% 50,000 7.14%

Total Fixed Assets (3) 4,90,000 90.75% 6,25,000 89.28%

Total Assets (2+3) = (4) 5,40,000 100 7,00,000 100%

(Current Assets + Fixed Assets)

Liabilities and Capital:

Current Liabilities:

Bilts Payable 5,000 0.92% 7,000 1%

Sundry Creditors 10,000 1.85% 15,000 2.14%

Bank Overdraft 10,000 1.85% 10,000 1.42%

Provision for Tax 7,000 1.29% 10,000 1.42%

Proposed Dividend 5,000 0.92% 8,000 1.14%

Total Current Liabilities (1) 37,000 6.85% 50,000 7.14%

Long-Term Liabilities:

Debenture 50,000 9.25% 60,000 8.57%

Long-Term Loan 2,00,000 37.03% 2,50,000 35.71%

Total Liabilities (2) 2,87,000 53.14% 3,60,000 51.43%

Capital and Reserve:

Preference Share Capital 1,00,000 18.51% 1,50,000 21.42%

Equity Share Capital 1,25,000 23.14% 1,60,000 22.85%

General Reserve 28,000 5.18% 30,000 4.28%

Total Share holders Fund (3) 2,53,000 46.85% 3,40,000 48.57%

Total Liabilities & Capital (2 + 3) = (4) 5,40,000 100% 7,00,000 100%

Interpertations

From the above statements, it is observed that the sales have gone up in 2003, the rate of increase to

the extent of 34.67%. The cost of goods sold and its percentage increased by 65.33%. Administrative and

selling and distribution expenses have been increased by 2.66% and 3.55% respectively. The rate of net

profit is also increased to the extent of 32%. This indicates the overall profitability of the concern is good.

The total current assets of the company has increased by 10.72%. While current liabilities have

increased only to the extent of 7.14%. This indication of liquidity position of the firm is highly satisfactory.

The total fixed assets have increased by 89.28% but at the same time long-term liabilities, capital and

reserves have increased by 48.57%. It is observed that overall financial position of the business concern is

good.

(3) Trend Analysis

Trend Analysis is one of the important technique which is used for analysis and interpretations of

financial statements. While applying this method, it is necessary to select a period for a number of years in

order to ascertain the percentage relationship of various items in the financial statements comparing with

the items in base year. When a trend is to be determined by applying this method, earliest year or first year

is taken as the base year. The related items in the base year are taken as 100 and based on this trend

percentage of corresponding figures of financial statements in the other years are concluded. This analysis

is useful in framing suitable policies and forecasting in future also.

168

I1Justration: 8

A Textbook of Financial Cost and Management Accounting

Calculate the trend percentage from the following figures of Ram & Co. Ltd. The year 1999 is taken

as the base year.

Year

1999

2000

2001

2002

2003

Solution:

Year Sale

Amount

Rs.

1999 2000

2000 2500

2001 3000

2002 3500

2003 4000

(4) Fund Flow Analysis

Sales

2000

2500

3000

3500

4000

Trend (%)

Cost of Goods Sold Rs.

1400

1800

2200

2600

3000

Ram & Co. Ltd.,

Trend Percentage

Cost of Goods Sold

Amount Trend (%)

Percentage Rs. Percentage

100 1400 100

125 1800 128.57

150 2200 157.14

175 2600 185.71

200 3000 214.28

Gross Profit Rs.

600

700

800

900

1000

Gross Profit

Amount Trend (%)

Rs. Percentage

600 100

700 116.66

800 133.33

900 150

1000 166.66

Fund Flow Analysis is one of the important methods for analysis and interpretations of financial

statements. This is the statement which acts as a supplementary statement to the profit and loss account and

balance sheet. Fund Flow Analysis helps to determine the changes in financial position on working capital

basis and on cash basis. It also reveals the information about the sources of funds and has been utilized or

employed during particular period.

(5) Ratio Analysis

Ratio Analysis is one of the important techniques which is used to measure the establishment of

relationship between the two interrelated accounting figures in financial statements. This analysis helps to

Management for decision making. Ratio Analysis is an effective tool which is used to ascertain the

liquidity and operational efficiency of the concern.

QUESTIONS

1. What is meant by Financial Analysis?

2. What do you understand by financial statements?

3. Explain briefly the nature and scope of financial statements.

4. Discuss the important objectives of financial statements.

5. What are limitations of financial statements?

6. Explain the analysis and interpretation of financial statements.

7. Explain different types of analysis and interpretations.

8. Write short notes on :

(a) Horizontal Analysis.

(b) Vertical Analysis.

(c) External and Internal Analysis.

9. Explain in brief the procedure for preparing the comparative financial statements.

Financial Statements: Analysis and Interpretation 169

10. Draw a specimen form of Methodical Classification of Income Statements and Balance Sheet.

11. Discuss the different techniques or tools of Financial Analysis.

12. What do you understand by Trend Analysis?

13. Write a brief note on Common Size Statements.

14. What is Fund Flow Analysis?

PRACTICAL PROBLEMS

(I) The following are the income statements of ABC Ltd. Madras for the years 2002 and 2003 convert into a Comparative

Income Statements and Comment on the Profitability of the Company.

Income Statements

Particulars 2002 2003 Particulars 2002 2003

Rs. Rs. Rs. Rs.

To Opening Stock 1,70000 4,00,000 By Sales 20,00,000 24,00,000

To Purchases 10,00,000 11,00,000 By Closing stock 4,00,000 4,50,000

To Wages 1,20,000 1,60,000 By Income from }

To Salaries 84,000 1,28,000 Investment 24,000 30,000

To Rent & Rates 70,000 80,000 By Dividend }

To Depreciation 80,000 1,20,000 Received 10,000 15,000

To Selling Expenses 24,000 24,000

To Discount Allowed 10,000 10,000

To Loss on sales of Plant - 16,000

To Interest Paid 24,000 28,000

To Net Profit 8,52,000 8,25,000

24,34,000 28,95,000 24,34,000 28,95,000

(2) The following are the particulars of Balance sheet for the year 2002 and 2003. You are required to convert into a

Comparative Balance Sheet:

Particulars

Equity Share Capital

Preference Share Capital

General Reserve

Accounts Payable

Outstanding Expenses

Profit and Loss Account

Fixed Assets

Investments

Bills Receivable

Stock

Cash at Bank

Cash in Hand

(3) From the following Balance. Prepare a Common Size Statement:

Particulars

Asset:

Cash in Hand

Cash at Bank

Sundry Debtors

Inventories

Bills Receivable

Prepaid Expenses

2002

8,00,000

4,00,000

2,00,000

2,00,000

1,00,000

4,00,000

21,00,000

8,00,000

6,00,000

4,00,000

2,00,000

50,000

50,000

21,00,000

2002

Rs.

20.000

7,000

1.80.000

1,40,000

45.000

11,000

2003

20,00,000

4,00,000

5,00,000

4,00,000

1,00,000

6,00,000

40,00,000

20,00,000

2,00,000

8,00,000

8,00,000

1,00,000

1,00,000

40,00,000

2003

Rs.

21.500

10.000

1.70,000

1.66.000

45,500

21,000

170 A Textbook of Financial Cost and Management Accounting

Fixed Assets

Total Assets

Liabilities & Capital :

Share Capital

Short-tenn Loans

Long-Tenn Debt

Bills Payable

Sundry Creditors

Bank Overdraft

6,00,000

10,03,000

5,28,000

1,30,000

2,00.000

25.000

20,000

1,00,000

10,03,000

1,05,000

10,05.000

5,60,000

1,40,000

1,15,000

32,000

1,43,000

10,05,000

(4) From the following Income Statements, you are required to Convert into Common 'Size Statement and comment on the

Prevailing Conditions :

Income Statement

Paniculars 2002 2003

Rs. Rs.

Sales 16,400 19,500

Less: Sales Return 400 450

Net Sales 16,000 19,100

Less: Cost of Sales 13,500 11,100

Gross Profit 2,500 7,000

Less: Operating Expenses :

Administrative & General Expenses 750 1,550

Selling & Distribution Expenses 1,320 2,670

Total Operating Expenses 2,070 4,220

Operating Profit 430 6,780

Add: Non-Operating Income 50 175

Total Income 480 6,955

Less: Non-Operating Expenses 45 300

Net Profit for the year 435 6,655

(5) Following income statement of a business are given for the year ending 31" December 2002 and 2003, rearrange them

in a comparative fonn and make comments.

Income Statements

Paniculars 2002 2003 Paniculars 2002 2003

Rs. Rs. Rs. Rs.

To Cost of goods sold 9,00,000 9,50,000 By Sales 15,25,000 17,00,000

To Administrative} By Interest and } Expenses 93,250 95,980 Dividend 7,500 6,200

To Selling Expenses 1,90,000 2,09,000 By Profit from }

To Interest Paid 8,000 7,000 sale of old assets 6,000 8,000

To Loss on Sale of }

Machinery 2,500 800

To Income Tax 85,000 1,68,000

To Net Profit 2,59,750 2,83,420

15,38,500 17,14,200 15,38,500 17,14,200

[Ans : Gross profit and Net profit have improved satisfactorily I

Financial Statements: Analysis and Interpretation 171

(6) From the following infQl'lll3tion, you are required to prepare a common size statement and make comments.

Balance Sheet

Liabilities 2002 2003 Assets 2002 200~

Rs. Rs. Rs. Rs.

Sundry Creditors 42,000 1,54,000 Cash 27,000 72,000

Other liabilities 78,000 62,000 Sundry Debtors 2,20,000 Z,26,OOO

Fixed liabilities 2,25,000 3,18,000 Stock 1,00,000 1,74,000

Capital 6,58,000 4,93,000 Prepaid Expenses 11,000 21,000

Other Current Assets 10,000 21,000

Fixed Assets 6,35,000 5,13,000

1O,Q3,OOO 10,27,000 1O,Q3,OOO 10,27,000

(7) The following information is the Income Statement and Balance Sheet of Raman & Co. Ltd. for the year 2002 and 2003,

you are required to prepare common size income statement and Balance sheet for the two years.

Dr. Trading, Profit and Loss Ale Cr.

Particulars 2002 2003 Particulars 2002 2003

Rs. Rs. Rs. Rs.

To Cost of Sales 2,40,000 3,50,000 By Sales 4,00.000 5,00,000

To Gross Profit cld 1,60,000 1,50,000

4,00,000 5,00,000 4,00,000 5,00,000

To Operating Expenses:

Administration 25,000 30,000 By Gross Profit bId 1.60,000 1,50,000

Selling Expense 15,000 20,000 By Interest on Distribution Expenses 10,000 10,000 Investments } 20,000 50,000

To Non-Operating

Expenses:

Donation 20,000 20,000

Goodwill Written off 10,000 -

To Net Profit 1,00,000 1,20,000

1,80,000 2,00,000 1,80,000 2,00,000

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 2,00,000 3,00,000 Buildings 4,00,000 4,00,000

Reserves 6,00,000 7,00,000 Machinery 6.00,000 10,00,000

10% Debentures 2,00,000 3,00,000 Stock 2,00,000 3,00,000

Creditors 3,00,000 5,00,000 Debtors 2,00,000 2,50,000

Bills Payable 1,00,000 80,000 Cash at Bank 10,000 50,000

Tax Payable 1,00,000 1,20,000

15,00,000 20,00,000 15,00,000 20,00,000

[Ans : Gross profit 30% ; Operating profit 18%; Net Profit 24%; Total Current Assets 30%; Fixed Assets 70%; Current

Liabilities 35%]

172 A Textbook of Financial Cost and Management Accounting

(8) From the following profit and loss account and Balance sheets for the year ended 31" Dec. 2002 and 2003, prepare

comparative income statements and comparative Balance sheet.

Profit and Loss Ale

Particulars 2002 2003 Particula'rs 2002 2003

Rs. Rs. Rs. Rs.

To Cost of Sales 3,00,000 3,75,000 By Sales 4,00,000 5,00,000

To Office &

Administrative Expen. 10,000 10,000

To Selling Expenses 15,000 20,000

To Net Profit 75,000 95,000

4,00,000 5,00,000 4,00,000 5,00,000

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Bills Payable 25,000 37,500 Cash 50,000 70,000

Sundry Creditors 75,000 1,00,000 Debtors 1,00,000 1,50,000

Tax Payable 50,000 75,000 Stock 1,00,000 1,50,000

10% Debentures 50,000 75,000 Land 50,000 50,000

10% Preference Shares 1,50,000 1,50,000 Buildings 1,50,000 1,35,000

Equity Shares 2,00,000 2,00,000 Plant 1,50,000 1,35,000

Reserves 1,00,000 1,22,500 Furniture 50,000 70,000

6,50,000 7,60,000 6,50,000 7,60,000

000

CHAPTER 7

Fund Flow Statement

Changes in Financial Position :

(a) Fund Flow Statement

(b) Cash Flow Statement

Introduction

FUND FLOW STATEMENT

The purpose of measuring trading performance, operational efficiency, profitability and financial

position of a concern revealed by Trading, Profit and Loss Account and Balance Sheet. These financial

statements are prepared to find out the Gross Profit or Gross Loss, Net Profit or Net Loss and financial

soundness of a firm ~ a whole for a particular period of time. From the management point of view, the

usefulness of information provided by these income statements functions effectively and efficiently. In the

true sense they do not disclose the nature of all transactions. Management, Creditors and Investors etc. want

to determine or evaluate the sources and application of funds employed by the firm for the future course of

action. Based on these backgrounds, it is essential to analyse the movement of assets, liabilities, funds from

operations and capital between the components of two year financial statements. The analysis of financial

statements helps to the management by providing additional information in a meaningful manner.

Meaning of Fund

The term "Fund" refers to Cash, to Cash Equivalents or to Working Capital and all financial

resources which are used in business. These total resources of a concern are in the form of men, materials,

money, plant and equipments and others.

In a broader meaning the word "Fund" refers to Working Capital. The Working Capital indicates the

difference between current assets and current liabilities. The term working capital may be :

(a) Gross Working Capital and

(b) Net Working Capital.

174 A Textbook of Financial Cost and Management Accounting

"Gross Working Capital" represents total of all Current Assets.

"Net Working Capital" refers to excess of Current Assets over Current Liabilities.

In a narrow sense the word "Fund" denotes cash or cash equivalents.

Meaning of Flow of Funds

The term "Flow of Funds" refers to changes or movement of funds or changes in working capital in

the normal course of business transactions. The changes in working capital may be in the form of inflow of

working capital or outflow of working capital. In other words, any increase or decrease in working capital

when the transactions takes place is called as "Flow of Funds." If the components of working capital

results in increase of the fund, it is known as Inflow of Fund or Sources of Fund. Similarly, if the

components of working capital effects in decreasing the financial position it is treated as Outflow of Fund.

For example, if the fund raised by way of issue of shares will be taken as a source of fund or inflow of

fund. This transaction results in increase of the financial position. Like this, the fund used for the purchase

of machinery will be taken as application or use of fund or outflow of fund. Because it stands to reduce the

fund position.

The following chart shows the movement of funds :

Movement of Funds

Inflow of Outflow of

Funds Funds

No Flow of Funds

. Some transactions may not make any movement or changes in the fund position. Such transactions

are involved within the business concern. Like the transaction which involves both between current assets

and current liabilities or between non-current assets and non-current liabilities and hence do not result in

the flow of funds. For example, conversion of shares in to debenture. Such transaction involves between

non-current account only and this activity does not effect in increase or decrease of the working capital

position.

Statement of Changes in Financial Position

It is a statement prepared on the basis of all financial resources, i.e., assets, liabilities and capital.

This statement is attempt to measure changes in both current and non-current accounts. The changes in

financial position may occur in deal with following transactions:

(a) Involves between current assets and non-current assets (fixed assets or permanent assets).

(b) Involves between current liabilities and non-current assets.

(c) Involves between current assets and non-current liabilities (long-term liabilities and

capital).

(d) Involves between current liabilities and non-current liabilities.

The following chart explains the flow of funds when transaction involves between current

and non-current accounts:

Fund Flow Statement

Transaction Involves between

Current Assets

1. And

Non-Current Assets

Current Assets

2. And

3.

Non-Current Liabilities

Current Liabilities

And

Non-Current Assets

Current Liabilities

4. And

Non-Current Liabilities

Flow of Funds Chart

175

Flow of Funds

(Inflow or Outflow of Funds)

When the transaction involves between non-current account and between current account it is not

movement of funds. The following chart shows the no flow of funds :

No Flow of Funds Chart

Transaction Involves between

Current Assets

1. And

Current Liabilities

No Flow of Funds

Non-Current Assets

2. And

Non-Current Liabilities

Examples of Flow of Funds and No Flow of Funds

The following are the few examples of flow of funds and no flow of funds:

Examples of "Flow of Funds"

Examples

(1) Purchase of Machinery for Cash

(2) Issue of Share for Cash

(3) Redemption of Debenture in Cash

(4) Creditors Paid off in Debenture

(5) Land Transferred to Creditors for }

their Statement

Examples of ''No Flow of Funds"

Examples

(1) Payment made to Creditors

(2) Machinery Purchased and Payment }

made in Debenture

(3) Machinery Purchased and Payment }

made in Shares

Transactions Involve Between

Current Asset and Non-Current Asset

Current Asset and Capital

Current Asset. and Non-Current Liabilities

Current Liabilities and Non-Current Liabilities

Current Liability and Non-Current Assets

Transactions Involve Between

Current Asset and Current Liabilities

Non-Current Assets and No-Current Liabilities

Non-Current Asset and Capital

Flow of Funds From

Current to Non-Current Account

Current to Capital Account

Current to Long-Term Liabilities Account

Non-Current Liabilities to Current Liabilities

Non-Current Assets to Current Liability

Flow of Funds From

No Flow of Funds

No Flow of Funds

No Flow of Funds

Fund Flow Statement 177

Components of Flow of Funds

In order to analyse the sources and application of funds, it is essential to know the meaning and

components of flow of funds given below :

(l) Current Assets

(2) Non-Current Assets (Fixed or Permanent Assets)

(3) Current Liabilities

(4) Non-Current Liabilities (Capital & Long-Term Liabilities)

(5) Provision for Tax

(6) Proposed Dividend

(1) Current Assets: The term "Current Assets" refer to the assets of a business of a transitory nature

which are intended for resale or conversion into different form during the course of business operations.

For example, raw materials are purchased and the amount unused at the end of the trading period forms

part of the current as stock on hand. Materials· in process at the end of the trading period and the labour

incurred in processing them also form part of current assets.

(2) Non-Current Assets (Permanent Assets): Non-Current Assets also refer to as Permanent Assets

or Fixed Assets. This class of asset include those of tangible and intangiable nature having a specific value

and which are not consumed during the course of business and trade but provide the means for producing

saleable goods or providing services. Land and Building, Plant and Machinery, Goodwill and Patents etc.

are the few examples of Non-Current ~ssets.

(3) Current Liabilities: The term Current Liabilities refer to amount owing by the business which

are currently due for payment. They consist of amount owing to creditors, bank loans due for repayment,

proposed dividend and proposed tax for payment and expenses accrued due.

(4) Non-Current Liabilities: The term Non-Current Liabilities refer to Capital and Long-Term

Debts. It is also called as Permanent Liabilities. Any amount owing by the business which are payable over

a longer period time, i.e., after a year are referred as Non-Current Liabilities. Debenture, long-term loans

and loans on mortgage etc., are the few examples of non-current liabilities.

(5) Provision for Taxation: Provision for taxation may be treated as a current liability or an

appropriation of profit. When it is made during the year it is not used for adjusting the net profit, it is

advisable to treat the same as current liability. Any amount of tax paid during the year is to be treated as

application of funds or non-current liability. Because it is used for adjusting the net profit made during the

year.

(6) Proposed Dividend: Like provision for taxation, it is also treated as a current liability and noncurrent

liability, when dividend may be considered as being declared. And thus, it will not be used for

adjusting the net profit made during the year. If it is treated as an appropriation, i.e., an non-current liability

when the dividend paid during the year.

(7) Provisions Against Current Assets and Current Liabilities: Provision for bad and doubtful

debts, provision for loss on inventories, provision for discount on creditors and provision made against

investment etc. are made during the year, they may be treated separately as current assets or current

liabilities or reduce the same from the respective gross value of the assets or liabilities.

•

178 A Textbook of Financial Cost and Management Accounting

The list of Current Accounts and Non-Current Accounts are given below:

Current Liabilities

(1) Bills Payable

-

(2) Sundry Creditors

(3) Outstanding Expenses

(4) Dividends Payable

(5) Bank Overdraft

(6) Short-Term Loans

(7) Provisions against Current Assets

(8) Provision for Taxation

(9) Proposed Dividend

Current Accounts

(May be Current or Non-Current Liabilities)

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

Non-Current Accounts

Non-Current or Permanent Liabilities

(1) Equity Share Capital (1)

(2) Preference Share Capital (2)

(3) Debentures (3)

(4) Long-Term Loans (4)

(5) Share Premium (5)

(6) Share forfeited (6)

(7) Profit and Loss Account (7)

(8) Capital Reserve (8)

(9) Capital Redemption Reserve (9)

(10)

(11)

Current Assets

Cash in Hand

Cash at Bank

Bills Receivable

Sundry Debtors

Short-Term Investments

Marketable Securities

Stock of Raw Materials, Work

in Progress & Finished Goods

Prepaid Expenses

Accrued Incomes

Non-Current or Permanent Assets

Good will

Land

Building

Plant and Machinery

Furniture and Fittings

Trade Marks

Patent Right~

Long-Term Investments

Discount on Issue of Shares

and Debentures

Preliminary Expenses

Other Deferred Expenses

Fund Flow Statement

It is a statement summarizing the significant financial changes in items of financial position which

have occurred between the two different balance sheet dates. This statement is prepared on the basis of

"Working Capital" concept of funds. Fund flow Statement helps to measure the different sources of funds

and application of funds from transactions involved during the course of business.

The fund flow statement also termed as Statement of Sources and Application of Fund, Where Got

and Where Gone Out Statement, Inflow of Fund or Outflow of Fund Statement.

Fund Flow Statement 179

Importance or Uses of Fund Flow Statement

Fund Flow Statements are prepared for financial analysis in order to meet the needs of people serving

the following purposes:

(1) It highlights the different sources and applications or uses of funds between the two accounting

period.

(2) It brings into light about financial strength and weakness of a concern.

(3) It acts as a effective tool to measure the causes of changes in working capital.

(4) It helps the management to take corrective actions while deviations between two balance sheet

figure.

(5) It is an instrument used by the investors for effective decisions at the time of their investment

proposals.

(6) It also presents detailed information about profitability, operational efficiency and financial

affairs of a concern.

(7) It serves as a guide to the management to formulate its dividend policy, retention policy and

investment policy etc.

(8) It helps to evaluate the financial consequences of business transactions involved in operational

finance and investment.

(9) It gives the detailed explanation about movement of funds from different sources or uses of

funds during a particular accounting period.

Difference between Fund Flow Statement and Income Statement

Fund Flow Statement Income Statement

(1) It explains the different sources and uses of (1) It reveals the net profit or net loss in a

funds during the particular period. particular period of time.

(2) No standard format is required for preparation (2) As per the double entry book keeping,

of fund flow statement. prescribed format is used for preparation of

income statement.

(3) Fund Flow Statement considers both capital and (3) It considers only revenue nature of

revenue nature of income and expenditure. income and expenditure.

(4) It disclosed the exact flow of funds from operations. (4) It is prepared not for fund flow statement.

Thus, it is complementary to income statement.

Difference between Fund Flow Statement and Balance Sheet

Fund Flow Statement

(1) It presents significant financial

Changes between two balance sheets.

, (2) It is prepared on the basis of Trading,

Profit & Loss account and Balance sheet.

Balance Sheet

(1) It is a statement that incorporates assets

and liabilities prepared at the end of

accounting period.

(2) It is prepared on the basis of

Trial Balance.

180

Fund Flow Statement

(3) It provides additional information to the

management to discharge its functions effectively.

(4) Fund from operation, schedule of changes

in working capital has to be required for

preparation of fund flow statement.

A Textbook of Financial Cost and Management Accounting

Balance Sheet

(3) It explains the financial position

of a concern as a whole in a

particular period.

(4) It is prepared after the Trading,

Profit and Loss Account is completed.

Limitations of Fund Flow Statement

Fund Flow Statement has suffered with the following limitations :

(I) It is prepared on the basis of information related to historical in nature. It ignores to project

future operations.

(2) This statement does not focus on transactions involved in non-fund items.

(3) It also ignores when transactions involved between current accounts or non-current accounts.

(4) It does not provide any additional information to the management because financial statements

are simply rearranged and presented.

Preparation of Fund Flow Statement

Fund flow analysis involves the following important three statements such as :

I. Fund From Operations

II. Statement of Changes in Working Capital

III. Fund Flow Statement.

I. FUND FROM OPERATIONS

Fund From Operation is to be determined on the basis of Profit and Loss Account. The operating

profit revealed by Profit and Loss Account represents the excess of sales revenue over cost of goods sold.

In the true sense, it does not reflect the exact flow of funds caused by business operations. Because the

revenue earned and expenses incurred are not in conformity with the flow of funds. For example,

depreciation charges on fixed assets, write up of fixed assets or fictious assets, any appropriations etc. do

• not cause actual flow of funds. Because they have already been charged to such profits. Hence, fund from

operation is prepared to find out exact inflow or outflow of funds from the regular operations on the basis

of items which have readjusted to the current profit or loss. The balancing amount of adjusted profit and

loss account is described as fund from operations.

Fund Flow Statement 181

Calculation of Fund From Operations

Fund from operations is calculated with the help of following adjustments. The adjustments may be

shown in the specimen proforma of profit and loss account as given below :

Particulars Amount Rs. Amount Rs.

Net Profit or Retained Earnings \* ••

(Closing balance of P & L Alc as given in the Balance Sheet)

Add: Non-Fund and Non-Operating items which have

already been debited to P & L Alc :

( I) Depreciation and Depletion • ••

(2) Amortization of Fictious and Intangible Assets etc.

(a) Good will, Patents written off

(b) Discount on Issue of shares wrillen off

(c) Preliminary Expenses written off

(d) Premium on redemption of debenture

(3) Appropriation of Retained Earnings :

Profit transfer to General Reserve •••

Profit transfer to Sinking Fund

Profit transfer to Contingency

Provision for Taxation (not taken as current liability)

Provision for Proposed Dividend}

(not taken as current liability)

Loss on Sale of Fixed Assets

Loss on Sale of Plant and Machinery

Loss on Sales of Land and Building

Loss on Sale of Furniture and Fixtures ••• •••

Total (A) • •• • ••

Less: Non-Fund and Non-Operating items which have

already been credited to P & L Alc:

(1) Profit on sale of Fixed Assets •••

Profit on sale of Land & Building

Profit on sale of Plant & Machinery

Profit on sale of Furniture & Fixtures

(2) Appreciation or Revaluation of fixed assets • ••

(3) Dividend received on investment •••

(4) Profit on redemption of Shares and Debentures •••

(5) Excess provisions written back •••

(6) Any other non-trading items alreadY}

credited to P & L Alc •••

(7) Net Profit or Retained Earnings }

(Opening balance of P & LAIc) \* \* •

Total (B) ••• \* ••

Fund From Operations (Total A - B) •• \*

182 A Textbook of Financial Cost and Management Accounting

Alternative Specimen Format

The following is the specimen of adjusted profit and loss account to calci.date fund from operations :

Adjusted Profit and Loss Account

Particulars Amount Rs. Particulars

To Depreciation on Fixed ASSets By Opening Balance of P & L Alc

To Loss on Sale of Fixed Assets By Profit on Sale of Fixed Assets

To Loss on Sale Investments By Excess provision written back

To Goodwill written off By Dividend received on investment

To Discount on shares written off By Revaluation of fixed assets

To Transfer to reserve By Fund From Operations

To Preliminary expenses written off (Balancing Figure)

To Provision for Tax

To Proposed Dividend

To Closing Balance of P & L Alc

\* \* \*

Illustration: 1

From the following Profit and Loss Account, Calculation fund from operation :

Profit and Loss Account

Rs.

To Rent 6,000 By Gross Profit bId

To Salaries 14,000 By Transfers to General Reserve

To Advertisement 3,000 By Preliminary Expenses

To Office Expenses 2,000 By Profit on Sale of Investment

To Depreciation on Plant 5,000

To Good will written off 3,000

To Loss on Sales of Plant 2,000

To Provision for Tax 4,000

To Interim Dividend 3,000

To Net Profit 18,000

60,000

Solution:

Calculation of Fund From Operations

Particulars

Net Profit or Retained Earnings

(Closing Balance of P & L Ale)

Add: Non-Fund or Non-Trading items

already debited to P & L Alc :

Depreciation on Plant

Goodwill written off

Loss on Sale of Plant

Provision for Tax

Interim Dividend

Amount Rs.

5,000

3,000

2,000

4,000

3,000

Amount Rs.

\* \* \*

Rs.

50,000

7,000

1,000

2,000

60,000

Amount Rs.

18,000

Fund Flow Statement /83

Particulars Amount Rs. Amount Rs.

Preliminary Expenses 1,000

Transfer to General Reserve 7,000 25,000

43,000

Less :Non-Fund or Non-Trading items already

Credited to P & L Nc:

Profit on Sale of Investments 2,000 2,000

Fund From Operations 41,000

Note: Provision for tax and Interim Dividend are not treated as current liability.

Alternatively

Adjusted Profit and Loss Account

To Depreciation on Plant 5,000 By Profit on sale of Investment 2,000

To Goodwill Written off 3,000 By Fund From Operations 41,000

To Loss on Sale of Plant 2,000 (Balancing figure)

To Provision for Tax 4,000

To Interim Dividend 3,000

To Preliminary Expenses 1,000

To Transfer General Reserve 7,000

To Net Profit (Closing Balance}

ofP & L Nc) 18,000

43,000 43,000

Illustration: 2

Calculate Fund from Operations from the following Profit and Loss Account

To Salaries 45,000 By Gross Profit bId 2,00,000

To' Rent & Rates 15,000 By Profit on Sale of Plant 10,000

To Office Expenses 15,000 By Dividend received on}

To Administrative Expenses 20,000 Investment 4,000

To General Expenses 5,000 By Preliminary Expenses 2,000

To Depreciation on Machinery 25,000 By Transfer to General }

To Depletion of Natural Resources 10,000 Reserve 4,000

To Depreciation on Building 5,000

To Loss on Sale of Building 10,000

To Good will Written off 10,000

To Discount Written off 3,000

To Advertisement Written off 5,000

To Net Profit 52,000

2,20,000 2,20,000

184

Solution:

A Textbook of Financial Cost and /rIanagement Accounting

Calculation of Fund from Operations

Particulars

Net Profit or Retained Earnings }

(Closing Balance of Profit & Loss Alc)

Add: Non-fund or Non-Trading items

already debited to P & L Ale :

Depreciation on Plant & Machinery

Depreciation on Building

Depletion of Natural Resources

Loss on Sale of Building

Good will Written off

Discount Written off

Advertisement Written off

Preliminary Expenses

Less: Non-Fund or Non-Operating items

already credited to P & L Alc :

Profit on Sale of Plant

Dividend received on Investment

Transfer to General Reserve

Fund From Operations

Alternatively

Solution:

Amount Rs

25,000

5,000

10,000

10,000

10,000

3,000

5,000

2,000

10,000

4,000

4,000

Adjusted Profit & Loss Account

Particulars Amount Rs. Particulars

To Depreciation on }

Plant and Machinery 25,000

By Profit on Sale}

of Plant

To Depreciation on Building 5,000 By Dividend received}

To Depletion of Natural Resources 10,000 on Investment

To Loss on Sale of Building 10,000 By Transfer to General}

To Good will Written off 10,000 Reserve

To Discount Written off 3,000 By Fund from operations}

To Advertisement Written off 5,000 (Balancing figure)

To Preliminary Expenses 2,000

To Net Profit } 52,000

(Closing Balance)

1,22,000

II. STATEMENT OF CHANGES IN WORKING CAPITAL

Amount Rs.

52,000

70,000

1,22,000

18,000

1,04,000

Amount Rs.

10,000

4,000

4,000

1,04,000

1,22,000

It is also termed as Statement of Changes in Working Capital. Before preparation of fund flow

statement, it is essential to prepare first the schedule of changes in working capital and fund from operations.

Statement of changes in working capital is prepared on the basis of items in current assets and current

liabilities of between two balance sheets. This statement helps to measure the movement or changes of

working capital during a particular period. The term working capital refers to excess of current assets over

Fund Flow Statement /85

current liabilities. The working capital may be "Increase in working capital" or "Decrease in working capital."

An increase in the amount of an item of current assets in the current year as compared to the previous year

represents to an increase in working capital. Similarly, a decrease in the amount of an item of current assets

in the current year as compared to the previous year would represent decrease in working capital. In the same

way over all changes in working capital is calculated and presented in the schedule of changes in working

capital. The final result of Net Decrease in Working Capital refers to Source of Funds or Inflow of Funds.

Like this, Net Increase in Working Capital represent Application of Fund or Uses of Funds.

Principle or Rules for Preparation of Working Capital Statement

The following rules may be kept in mind while preparing working capital statement:

(1) Increase in Current Asset

(2) Decrease in Current Asset

(3) Increase in Current Liability

Increases Wor~ing Capital

Decreases Working Capital

Decreases Working Capital

(4) Decrease in Current Liability ---+ Increases Working Capital

Specimen Form of Schedule of Changes in Working Capital :

The following is a specimen form may be used for preparation of schedule of changes in working

capital.

Schedule of Changes in Working Capital

(or)

Statement of Changes in Working Capital

Particulars Previous Year Current Year

Rs. Rs.

Current Assets :

Cash in Hand

Cash at Bank

Sundry Debtors

Bills Receivable

Short-Term Investments

Stock

Prepaid Expenses

Outstanding Incomes

Total Current Assets (A) ... ... ... ... ......

Current Liabilities :

Sundry Creditors

Bills Payable

Bank Overdraft

Outstanding Expenses

Short-Term Loans

Total Current Liabifities (B) ...... ... .....

Working Capital ....... ... ..

(A -B)

Net Increase I Decrease }

In Working Capital ......... -

Total ..... •••

Effect on Working Capital

Increase Decrease

- ... ....

• •• . ....

186

Illustration: 3

A Textbook of Financial Cost and Management Accounting

From the following Balance Sheet of Gupta Ltd., prepare Schedule of Changes in Working Capital:

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Creditors 55,000 83,000 Cash in Hand 15,000 10,000

Bills Payable 20,000 16,000 Cash at Bank 10,000 8,000

Share Capital 1,00,000 1,50,000 Debtors 1,60,000 2,00.000

General Reserve 7,000 8,000 Stock 77,000 1,09,000

Debenture 1,00,000 1,00,000 Bills Receivable 20,000 30,000

2,82,000 3,57,000 2,82,000 3,57,000

Solution:

Schedule of Changes in Working Capital

Particulars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash in Hand 15,000 10,000 - 5,000

Cash at Bank 10,000 8,000 - 2,000

Debtors 1,60,000 2,00,000 40,000 -

Stock 77,000 1,09,000 32,000 -

Bills Receivable 20,000 30,000 10,000 -

Total (A) 2,82,000 3,57,000

Current Liabilities :

Creditors 55,000 83,000 - 28,000

Bills Payable 20,000 16,000 4,000 -

Total (B) 75,000 99,000

Working Capital (A - B) 2,07,000 2,58,000

Net Increase in Working Capital 51,000 - - 51,000

2,58,000 2,58,000 86,000 86,000

Illustration: 4

You are required to prepare a Schedule of changes in working capital from the following Balance

sheet of Nancy Ltd., at the end of 2002 and 2003.

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 50,000 75,000 Cash at Bank 15,000 25,000

General Reserve 25,000 30,000 Plant 50,000 70,000

Bill Payable 10,000 15,000 Building 50.000 60,000

Debenture 30,000 50,000 Stock 30,000 35,000

Trade Creditors 40,000 50,000 Bills Receivable 25,000 40,000

Short-Term Loans 30,000 40,000 Trade Debtors 15,000 30,000

1,85,000 2,60,000 1,85,000 2,60,000

Fund Flow Statement 187

Solution:

Schedule of Changes in Working Capital

Paniculars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash at Bank 15,000 25,000 10,000 -

Stock 30,000 35,000 5,000 -

Bills Receivable 25,000 40,000 15,000 -

Trade Debtors 15,000 30,000 15,000 -

Total (A) 85,000 1,30,000

Current Liabilities :

Bills Payable 10,000 15,000 - 5,000

Trade Creditors 40,000 50,000 - 10,000

Short-Term Loans 30,000 40,000 - 10,000

Total (B) 80,000 1,05,000

Working Capital (Total A - B) 5,000 25,000

Net Increase in Working Capital 20,000 - - 20,000

25,000 25,000 45,000 45,000

Illustration: 5

From the following Balance Sheet of John Ltd. prepare a Schedule of changes in working capital:

Balance Sheet

Paniculars 2002 2003

Rs. Rs.

Assets :

Cash Balances 30,000 40,000

Debtors 60,000 56,000

Stock 1,10,000 1,44,000

Building 1,60,000 2,00,000

Machinery 30,000 20,000

3,90,000 4,60,000

Liabilities :

Capital 1,26,000 2,00,000

Long-Term Loans 1,00,000 1,20,000

Sundry Creditors 84,000 78,000

Bank Overdraft 70,000 50,000

Outstanding Expenses 10,000 12,000

3,90,000 4,60,000

188

Solution:

A Textbook of Financial Cost and Management Accounting

Schedule of Changes in Working Capital

Particulars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash Balances 30,000 40,000 10,000 -

Debtors 60,000 56,000 - 4,000

Stock 1,10,000 1,44,000 34,000 -

Total (A) 2,00,000 2,40,000

Current Liabilities:

Sundry Creditors 84,000 78,000 6,000 -

Bank Overdraft 70,000 50,000 20,000 -

Outstanding Expenses 10,000 12,000 - 2,000

Total (B) 1,64,000 1,40,000

Working Capital (Total A - B) 36,000 1,00,000

Net Increase in Working Capital 64,000 - - 64,000

1,00,000 1,00,000 70,000 70,000

III. FUND FLOW STATEMENT

In the analysis and interpretation of financial statements fund flow statement is one of the important

technique. The statement of changes in working capital is prepared with the help of current assets and

current liabilities. Similarly, fund from operation is prepared on the basis of profit and loss account to find

out the exact movement of funds in different operations. After preparing schedule of changes in working

capital and fund from operations, at the last stage a comprehensive fund flow statement can be prepared on

the basis of component of non-current assets, non-current liabilities of balance sheet and relavent

information. In other words, this statement is prepared with the help of the changes in non-current assets

and non-current liabilities of balance sheet.

Components of Sources and Application of Funds

The following are the components of different sources and applications of funds:

Components of Sources of Funds

(1) Fresh Issue of Equity Share Capital.

(2) Fresh Issue of Preference Share Capital.

(3) Issue of Debentures and Bonds.

(4) Long-Term Loans raised from bank, financial institutions and public.

(5) Long-Term Loans on Mortgage.

(6) Sale of Fixed Assets.

(7) Sale of Long-Term Investments.

(8) Non-Trading Incomes.

(9) Fund From Operations.

(10) Net Decrease in Working Capital (as per schedule of changes in working capital).

Fund Flow Statement /89

Components of Applications of Funds

Generated funds from various sources may be utilized in the following ways for meeting the future

productive programmes of the business:

( 1 ) Redemption of shares and debentures.

(2) Repayment of loans raised from bank, financial institutions and public.

(3) Purchase of Fixed Assets.

(4) Purchase of Long-Term Investments.

(5) Non-Trading Expenditure.

Payment of Tax;

Payment of Dividend.

(6) Fund Lost in Operations.

(7) Net Increase in Working Capital (as per schedule of changing in working capital).

Specimen Form of Fund Flow Statement

The following are the two usual formats for preparation of Sources and Application of Fund is

presented below:

(1) Statement Form.

(2) Account Form.

(1) Statement Form

Sources of Funds :

Fund From Operations

Issue of Share Capital

Issue of Debentures

Long-Term Loans

Sale of Fixed Assets

Sale of Investments

Non-Trading Incomes

Panicuiars

Decrease in Working Capital

Fund Flow Statement

(as per schedule of changes in working capital)

Total Sources (or) Total Inflows (A)

Application or Uses of Funds:

Fund Lost in Operations

Redemption of Shares

Redemption of Debentures

Purchase of Fixed Assets

Repayment of Long-Term Investments

Non-Trading Expenditure

Payment of Tax

Payment of dividend

Increase in Working Capital

(as per schedule of changes in working capital)

Total Application or Total Outflows (B)

Amount Rs. Amount Rs.

•• • •••

•••

••• • ••

• • •

190 A Textbook oj Financial Cost and Management Accounting

(2) Account Form

Fund Flow Statement

Sources of Funds Amount Rs. Application of Funds Amount Rs.

Fund From Operations Fund Lost in Operations

Issue of Share Capital Redemption of Shares

Issue of Debentures Redemption of Debenture

Long-Term Loans Purchase of Fixed Assets

Sale of Fixed Assets Repayment of Long-Term Loans

Sale of Investments Non-Trading Expenditure

Non-Trading Incomes Payment of Tax

Decrease in Working Capital Payment of Dividend

(As per schedule of changes Increase in Working Capital

in working capital) (as per schedule of changes

in working capital)

Total Inflow \* \* \* Total Outflow \*\*\*

Illustration: 6

From the following Balance sheet of William & Co. Ltd., you are required to prepare a Schedule of

Changes in Working Capital and Statement of Sources and Application of Funds.

Balance sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Capital 80,000 85,000 Cash in Hand 4,000 9,000

P&LNc 14,500 24,500 Sundry Debtors 16,500 19,500

Sundry Creditors 9,000 5,000 Stock 9,000 7,000

Long-Term Loans - 5,000 Machinery 24,000 34,000

Building 50,000 50,000

1,03,500 1,19,500 1,03,500 1,19,500

Solution:

Schedule of Changes in Working Capital

Particulars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash at Bank 4,000 9,000 5,000 -

Sundry Debtors 16,500 19,500 3,000 -

Stock 9,000 7,000 - 2,000

Total (A) 29,500 35,500

Current Liabilities :

Sundry Creditors 9,000 5,000 4,000 -

Total (B) 9,000 5,000

Working Capital (Total A - B) 20,500 30,500

Net Increase in Working Capital 10,000 - - 10,000

30,500 30,500 12,000 12,000

Fund Flow Statement 191

Fund Flow Statement

Sources of Fund Rs. Application of Fund Rs.

Issue of Capital 5,000 Purchase of Machinery 10,000

(80000 - 85000) (24,000 - 34,(00)

Long-Term Loans 5,000 Net Increase in

Fund From Operations 10,000 Working Capital 10,000

(14,500 - 24,500)

20,000 20,000

Illustration: 7

From the following Balance sheet of RR & Co. Ltd., you are required to prepare (a) Schedule of

Changes in Working Capital (b) Fund Flow Statement and (c) Fund From Operations.

Balance Sheet

liabilities 2002 2003 Assets

Rs. Rs.

Equity Capital 1,00,000 1,00,000 Good Will

General Reserve 14,000 18,000 Patents

Profit & Loss Nc 16,000 l3,OOO Building

Bank Overdraft 3,000 2,000 Machinery

Sundry Creditors 5,000 3,400 Investments

Bills Payable 1,200 800 Stock

Provision for Taxation 10,000 11,000 Bills Receivable

Proposed Dividend 6,000 7,000 Debtors

Provision for DoubtfUl} Cash at Bank

Debts 400 600

1,55,600 1,55,800

Additional Information

(1) Depreciation Charged on Machinery Rs. 4,000 and on Building Rs. 4,000.

(2) Provision for Taxation of Rs. 19,000 was made during the year 2003.

(3) Interim Dividend of Rs. 8,000 was Paid during the year 2003.

Solution:

Calculation of Fund from Operations

Particulars

Profit and Loss Nc (Closing Balance of 2(03)

Add: Non-Fund or Non-Trading items already

Debited to P&L Nc :

Depreciation on Machinery

Depreciation on Building

Interim Dividend Paid

Transfer to General Reserve

2002

Rs.

6,000

6,000

50.000

27,000

10,000

20,000

12,000

18,000

6,600

1,55,600

Amount Rs.

4,000

4,000

8,000

4,000

2003

Rs.

6,000

6,000

46.000

26,000

11,000

l3,400

l3,200

19,000

15,200

1,55,800

Amount Rs.

l3,000

/92 A Textbook of Financial Cost and Management Accounting

Paniculars Amount Amount

Provision for Tax (See Note 1) 19,000

Proposed Dividend 1,000 40,000

53,000

Less :Non-Fund or Non-Trading items already

Credited to P&L Alc :

Profit and Loss Alc (Opening balance as per 2002) 16,000

Fund From Operations 37,000

Schedule of Changes in Working Capital

Paniculars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash at Bank 6,600 15,200 8,600 -

Debtors 18,000 19,000 1,000 -

Stock 20,000 13,400 - 6,600

Bills Receivable 12,000 13,200 1,200 -

Total (A) 56,600 60,800

Current Liabilities :

Bank Overdraft 3,000 2,000 1,000 -

Sundry Creditors 5,000 3,400 1,600 -

Provision for Doubtful Debits 400 600 - 200

Bills Payable 1,200 800 400 -

Total (B) 9,600 6,800

Working Capital (Total A - B) 47,000 54,000

Net Increase in Working Capital 7,000 - - 7,000

54.000 54.000 13.800 13.800

Fund Flow Statement

Sources of Fund Rs. Application of Funds Rs.

Fund From Operations 37,000 Purchase of Machinery 3.000

Tax Paid (see Note 3) 18.000

Investment purChaSed} 1,000

(10.000 - 11,000)

Interim Dividend Paid 8.000

Net Increase in working}

Capital 7.000

37,000 37,000

Machinery Account •

To Balance bid 27,000 By Depreciation 4.000

To Bank 3,000 By Balance cld 26,000

(Purchase of Machinery balancing

figure)

30.000 30,000

Fund Flow StaJement 193

Building Account

To Balance bid 50,000 By Depreciation 4,000

By Balance cJd 46,000

50,000 50,000

Provision for Taxation

To Bank 18,000 By Balance bid 10,000

(Balancing figure) By Provision for Taxation 19,000

To Balance c/d 11,000

29,000 29,000

Illustration: 8

From the following are the comparative Balance Sheet of Gupta & Co., you are required to prepare

(a) Schedule of Changes in Working Capital (b) Fund Flow Statement and (c) Fund From Operations.

Balance Sheet

Liabilities 2002 2003 Assets 2002

Rs. Rs. Rs.

Share Capital 90,000 1,00,000 Goodwill 12,000

General Reserve 14,000 18,000 Buildings 40,000

Profit & Loss Alc 19,500 12,000 Machinery 37,000

Provision for Taxation 16,000 17,000 Stock 30,000

Sundry Creditors 8,000 5,400 Sundry Debtors 20,000

Bills Payable 6,200 1,300 Cash at Bank 6,600

Provision for Doubtful} Investments 10,000

Debts 1,900 2,100

1,55,600 1,55,800 1,55,600

Additional Information

(1) Depreciation charged on Machinery was Rs. 4000 and on building Rs. 4000.

(2) Interim Dividend paid during 2003 was Rs. 7500.

(3) Provision of Rs. 5000 was made for taxation during the 2003.

Solution:

Calculation of Fund From Operations

Particulars

Net Profit (Closing Balance)

Add: Non-fund or Non-operating items

Which already Debited to P & L Alc :

Good Will Written off

Depreciation on Machinery

Depreciation on Building

Interim Dividend Paid

Rs.

2,000

4,000

4,000

7,500

2003

Rs.

10,000

36,000

36,000

25,400

22,200

15,200

11,000

1,55,800

Rs.

12,000

/94 < A Textbook of Financial Cost and Management Accounting

Particulars Rs. Rs.

Transfer to General Reserve 4,000 21,500

>3,500

Less: Non-Fund or Non Operating items

already Credited to P & L Nc :

Net Profit (Opening Balance) 19,500

Fund From Operations 14,000

Schedule of Changes in Working Capital

Particulars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Stock 30,000 25,400 - 4,600

Sundry Debtors

(Less: Provision For Doubtful Debts) 18,100 20,100 2,000

Cash Balances 6,600 15,200 8,600 -

Total (A) 54,700 60,700

Current Liabilities :

Sundry Creditors 8,000 5,400 2,600 -

Bills Payable 6,200 1,300 4,900 -

Prevention for Tax 16,000 17,000 - 1,000

Total (B) 30,200 23,700

Working Capital (Total A - B) 24,500 37,000

Net Increase in Working Capital 12,500 - - 12,500

37,000 37,000 18,100 18,100

Fund Flow Statement

Sources of Funds Rs. Application of Funds Rs.

Issue of Share Capital } Purchase of Machinery 3,000

(90,000 - 1,00,000) 10,000 Purchase of Investments 1,000

Funds From Operations 14,000 Interim Dividend Paid 7,500

Net Increase in working}

, Capital 12,500

24,000 24,000

Machinery Account

To Balance bid 37,000 By Depreciation 4,000

To Bank 3,000 By Balance cld 36,000

(Purchase of Machinery Balancing

figure) 40,000 40,000

Fund Flow Statement 195

Building Account

To Balance bid 40,000 By Depreciation 4,000

By Balance cld 36,000

40,000 40,000

Illustration: 9

From the following Balance sheet of X Y Z Ltd., on 31 sl Dec. 2002 and 2003, you are required to

prepare (a) Fund From Operations (b) Schedule of Changes in Working Capital and (c) Fund Flow

Statement.

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Bills Payable 20,000 22,000 Cash Balances 10,000 7,000

Creditors 20,000 22,000 Debtors 20,000 20,000

Ramesh's Loan 25,000 - Bills Payable 10,000 30,000

Loan from Kannan 40,000 50,000 Stock 35,000 25,000

Equity Share Capital 1,00,000 1,00,000 Machinery 80,000 55,000

Preference Share Capital 25,000 53,000 Land 40,000 50,000

Building 35,000 60,000

2,30,000 2,47,000 2,30,000 2,47,000

Additional Information

(1) During the year machine costing Rs. 10,000 (accumulated depreciation Rs. 3,000) was sold for Rs. 5,000.

(2) The provision for depreciation against machinery on I" Jan. 2003 was Rs. 25,000 and on 31" December

was Rs. 40,000.

(3) Net profit for the year 2003 amounted to Rs. 45,000.

Solution:

Calculation of Fund From Operations

Particulars Rs. Rs.

Net Profit (Closing Balance P & L Nc) 45,000

Add: Non-Fund or Non-Operating items

already debited to P & L Nc

Loss on Sale of Machinery (see note 1) 2,000

Depreciation on Machinery 18,000 20,000

65,000

Less: Non-Fund or Non-Operating items

already credited to P & L Nc -

Fund From Operations 65,000

/96 A Textbook of Financial Cost and Management Accounting

Schedule of Changes in Working Capital

Particulars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash Balances 10,000 7,000 - 3,000

Bills Payable 10,000 30,000 20,000 -

Stock 35,000 25,000 - 10,000

Total (A) 55,000 62,000

Current Liabilities :

Bills Payable 20,000 22,000 - 2,000

Creditors 20,000 22,000 - 2,000

Total (B) 40,000 44,000

Working Capital (Total A - B) 15,000 18,000

Net Increase in Working Capital 3,000 - 3,000

18,000 18,000 20,000 20,000

Fund Flow Statement

Sources of Funds Rs. Application of Funds Rs.

Fund from Operations 65,000 Ramesh Loan Repaid 25,000

Loan From Kannan 10,000 Drawings 17,000

Sale of Machinery 5,000 Purchase of Land 10,000

(See Note) Purchase of Building 25,000

Net Increase in wOrking}

Capital 3,000

80,000 80,000

Machinery Account

To Balance bid 1,05,000 By Provision for depreciation}

on machinery sold 3,000

By Bank 5,000

By Loss on sale of machinery 2,000

By Balance cld 95,000

1,05,000 1,05,000

Provision for Depreciation on Machinery

To Machinery Ale 3,000 By Balance bid 25,000

To Balance cld 40,000 By P & L (depreciation }

Provided during the

year - balancing figure) 18,000

43,000 43,000

Fund Flow Statement

Capital Account :

Opening balance of Equity Share Capital

Opening balance of preference Share Capital

Net Profit during the year 2003

Less: Closing balance of Equity and Preference Share Capital }

(Rs. 1,00,000 to Rs. 53,(00)

Drawing

Illustration: 10

Rs.

1,00,000

25,000

45,000

1,70,000

1,53,000

17,000

197

From the following Balance sheet of Mohan & Co. Ltd. as on 31st December 2002 and 2003, you are

required to prepare: (a) Fund From Operations (b) A Schedule of Changes in Working Capital and (c) A

Fund Flow Statement:

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Sundry Creditors 50,000 48,000 Cash in hand 25,000 22,000

Bills Payable 40,000 39,000 Cash at Bank 25,000 18,000

Bank Overdraft 13,000 90,000 Sundry Debtors 30,000 28,000

Outstanding Expenses 13,000 22,000 Bills Receivable 47,000 45,000

15% Debentures 90,000 70,000 Short-Term Investments 1,10,000 84,000

Depreciation Fund 40,000 44,000 Prepaid Expenses 1,000 2,000

General Reserve 60,000 50,000 Inventories 92,000 1,06,000

Profit and Loss Nc 16,000 23,000 Land & Buildings 50,000 50,000

Equity Share Capital 1,00,000 1,00,000 Furniture 50,000 50,000

Preference Share Capital 80,000 80,000 Plant & Machinery 72,000 8,000

5,02,000 4,85,000 5,02,000 4,85,000

Additional Information

(1) Dividend was paid in cash was Rs. 18,000

(2) New machinery for Rs. 20,000 was purchased but old machinery costing Rs. 12,000 was sold for Rs.

4,000, accumulated depreciation was Rs. 6,000

(3) Rs. 20,000, 15% debentures were redeemed by purchase from open market @ Rs. 96

(4) Rs. 10,000 was debited to General reserve for settlement of previous tax liability

(5) Rs. 26,000 investments were sold at book value.

198

Solution:

A Textbook of Financial Cost and Management Accounting

(1) Statement of Changes in Working Capital

Particulars 2002 2003 Change in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash in hand 25,000 22,000 - 3,000

Cash at Bank 25,000 18,000 - 7,000

Sundry Debtors 30,000 28,000 - 2,000

Bills Receivable 47,000 45,000 - 2,000

Short-Tenn Investment 1,10,000 84,000 - 26,000

Prepaid Expenses 1,000 2,000 1,000 -

Inventories 92,000 1,06,000 14,000 -

Total Current Assets (A) 3,30,000 3,05,000

Current Liabilities :

Sundry Creditors 50,000 48,000 2,000 -

Bills Payable 40,000 39,000 1,000 -

Bank Overdraft 13,000 9,000 4,000 -

Outstanding Expenses 13,000 22,000 - 9,000

Total Current Liabilities (B) 1,16,000 1,18,000

Working Capital (A - B) 2,14,000 1,87,000 -

Net Decrease in Working Capital 27,000 27,000 -

2,14,000 2,14,000 49,000 49,000

(2) Calculation of Fund From Operations

Particulars Amount Amount

Rs. Rs.

Profit & Loss Alc (Closing Balance)

Add " Non-Fund or Non-Operating items 23,000

already been debited to P & L Alc

Depreciation on Machinery 10,000

Loss on Sale of Machinery 2,000

Dividend Paid 18,000 30,000

53,000

Less,' Non-Fund and Non-Operating items

already been credited to P & L Alc

Profit on redemption of debentures 800

Profit and Loss Alc (Opening balance) 16,000 16,800

Fund From Operations 36,200

Dr. (3) Fund Flow Statement Cr.

Sources of Fund Amount Application of Funds Amount

Rs. Rs.

Sale of Machinery 4,000 Dividends Paid 18,000

Fund From Operations 36,200 Purchase of Machinery 20,000

Net Decrease in Working Capital 27,000 Tax Paid 10,000

Debenture Redeemed 19,200

67,200 67,200

Fund Flow Statement

Dr. (4) Machinery Account

Particulars Amount Particulars

Rs.

To Balance bid 72,000 By Bank (Sold)

To Bank (New Machinery) 20,000 By Depreciation Fund (Alc)

By Profit & Loss Alc (Loss) }

(6,000 + 4,000 - 12,000)

By Balance cld

92,000

Dr. (5) Depreciation Fund Account

Particulars Amount Particulars

Rs.

To Machinery Alc 6,000 By Balance bid

To Balance c/d 44,000 By Profit & Loss Alc (Depreciation)

50,000

Dlustration: 11

Amount

Rs.

4,000

6,000

2,000

80,000

92,000

Amount

Rs.

40,000

10,000

50,000

199

Cr.

Cr.

From the following Balance sheet of Hari & Co. Ltd. as on 31 SI December 2002 and 2003, you are

required to prepare: (a) Fund From operations (b) A Schedule of Changes in Working Capital and (c) A

Fund Flow Statement :

'Balance Sheet

liabilities 2002 2003 Assets

Rs. Rs.

Equity Share Capital 2,00,000 2,00,000 Fixed Assets at Cost

7% Preference Share Capital 2,00,000 3,00,000 Less : Depreciation

Capital Reserve 20,000 Trade Investments

General Reserve 1,80,000 2,10,000 Sundry Debtors

Debenture 3,00,000 2,00,000 Bills Receivable

Profit and Loss Alc 70,000 90,000 Preliminary Expenses

Sundry Creditors 50,000 50,000

Bills Payable 30,000 20,000

Bank Overdraft 50,000 50,000

Provision for Income Tax 80,000 60,000

Proposed Dividend 40,000 50,000

12,00,000 12,50,000

Additional Information

(1) During the year 2003 depreciation provided for Rs. 1,00,000

(2) Redeemed the debentures at Rs. 105

2002 2003

Rs. Rs.

10,00,000 10,00,000

2,60,000 3,10,000

7,10,000 6,90,000

1,10,000 90,000

1,50,000 2,00,000

1,70,000 2,50,000

30,000 20,000

12,00,000 12,50,000

(3) Sold one machine for Rs. 4,00,000 the cost of the' machine was Rs. 80,000 and the depreciation provided

for it amounted to Rs. 30,000

200 A Textbook of Financial Cost and Management Accounting

(4) Sold some trade investments at profit which was credited to capital reserve

(5) Decided to value the stock at cost whereas previously the practice was value stock at cost less 10%. The

opening stock according to books 'was Rs. 63,000. The stock on 31" December 2003 was correctly valued

at cost.

Solution:

(1) Schedule of Changes in Working Capital

Paniculars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Sundry Debtors 1,50,000 2,00,000 50,000 -

Bills Receivable 1,70,000 2,50,000 80,000 -

Inventory 7,000 - - 7,000

Total Current Assets (A) 3,27,000 4,50,000

Current Liabilities :

Sundry Creditors 50,000 50,000 - -

Bills Payable 30,000 20,000 10,000 -

Bank Overdraft 50,000 50,000 - -

Total Current Liabilities (B) 1,30,000 1,20,000

Working Capital (A - B) 1,97,000 3,30,000

Net Increase in Working Capital 1,33,000 - - 1,33,000

Total 3,30,000 3,30,000 1,40,000 1,40,000

(2) Calculation of Fund From Operations

Particulars Rs. Rs.

Net Profit (Closing Balance) 90,000

Add : Non-Fund and Non-operating

items which already been debited

to profit and loss Alc :

Loss on sale of machinery 10,000

Loss on redemption of debenture 5,000

Depreciation provided 1,00,000

Preliminary expenses } (Rs. 30,000 - Rs. 20.000) 10,000

Proposed dividend 50,000

Transfer to General Reserve } (Rs. 2.10,000 - Rs. 1,80,000) 30,000

Provision for income tax 60,000 2,65,000

3,55,000

Less : Non-Fund and Non-Operating

items which already credited to -

Profit and Loss Alc :

Opening Stock Written off 70,000

Net Profit (Opening balance) 70,000 77,000

Fund From Operations 2,78,000

Fund Flow Statement 201

Fund Flow Statement

Sources of Funds Rs. Application of Funs Rs.

Equity Share Capital - Purchase of Fixed Assets 1,00,000

7% Preference Share Capital 1,00,000 Redemption of Debenture 1,05,000

(2,00,000 - 3,00,(00) Proposed Dividend for 2002 } (Assumed to be paid) 4Q,OOO

Sale of Trade Investments } Provision for Taxation for } (Rs.l,IO,OOO + 20,000 - 90,(00) 40,000 (2002 assumed to be paid) 80,000

Sale of Machine 40,000 Net Increase in Working Capital 1,33,000

Fund From Operations 2,78,000

4,58,000 4,58,000

Dr. Fixed Assets Account Cr.

Particulars Amount Particulars Amount

Rs. Rs.

To Balance bid 10,00,000 By Cash (Sale) 40,000

To Cash (Purchase) }

Balancing figure 1,00,000 By Accumulated depreciation 30,000

By Adjusted P & L (Loss on Sale) 10,000

By Accumulated depreciation }

(Fixed Asset Written off) 20,000

By Balance c/d IO,QO,OOO

11,00,000 11 ,00,000

Dr. Debenture Account Cr.

Particulars Amount Particulars Amount

Rs. Rs.

To Bank 1,05,000 By Balance bid 3,00,000

To Balance cld 2,00,000 By Adjusted P & L Alc

(Loss on redeemed) 5,000

3,05,000 3,05,000

Dr. Accumulated Depreciation Account Cr.

Particulars Amount Particulars Amount

Rs. Rs.

To Fixed Assets By Balance bid 2,60,000

(Depreciation on Machinery Sold) 30,000 By Adjusted P & L Alc

(Depreciation during the year) 1 ,00,000

To Fixed Assets Written off }

(Rs. 7,10,000 - Rs. 6,90,(00) 20,000

To Balance c/d 3, 10,000

3,60,000 3,60,000

202 A Textbook of Financial Cost and Management Accounting

Illustration: 12

The following summarized balance sheets are given to you by Pilh & Co. Ltd. :

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 10,00,000 11,00,000 Fixed Assets

Reserves 3,50,000 3,00,000 Less : Depreciation 11,70,000 16,90,000

Profit & Loss Nc 80,000 70,000 Investments 2,00,000 1,50,000

Loans @ 10% 6,00,000 8,00,000 Sundry Debtors 5,00,000 4,50,000

Provision for tax 2,10,000 2,40,000 Stock in Trade 4,50,000 3,90,000

Provision for Doubtful debts 30,000 20,000 Cash at Bank 90,000 60,000

Sundry Creditors 3,10,000 2,90,000 Goodwill 2,70,000 2,00,000

Proposed Dividend 1,00,000 1,20,000

12,00,000 29,40,000 26,80,000 29,40,000

Additional Information

(1) Investments were sold during 2003 at a loss of 20% on the cost

(2) An item of fixed assets, cost Rs.70,ooo, depreciation provided for Rs.66,ooo had to be discarded in 2003

without any scrap value

(3) Depreciation provided during 2003 came to Rs.l,80,OOO

(4) The increase in share capital was because of issue of bonus shared out of reserves. Prepare the fund flow

statement for the year ended 31" December 2003.

Solution:

Statement of Changes in Working Capital

Particl!lars 2002 2003 Effect on Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Sundry Debtors 5,00,000 4,50,000 - 50,000

Stock in Trade 4,50,000 3,90,000 - 60,000

Cash at Bank 90,000 60,000 - 30,000

Total Current Assets (A) 10,40,000 9,00,000

Current Liabilities :

Sundry Creditors 3,10,000 2,90,000 20,000 -

Provision for Tax 2,10,000 2,40,000 - 30,000

Provision for doubtful debts 30,000 20,000 10,000 -

Total Current Liabilities (B) 5,50,000 5,50,000

Working Capital (A - B) 4,90,000 3,50,000

Net Decrease in Working Capital - 1,40,000 14,000 -

4,90,000 4,90,000 1,70,000 1,70,000

Fund Flow Statement

Fund Flow Statements

Sources of Fund Amount Particulars

Rs.

New Loans raised Fixed Assets acquired

(8,00,000 - 6,00,000) 2,00,000 Dividend Paid

Sale of Investments 40,000

Net Decrease in

Working Capital 1,40,000

Fund From Operations 4,24,000

8,04,000

Calculation of Funds From Operations

Particulars Amount Rs.

Profit & Loss Alc (Closing Balance)

Add: Non-fund and Non-operating

items which have already been

debited to P & L Alc:

Proposed dividend for 2003 1,20,000

Loss on investment 20% of Rs.50,000 10,000

Loss on fixed assets scraped 4,000

Depreciation provided 1,80,000

Goodwill Written off 70,000

Transfer to reserves 50,000

Less: Non-fund and Non-operating

items which have already been

credited to P & L Alc:

Profit & Loss Alc (opening balance) 80,000

Fund From Operations

Fixed Assets Account

Particulars Amount Particulars

Rs.

To Balance bId 11,70,000 By Book Value of item Scraped

To Bank Alc 7,04,000

(Purchase of new assets)

By Depreci~tion

By Balance cld

18,74,000

"

Movement of Reserves :

Opening Balance of Reserves

Less: Utilised for bonus shares

Closing Balance of Reserves

Addition during the year

Rs.

3,50,000

1,00,000

2,50,000

3,00,000

50,000

203

Amount

Rs.

7,04,000

1,00,000

8,04,000

Amount Rs.

70,000

4,34,000

5,04,000

80,000

4,24,000

Amount

Rs.

4,000

1,80,000

16,90,000

18,74,000

204

QUESTIONS

A Textbook of Financial Cost and Management Accounting

1. What is mean by Fund Flow Statement?

2. Explain the Changes of Financial Position.

3. Briefly explain the Flow of Funds and No Flow of Funds. Illustrate with numerical examples.

4. What are the components of Flow of Fund?

5. What do you understand by Fund Flow Statement? How is it Prepared?

6. Explain the importance of Fund Flow Statement.

7. Distinguish between

(a) Fund Flow Statement and Income Statement

(b) Fund Flow Statement and Balance Sheet

8. Explain the limitations of Fund Flow Statement.

9. Explain the procedure for preparation of Fund Flow Statement.

10. What do you understand by Fund From Operations?

11. What is meant by Schedule of Changes in Working Capital How is it prepared?

PRACTICAL PROBLEMS

(1) From the following Balance sheet of X Y & Co. as on 31" Dec. 2002 and 2003, you are required to prepare Statement

of Changes in Working Capital.

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Equity Share Capital 1,00,000 1,25,000 Cash Balances 30,000 47,000

Preference Share Capital 1,00,000 1,25,000 Debtors 60,000 60,000

Creditors 40,000 20,000 Bills Payable 60,000 55,000

Bills Payable 30,000 25,000 Stock 40,000 45,000

Retained Earnings 10,000 23,000 Short-Term Loan 40,000 45,000

Building 50,000 66,000

2,80,000 3,18,000 2,80,000 3,18,000

[Ans: Net Increase in working capital Rs. 47,000].

(2) From the following information, you are required to prepare: (a) Fund From Operations

(b) Statement of Changes in Working Capital and (c) Fund Flow Statement:

Comparative Balance Sheet

Particulars 2002

Rs.

Liabilities and Capital :

Share Capital50,OOO 40,000

Reserve and Surplus 15,000

Secured Loans 35,000

Current Liabilities 50,000

Total Liabilities and Capital 1,50,000

Assets:

Fixed Assets 31,000

Investments 1,500

Cash Balances 2,500

"'.

Stock 75,000

Sundry Debtors 40,000

Total Assets 1,50,000

Additional Information

(a) The net profit for the year after adjustments Rs. 1,00,000.

(b) Additional fixed assets during the year Rs. 4,000 and depreciation for the year Rs. 3,000.

[Ans: (a) Fund From Operations Rs.l,30,OOO;

(b) Statement of changes in working capital Rs. 12,500 (Net Increase in Working Capital);

(c) Fund Flow Statement Rs. 23,000].

2003

Rs.

5,000

40,000

60,000

1,45,000

30,000

-

1,250

78,750

35,000

1,45,000

Fund Flow Statement

(3) From the following particulars, you are required to prepare Schedule of Changes:

Working Capital

Particulars

Capital and Liabilities:

Share Capital15,OOO

Trade Creditors

Profit and Loss Alc

Total Liabilities

Assets:

Plant and Machinery

Bills Payable6,050

Trade Debtors

Cash Balances

Total Assets21,OOO

[Ans: Increase in Working Capital Rs. 31,000).

(4) Calculate funds from operations from the following Particulars:

Transfer to General Reserve

Loss on Sale of Investments

Depreciation on Machinery

Depreciation on Building

Discount on Issue of Debenture

Provision for Taxation

Proposed Dividend

Closing Balance of P & L Alc

Opening Balance of P & L Alc

[Ans: Funds From Operations Rs. 69,100).

2002

Rs.

18,750

5,300

700

21,000

3,500

6,800

9,050

2,400

23,800

Rs.

5,000

5,000

10,000

4,000

15,000

10,000

20,000

30,600

30,500

205

2003

Rs.

3,500

1,550

23,800

5,000

8,500

3,500

(5) The following Balance Sheets of X and Y Ltd. for the year 2002 and 2003, you are required to prepare (a) Funds from

Operations (b) Statement of Changes in Working Capital and (c) Funds Flow Statement:

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Share Capital 50,000 50,000 Good will

General Reserve 7,000 9,000 Buildings

Profit & Loss Alc 8,000 6,500 Machinery

Trade Creditors 4,000 2,700 Investments

Bills Payable 600 400 Srock

Provision for Taxation 8,000 9,000 Bills Receivable

Provision for Doubtful } Trade Debtors

Debts 200 300 Cash Balance

77,800 77,900

Additional Information

(1) Depreciation charged on machinery was Rs. 2000 and on Building was Rs. 2000.

(2) Provision for taxation of Rs. 9,500 was made during the year 2003.

(3) Interim dividend of Rs. 4,000 was paid during the year 2003.

2002 2003

Rs. Rs.

6,000 6,000

20,000 18,000

18,500 18,000

5,000 5,500

15,000 11,700

1,000 1,600

9,000 9,500

3,300 7,600

77,800 77,900

[Ans: Funds From Operations Rs. 18,000; Statement of Changes in Working Capital Rs. 3,500; Fund Flow Statements

Rs. 18,000).

206 A Textbook of Financial Cost and Management Accounting

(6) Following are the summarized Balance sheet of ABC Ltd. as on 31" December 2002 and 2003

Balance Sheet

Liabilities 2002 2003

Rs. Rs.

Share Capital 2,00,000 2,50,000

General Reserves 50,000 60,000

Profit & Loss Alc 30,500 30,600

Bank Loan 70,000 -

Sundry Creditors 1,50,000 1,35,200

Provision for taxation 30,000 35,000

5,30,500 5,10,000

Additional Information

(1) During the year ended 31" December 2003

(a) Dividend was paid Rs. 23,000

Assets

Land & Buildings

Machinery & Plant

Stock

Sundry Debtors

Cash

Bank

Goodwill

2002

Rs.

2,00,000

1,50,000

1,00,000

80,000

500

--

5,30,500

2003

Rs.

1,90,000

1,69,000

74,000

64,200

600

8,000

5,000

5,10,000

(b) Assets of another company were purchased for a consideration of Rs. 50,000 payable in shares. The following

assets were purchased: stock Rs. 20,000; machinery Rs. 25,000

(c) Machinery was purchased for Rs. 8,000

(d) Depreciation written off: Building Rs. 10,000 ; Machinery Rs. ~,OOO

(e) Income Tax paid during the year Rs. 28,000 ; provision of Rs. 33,000 was charged to profit and loss Alc

Prepare a statement of sources and application of funds for the year ended 31" December 2003.

[Aos: Fund From Operations Rs. 90,100;

Decrease in Working Capital Rs. 18,900;

Sources and Applications of fund Rs. 1,29,(00)

(7) The Balance sheet of Jai & Co. Ltd. as at 31" December 2002 and 2003 are given below

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Share Capital 1,00,000 1,50,000 Freehold Land

Share Premium - 50,000 Plant at Cost

General Reserve 50,000 60,600 Furniture at Cost

Profit & Loss Alc 10,000 17,000 Investment at Cost

6% Debentures 70,000 50,000 Sundry Debtors

Provision for Stock

Depreciation on Plant 50,000 56,000 Cash at Bank

Provision for

Depreciation 70,000 6,000

on furniture

Provision for taxation 20,000 30,000

Sundry Creditors 86,000 95,000

3,91,000 4,69,000

2002

Rs.

1,00,000

1,04,000

7,000

60,000

30,000

60,000

30,000

3,91,000

2003

Rs.

1,00,000

1,00,000

9,000

80,000

70,000

65,000

45,000

4,69,000

A plant purchased for Rs.40,OOO (Depreciation Rs.2,OOO) was sold for cash Rs.800 on 30'· Septembor 2003. On 30'·

June 2003 an item of furniture was purchased for Rs.2,OOO. These were the only transactions concerning fixed assets

during 2003.

Depreciation was provided on plant at 8% on cost (the sold out item is not taken in to consideration) and on furniture at

12 ~ % on average cost. A dividend of 22 ~ % on original shares was paid.

Prepare a schedule of changes in working capital and also a statement of sources and application of funds during 2003.

[Ans: Net increase in Working Capital Rs. 41.000

Fund From Operations Rs. 49,700

Sources and Application of fund Rs. 1,05,5(0)

Fund Flow Statement 207

(8) From the following Balance sheet of XY & Co. Ltd. as on 31 a December 2002 and 2003, you are required to prepare a

funds flow statement showing change in working capital.

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Equity Share Capital 3,00,000 4,00,000 Builqings

Preference Share Capital 2,00,000 - Machinery

Capital Redemption } Furniture

Reserve - 1,00,000 Investments

General Reserve 2,00,000 1,20,000 Stock

Share Premium 30,000 30,000 Debtors

Profit and Loss Alc 1,20,000 1,80,000 Cash at Bank

10% Debenture 2,00,000 3,00,000

Creditors 80,000 1,40,000

11,30,000 12,70,000

Additional Information

(1) Preference share were redeemed at 10% premium

(2) Rs.20,OOO was transferred to reserve fund from profit and loss account

(3) Investment (book value Rs. 40,(00) were sold for Rs. 70,000

2002 2003

Rs. Rs.

2,50,000 3,00,000

3,00,000 3,20,000

20,000 18,000

1,00,000 1,50,000

3,00,000 2,50,000

1,40,000 2,00,000

20,000 32,000

11,30,000 12,70,000

(4) Depreciation provided on building, machinery and furniture Rs. 20,000, Rs. 30,000 and Rs. 2,000 respectively.

(5) Depreciation paid Rs. 50,000 and income tax paid Rs. 45,000

[Ans: Net Decrease in Working Capital Rs. 38,000

Fund From Operations Rs. 2,17,000

Sources and Application Funds Rs. 5,25,000]

(9) From the following Balance Sheet of Saxena & Co. Ltd. as on 31" December 2002 and 2003, you are required to

prepare the Fund Flow Statement.

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 10,00,000 10,00,000 Land & Building at Cost 6,00,000 6,00,000 • Capital Reserve 50,000 50,000 Plant & Machinery at Cost 3,30,000 4,50,000

Long-Term Loans 5,00,000 6,50,000 Furniture at Cost 3,00,000 3,00,000

Sundry Creditors 6,00,000 7,85,000 Stock in Trade 4,10,000 5,60,000

Sundry Debtors 3,40,000 2,10,000

Cash at Bank 20,000 5,000

Profit & Loss Alc 1,50,000 3,60,000

21,50,000 24,85,000 21,50,000 24,85,000

Additionallnrormation .

During the year 2003 Depreciation provided on Land and Building was Rs. 50,000; Plant and Machinery was Rs.

50,000 and Furniture was Rs. 15,000.

(10) The following are the summarized Balance sheet of Gupta & Co. Ltd. as at 31" December 2002 and 2003, you are

required to prepare a statement showing the sources and application of funds for the year 2003 and a schedule setting out changes in

working capital

Balance Sbeet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 2,00,000 2,60,000 Goodwill - 20,000

Profit & Loss Alc 39,690 41,220 Plant & Machinery 1,12,950 1,16,200

General Reserve 50,000 50,000 Buildings 1,48,500 1,44,250

Tax Provision 40,000 50,000 Stock 1,11,040 97,370

Bank Overdraft 59,510 - Sundry Debtors 87,490 73,360

208 A Textbook of Financial Cost and Management Accounting

Bills Payable 33,780 11,525 Cash at Bank 2,500 2,700

Sundry Creditors 39,550 41,135

4,62,480 3,53,880 4,62,480 3,53,880

Additional Information

(1) During the year 2003 an interim dividend of Rs. 26,000 was paid

(2) The assets of another company were purchased for Rs. 60,000 payable in fully paid share of Gupta & Co. Ltd.

These assets include stock Rs. 22,000 and machinery Rs.18,OOO p.a. In addition sundry machinery amounted to

Rs.5,600.

(3) Income tax paid during the year for Rs. 25,000

(4) Net profit for the year before tax was Rs. 62,530

[Ans: Increase in Working Capital Rs. 42,530

Fund From Operations Rs. 77,130

Total Fund Flow Statement Rs. 1,37,130)

(11) The summarized baiance.sheet of Karunya & Co. Ltd. as at 31" December 2002 and 2003, you are required to prepare

a statement of sources and application of funds.

Balance Sheet

Liabilities 2002 2003 AS.fets

Rs. Rs.

Share Capital 4,50,000 4,50,000 Land & Building

General Reserve 3,00,000 3,10,000 Plant & Machinery

Profit & Loss Ale 56,000 68,000 Investments

Sundry Creditors 1.68.000 1.34,000 Stock

Provision for Taxation 75.000 10.000 Sundry Debtors

Mortgage Loan - 2,70,000 Bank Balances

10,49,000 12,42,000

Additional Information

(1) Investment costing Rs. 8,000 were sold during the year 2003 for Rs. 8,500

(2) Provision for tax made during the year was Rs. 9,000

2002 2003

Rs. R.f.

2,00,000 1,00,000

2,00,000 1,20.000

50.000 60.000

2.40,000 2,10.000

2.10,000 4,55.000

1,49,000 1,97,000

10,49,000 12,42,000

(3) During the year part of the land and buildings costing Rs. 10,000 were sold for Rs. 12,000 and the profit was

included in profit and loss account and

(4) Dividend paid during the year announced to Rs. 40,000 ..

[Ans: Fund From Operations Rs. 1,38.500

Total Sources Rs. 4,29,000

Applications Rs. 1,32,000)

(12) Prepare a fund flow statement of Kumar & Co. Ltd. for the year 2003 from the following information:

Balance Sheet

liabilities 2002 2003 Assets 2002

Rs. Rs. Rs.

Bills Payable 15,000 12,000 Cash at Bank 40,000

Capital 35,000 43,500 Bills Receivable 10,000

Bonds Payable 22,000 22,000 Stock 15,000

Bonds Payable Discount (2,000) (1,800) Land & Building 20,000

Retained Earnings 15,000 19,500 Plant & Machinery 15,000

Sundry Creditors 15,000 15,000 Accumulated Depreciation 5,000

Patents and Trade Marks 1,000

1,00,000 1,15,200 1,00,000

Additional Information

(1) Income for the period Rs. 10,000

(2) The building that costs Rs. 4,000 and' which had a book value of Rs. 1,000 was sold for Rs. 1.400

(3) The depreciation chargec,l for the period was Rs. 800

(4) There was an issue of capital stock Rs. 5.000

2003

Rs.

44,400

20,700

15,000

16,000

17,000

2,800

900

1,15,200

Fund Flow Sialemenl 209

(5) Cash dividends Rs. 2,000 and stock dividend of Rs. 3,500 were declared.

[AIlS: Net Increase in Working Capital Rs. 13,100

Fund From Operational Rs. 10,700

Total of Fund Row Statement Rs. 17,100)

(13) From the following Balance sheet of Ramasamy & Co. Ltd. as on 31" December 2003 you are required to prepare a

Fund Row Statement:

-Balance Sheet

liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Equity Share Capital 3,00,000 3,50,000 Fixed Assets 5,10,000 6,20,000

Preference Share Capital 2,00,000 1,00,000 Investments 30,000 80,000

10% Debenture 1,00,000 2,00,000 Sundry Creditors 40,000 75,000

Reserves 1,10,000 2,70,000 Stock 1,00,000 2,00,000

Provision for Doubtful } Bills Receivable 1,00,000 1,00,000

Debts 10,000 15,000 Discount on Debenture 10,000 5,000

Sundry Creditors 35,000 45,000

Bills Payable 35,000 1,00,000

7,90,000 10,80,000 7,90,000 10,80,000

Additional Inronnation

(1) Provision for depreciation stood at Rs.l,50,OOO on 31" December 2002 and at Rs.I,9O,OOO on 31" December 2003.

(2) During the year 2003, a machine costing Rs.70,OOO (book value Rs. 40,000) was disposed off for Rs. 25,000

(3) Preference share redemption was carried out at a premium of 5% on I" January 2003 and

(4) Dividend @ 15% was paid on equity shares for the year 2002.

[AIlS: Fund From Operations Rs. 2,34,000

Net Increase in Working Capital Rs. 55,000

Toeal Row of Funds Rs. 4,84,000)

QQQ

CHAPTERS

Cash Flow Statement

Introduction

Cash Flow is the life blood of a business which plays a vital role in an entire economic life. As

discussed in the previous chapter, the word 'fund' is used in a narrower sense refers to 'cash'. When cash

is used as 'fund' the analysis relates to movement of cash. Cash flows refer to the actual movement of cash

into and out of an organization. In other words, the movement of cash inclusive of inflow of cash and outflow

of cash. When the cash flows into the organization, it represents 'Inflow of Cash.' Similarly when the

cash flows out of the business concern, it called as "Cash Outflow."

In order to ensure cash flows are adequate to meet current liabilities such as tax payments, wages,

amounts due to trade creditors, it is essential to prepare a statement of changes in the financial position of

a firm on cash basis is called as "Cash Flow Statement." This statement depicting mQvement of cash

position from one period to another.

Uses of Cash Flow Statement

Cash Flow Statement is a useful tool to the management for taking important financial decision

making. The following are the uses of this statement:

(I) This Statement is the most useful to the management to prepare dividend and retention policies.

(2) It guides the management to evaluate the changes in cash position.

(3) It presents in brief to the management about the performance of operational, financial and

investment rativities for effective decision.

(4) It helps to know how the movement of cash took place and the factors .which caused the

changes in cash flows.

(5) It guides the management in order to take decisions about short-term obligations.

(6) It also presents the details about the sources of cash and applications of cash during the

particular period.

Cash Flow Statement 211

Difference between Fund Flow Statement and Cash Flow Statement

Fund Flow Statement and Cash Flow Statement are the two useful tools of financial analysis and

interpretations of financial statements. But at the same time both the statements differ from each other in

the following manner:

(1) Fund Flow Statement helps ~o measure the causes of changes in working capital whereas cash

flow statement focuses on the causes for the movement of cash during a particular period.

(2) Fund flow statement is prepared on the basis of Fund or all financial resources while cash flow

statement is based on cash basis of accounting.

(3) Cash Flow Statement guides to the management for short-term financial planning while Fund

flow analysis helps to the management for intermediate and long-term financial planning.

(4) Statement of changes in working capital is required for the preparation of Fund flow statement

while for cash flow statement no such statement is required.

Limitations of Cash Flow Statement

(1) Cash Flow Statement has limited scope as it compares with Fund flow statement. Because it

discloses inflows and outflows of cash alone. It does not reveal the overall financial position of

the concern.

(2) Cash Flow Statement cannot provide a comprehensive picture of a financial position because

non-cash items of expenses and incomes are excluded.

(3) The balances as disclosed by the cash flow statement may not be treated as actual liquid

position of a concern since it cannot be easily influenced by postponing purchases and other

payments.

Preparation of Cash Flow Statement

Cash Flow Statement is prepared like Fund Flow Statement. Preparation of this statement is based on

the movement of cash, may be an actual inflow of cash or outflow of cash, Profit and Loss Account and

other relevent informations. While preparing a cash flow statement, it starts with an opening balance of

cash in hand and cash at bank, all the sources of cash are added to an opening balance minus applications

of cash is reconciled with the closing balance of cash. The balance represents cash and bank balances at

the end of accounting period.

SOURCES AND APPLICATIONS OF CASH

Sources of Cash (Inflow of Cash)

The following are the main sources of cash such as:

(1) Cash From Operations or Trading Profit.

(2) Sale of Fixed Assets for Cash.

(3) Sale of Investments for Cash.

(4) Raising Long-Term Loans from Banks and Financial Institutions.

(5) Issue of Shares and Debentures for Cash.

212 A Textbook of Financial Cost and Management Accounting

Application of Cash (Outflow of Cash)

Application of cash can be involved in the following forms :

( 1) Cash Lost in Operations or Trading Losses.

(2) Redemption of Shares and Debentures by Cash.

(3) Purchase of Fixed Assets.

(4) Repayment of Long-Term Loans.

Computation of Cash Flow Statement

A comprehensive Cash Flow Statement is ascertained in two stages:

(I) Cash From Operations, Le., internal sources of cash calculated by preparing combined

statements of adjusted profit and loss account.

(II) External Sources and Applications of Cash, Le., Flow of Cash involves in non-current

items ascertained by the Statement of Sources and Applications of Cash.

Diagram of Sources and Applications of Cash

The summary of sources and applications of cash is presented in the chart given below :

Sources of Cash

(Inflow of Cash)

Cash From Operations

Sale of Fixed Assets

Sale of Investments

Issue of Shares

Issue of Debentures

Raising Long-Term Loans

Increase in any Liabilities

Decrease in any Assets

Applications of Cash

(Outflow of Cash)

Cash Lost in Operations

Purchase of Fixed Assets

Purchase of Investment

Redemption of Preference Shares

Redemption of Debentures

Decrease in any Liability

Decrease in any Assets

I. CASH FROM OPERATIONS

Cash from operations is the main source of inflow of cash. The Net Profit or Net Loss is the net

effect of business transactions shown by the profit and loss account. In order to find out the actual

movement of cash from trading operations, it is essential to ascertaining cash from operations. It can be

calculated under the following situations:

(a) When all Transactions are Cash Transactions.

(b) Wlien all Transactions are not Cash Transactions.

(a) When all Transactions are Cash Transactions: It assumes that where all the expenses and

losses, incomes and gains are paid or received in cash during the particular period. The Net Profit or Net

Loss shown by the profit and loss account is taken as the amount of cash from operations. Thus, Net Profit

or Net Loss is equal to cash from operations. When Net Profit made by a firm represents Cash Inflow or

Cash Profit From Operations. Similarly, the Net Loss shown by the profit and loss account refers to Cash

Outflow From Operations.

(b) When all Transactions are not Cash Transactions: In actual practice, in business transactions

are made either on cash basis or credit basis. For example, goods purchased or sold on cash as well as on

credit. Certain expenses are always outstanding and some of the incomes are not immediately realized

Cash Flow Statement 213

under such circumsta!lces, the net profit made by a firm cannot generate equivalent amount of cash.

Therefore, the charging of non-fund or non-cash items such as outstanding expenses, incomes received in

advances, prepaid expenses and outstanding incomes etc. to profit and loss account should be readjusted.

In such circumstances the actual cash from operations can be calculated by preparing adjusted profit and

loss account.

Calculation of Cash from Operations

Cash From Operations can be calculated by either of the following methods:

(A) Cash From Operations calculated with the help of Adjusted Profit and Loss Account. Under

this method, all non-fund or non-operations items should be readjusted to cash profit from

operations. The specimen form of cash from operations is given below :

Cash from Operations

(Adjusted Profit and Loss Account)

Particulars Rs. Particulars

To Depreciation on Fixed Assets By Balance bId

To Transfer to General Reserve (Opening Balance of P & L Nc)

To Loss on Sale of Fixed Assets By Profit on Sale of Fixed Assets

To Increase in Outstanding Expenses By Profit on Sale of Investments

To Decrease in Prepaid Expenses By Decrease in Outstanding Expenses

To Preliminary Expenses written off By Increase in Prepaid Expenses

To Balance cld By Cash From Operations

(Closing Balance of P & L Nc) (Balancing figure)

Rs.

(B) Cash From Operations can also be calculated on the basis of current assets and current

liabilities. Under this method, the amount of changes in the various items of current assets and

current liabilities other than cash and bank balances should be adjusted with the help of

Adjusted Profit and Loss Account. It may be noted that, as compared to above this method may

increase or decrease in items of creditors, stocks, debtors, bills receivable and bills payable are

not adjusted while calculating cash profit from operations and they may be directly taken as

Sources (inflow) of Cash or Application (outflow) of Cash. This method is generally adopted in

practice.

While applying this method, the following general principles may be taken for measuring cash from

operations :

Increase in Current Assets

Decrease in Current Assets

Increase in Current Liability

Decrease in Current Liability

----

Decrease in Cash

Increase in Cash

Increase in Cash

Decrease in Cash

214 A Textbook of Financial Cost and Management Accounting

Specimen Form

The specimen form for computation of cash from operations is given below:

Calculation of Cash from Operations :

(Combining Current Assets & Current Liabilities & Non-Cash & Non-Operating Items)

Particulars Rs. Rs.

Net Profit

(Closing Balance of Profit & Loss Alc) \* \* \*

Add:

Depreciation on Fixed Assets \* \* \*

Transfer to General Reserve

Loss on Sale of Fixed Assets

Loss on Sale of Investments

Goodwill Written off

Increase in Outstanding Expenses

Decrease in Prepaid Expenses

Decrease in Current Assets

(Other than Cash and Bank)

Increase in Current Liabilities

Preliminary Expenses Written off \*\*\* • .. \*

Less: \*\*\*

Profit on Sale of Fixed Assets

Profit on Sale of Investments

Decrease in Outstanding Expenses

Increase in Prepaid Expenses

Increase in Current Assets

(Other than Cash and Bank)

Increase in Current Liabilities

Opening Balance of Profit & Loss Alc \*\*\*

Cash From Operations \*\*\*

Illustration: 1

From the following Balance Sheet of ABC Ltd., you are required to calculate Cash From Operations:

Particulars 2002 2003

Rs. Rs.

Capital and Liabilities :

Share Capital 20,000 20,000

Profit made during the year 14,100 17,300

Provision for Depreciation 1,000 1,400

Long-Term Loans 2,000 3,000

Trade Creditors 6,450 5,300

Outstanding Expenses 850 150

44,400 47,150

Assets :

Plant and Machinery 28,500 30,000

Stocks 9,800 11,300

Trade Debtors 3,950 2,850

Cash Balances 2,150 3,000

44,400 47,150

Cash Flow Statement

Solution:

Calculation of Cash from Operations

Particulars 2002

Rs.

Profit made during the year

(Closing Balance of P & L Nc)

Add:

Provision for Depreciation 400

Decrease in Debtors 1,100

Less:

Decrease in Creditors 1,150

Decrease in Outstanding Expenses 700

Increase in Stock 1,500

Net Profit (Opening Balance of P & L Nc) 14,100

Cash From Operations

Illustration: 2

From the following balance you are required to calculate cash from operations

Solution:

Particulars

Trade Debtors

Bills Receivable

Trade Creditors

Bills Payable

Outstanding Expenses

Prepaid Expenses

Accrued Income

Income Received in Advance

Profit made during the year

Calculation of Cash from Operations

Particulars

Net Profit (Closing Balance)

Add:

Decrease in Debtors

Increase in Creditors

Increase in Outstanding Expenses

Decrease in Prepaid Expenses

Less :

Increase in Bills Receivable

Decrease in Bills Payable

Increase in Accrued Income

Decrease in Income Received in Advance

Cash From Operations

2002

Rs.

1,00,000

20,000

40,000

16,000

2,000

1,600

1,200

600

Rs.

6,000

10,000

400

200

5,000

4,000

300

100

2003

R's.

17,300

1,500

18,800

17,450

1,350

2003

Rs.

94,000

25,000

50,000

12,000

2,400

1,400

1,500

500

2,60,000

Rs.

2,60,000

16,600

2,76,600

9,400

2,67,200

215

216

Illustration: 3

A Textbook of Financial Cost and Management Accounting

From the following infonnation given by RR Ltd., you are required to prepare Cash From

Operations:

Particulars

Bills Payable

Trade Creditors

Outstanding Expenses

Bilis Receivable

Trade Debtors

Prepaid Expenses

Accrued Incomes

Incomes Received in Advance

AdditionallnConnation

2002

Rs.

10,000

24,000

4,000

40,000

80,000

4,000

10,000

4,000

2003

Rs.

16,000

32,000

2,000

36,000

1,20,000

6,000

16,000

2,000

RR Ltd., earned profit of Rs. 4,00,000 after charging or crediting the following items to its profit and loss

account d!lring the year 2003:

(1) Profit on Sale of Investments Rs. 8,000

(2) Loss on Sale of Building Rs. 18,000

(3) Depreciation on Fixed Assets Rs. 14,000

(4) Good Will Written off Rs. 4,000

Solution:

Calculation of Cash from Operations

Particulars

Net Profit during the year

Add:

Loss on Sale of Building

Depreciation on Fixed Assets

Good will Written off

Increase in Bills Payable

Increase in Trade Creditors

Decrease in Bills Receivable

Less :

Profit on Sale of Investments

Decrease in Outstanding Expenses

Decrease in Income Received in Advance

Increase in Trade Debtors

Increase in Prepaid Expenses

Increase in Accrued Income

Cash From Operations

Rs. Rs.

4,00,000

18,000

14,000

4,000

6,000

8,000

4,000 54,000

4,54,000

8,000

2,000

2,000

40,000

2,000

6,000 60,000

3,94,000

Cash Flow Statement 217

II. EXTERNAL SOURCES AND APPLICATIONS OF CASH

External Sources of Cash

The following are the external sources of cash such as:

(1) Fresh Issue of Shares: Cash is received by issue of fresh shares to the public, after deducting

necessary expenses and discount on issue of shares will be treated as sources of cash.

(2) Issue of Debentures: The Net Cash is received by the issue of debentures is source of cash.

(3) Raising Long-Term Borrowings: Long-tenn loans received from banks and financial institutions

refer to inflow of cash.

(4) Sale of Fixed Assets and Investments: Net cash received from the sale of pennanent assets and

investments are treated as sources of cash.

Applications of Cash

Applications of cash or cash outflows or uses of cash may take any of the following fonns:

(1) Redemption of Shares and Debentures: When redeemable preference shares and debentures are

redeemed by paid in cash. It refers to as application or outflow of cash.

(2) Purchase of Fixed Assets: Cash used for purchase of plant and machinery, land and building,

furniture and fixtures etc., or renewals and replacement of fixed assets are to be treated as outflow of cash.

(3) Payment of Long-Term Loans: The repayment or discharge of long-tenn loans received from

banks and financial institutions results in outflow of cash.

Specimen From of Cash Flow of Statement

Cash Flow Statement is prepared in anyone of the following two ways :

(1) Account Fonn.

(2) Report Fonn.

(1) Account Form:

Cash Flow Statement

Sources or Inflow of Cash Rs. Applications or Outflow of Cash

Opening Balances : Cash Lost in Operations

Cash Redemption of Preference Shares

Bank Redemption of Debentures

Fresh Issue of Shares Repayment of Long-Term Loans

Issue of Debentures Purchase of Fixed Assets

Raising Long-Term Loans Purchase of Investments

Sale of Fixed Assets Tax Paid

Sale of Investments Dividend Paid

Dividends Received Closing Balance:

Cash From Operations Cash

Bank

\*\*\*

Rs.

\*\*\*

218 A Textbook of Financial Cost and Management Accounting

(2) Report Form:

Cash Flow Statement

Particulars Rs. Rs.

Opening Balances :

Cash • • •

Bank • • •

Add: Sources of Cash :

Fresh Issue of Shares

Issue of Debentures

Long-Term Loans from Bank and Financial Institutions

Sale of Fixed Assets

Sale of Investments

Dividends Received •••

Cash From Operations •••

Total Inflow of Cash (A) '" \* \*

Less : Applications of Cash :

Redemption of Preference Shares

Redemption of Debentures

Repayment of Long-Term Loans

Purchase of Fixed Assets

Payment of Dividends

Payment of Tax

Cash Lost of in Operations ••• \*\* •

Total Outflow of Cash (B) \* • •

Closing' Balance of Cash and Bank \* • \*

Illustration: 4

From the following Balance sheets of ABC Ltd., you are required to prepare a Cash Row Statement:

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 20,000 30,000 Fixed Assets 20,000 30,000

Profit & Loss Nc 10,000 16,000 GoodWill 10,000 8,000

General Reserve 6,000 8,000 Stock 10,000 16,000

Debenture 10,000 12,000 Trade Debtors 10,000 16,000

Trade Creditors 6,000 8,000 Bills Receivable 2,000 4,000

Outstanding Expenses 2,000 3,000 Bank Balance 2,000 3,000

54,000 77,000 54,000 77,000

Cash Flow Statement 219

Solution:

Calculation of Cash from Operations

Particulars Rs. Rs.

Net Profit during the year

(Closing Balance of Profit & Loss Ale) 16,000

Add:

General Reserve (6000 - 8000) 2,000

Good Will Written off (10,000 - 8000) 2,000

Increase in Outstanding Expenses 1,000

Increase in Trade Creditors 2,000 7,000

23,000

Less:

Increase in Stock (10000 - 16000) 6,000

Increase in Debtors (10000 - 16000) 6,000

Increase in Bills Receivable 2,000

Opening Balance of P & L Alc 10,000 24,000

Cash Lost in Operations 1,000

Cash Flow Statement

Sources of Cash Rs. Applications of Cash Rs.

Opening Balances : Purchase of Fixed Assets 10,000

Cash at Bank 2,000 Cash lost in Operations 1.000

Add: Closing Balance:

Issue of Shares 10,000 Cash at Bank 3,000

Issue of Debenture 2,000

14,000 14,000

Illustration: 5

From the following informations, Prepare Cash From Operations and Cash Flow Statement:

Particulars Rs. Rs.

Assets :

Cash Balances 5,000 3,500

Trade Debtors 15,000 25,000

Stock 17,500 12,500

Machinery 40,000 27,500

Land 20,000 25,000

Building 17,500 30,000

1,15,000 1,23,500

Capital and Liabilities :

Capital 62,500 76,500

Long-Term Loans 20,000 25,000

Mortgage Loans 12,500 -

Trade Creditors 20,000 22,000

1,15,000 1,23,500

220 A Textbook of Financial Cost and Management Accounting

Additional Information

(1) During the year a machine costing Rs. 5,000 (accumulated depreciation Rs. 1,500) was sold for Rs. 2,500.

(2) The provision for depreciation against machinery during the year 2002 was Rs. 12,500 and

Rs. 20,000 in 2003. -

(3) Net Profit earned during the year 2003 was Rs. 22,500.

Solution:

Cash Flow Statement

Sources of Cash Rs. Applications of Cash

Opening Balances : Purchase of Land

Cash at Bank 5,000 Purchase of Building

Add: Mortgage Loan repaid

Long-Term Loans 5,000 Drawings

Sale of Machinery 2,500 Closing Balances:

Cash From Operations 29,500 Cash at Bank

42,000

Working Note:

(1) Calculation of Cash from Operations

Particulars Rs.

Net Profit during the year

Add:

Depreciation on Machinery 9,000

Loss on Sale of Machinery 1,000

Decrease in Stock 5,000

Increase in Creditors 2,000

Less:

Decrease in Creditors 10,000

Cash From Operations

(2) Machinery Account

Particulars Rs. Particulars

To Balance bId 52,500 By Bank

By Loss on Sale of Machinery

By Provision for Depreciation

By Balance c/d

(40,000 + 5000 + 2500)

52,500

Rs.

5,000

12,500

12,500

8,500

3,500

42,000

Rs.

22,500

17,000

39,500

10,000

29,500

Rs.

2,500

1,000

1,500

47,500

52,500

Cash Flow Statement

(3) Provision for Depreciation

Particulars

To Machinery Nc

To Balance cld

(4)

Particulars

Opening Balance of Capital

Add: Profit

Less : Closing Balance of Capital

Drawings

Illustration: 6

Rs. Particulars

1,500 By Balance bId

20,000 By P & L Nc

(Depreciation Charged -

Balancing Figure)

21,500

Capital Account

Rs.

62,500

22,500

85.000

76,500

8,500

221

Rs.

12,500

9,000

21,500

The summarized balance sheet of William & Co. Ltd., you are required to prepare a Cash Flow

Statement.

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Share Capital . 90,000 90,000 Fixed Assets

General Reserve 60,000 62,000 Investments

Profit & Loss Nc 11,200 13,600 Stock

Creditors 33,600 26,800 Debtors

Provision for Tax 15,000 2,000 Bank

Mortgage Loan - 54,000

2,09,800 2,48,400

Additional Information

(1) Investments costing Rs. 1.600 were sold during the year 2003 for Rs. 1,700.

(2) Provision for tax made during the year was Rs. 1,800.

2002 2003

Rs . Rs.

80,000 64,000

10,000 12,000

48,000 42,000

42,000 91,000

29,800 39,400

2,09,800 2,48,400

(3) During the year part of the fixed assets costing Rs. 2,000 was sold for Rs. 2,400 and the profit was

included in profit and loss account.

(4) Dividend paid during the year amounted to Rs. 800.

222

Solution:

A Textbook of Financial Cost and Management Accounting

Calculation of Cash from Operations

Particulars Rs. Rs.

Net Profit during the year

(13600 - 11200) 2,400

Add:

Transfer to General Reserve 2,000

Provision for Tax 1,800

Dividend 8,000

Depreciation 14,000

Decrease in Stock 6,000 31,800

34,200

Less:

Profit on Sale of Investments 100

Profit on Sale of Fixed Assets 400

Increase in Debtors 49,000

Decrease in Creditors 6,800 56,300

Fund Lost in Operations 22.100

Solution:

Cash Flow Statement

Sources of Cash Rs. Applications of Cash Rs.

Opening Balances : Cash Lost in Operations 22,100

Cash at Bank 29,800 Payment of Tax 14,800

Add: Payment of Dividend 8,000

Sale of Investments 1,700 Purchase of Investment 3,600

Sale of Fixed Assets 2,400 Closing Balances:

Mortgage Loan 54,000 Cash at Bank 39,400

87,900 87,900

Working Notes:

Provision for Tax Account

To Bank (Balancing Figure) 14,800 By Balance bId 15,000

(Opening Balance)

To Balance c/d 2,000 By P & L Nc 1,800

(Closing Balance) (Provision for 2003)

16,800 16,800

Investment Account

To Balance bId 10,000 By Cash Nc 1,600

To Bank 3,600 (Sold during the year)

(Purchased of Investments By Balance cld 12,000

- Balancing Figure)

13,600 13,600

Cash Flow Statement

Illustration: 7

From the following information, prepare

(a) Cash From Operations

(c) Statement of Changes in Working Capital and

Balance Sheet

(b) Cash Flow Statement

(d) Fund Flow Statement

Particulars 2002 2003

Rs. Rs.

Assets :

Furniture and Fittings 1,17,000 1,30,000

Motor Vans 1,54,000 80,000

Long-Tenn Investments 3,00,000 2,60,000

Stock 8,29,000 8,00,000

Trade Debtors 90,000 1,09,000

Cash at Bank 1,43,000 1,40,000

Preliminary Expenses 10,000 15,000

16,43,000 15,34,000

Capital and Liabilities :

Equity Share Capital 9,00,000 6,00,000

Preference Share Capital - 2,00,000

Profit & Loss Account 1,10,000 75,000

Debentures 2,50,000 3,00,000

Bank Loan 75,000 1,00,000

Bills Payable 45,000 40,000

Trade Creditors 1,50,000 1,15,000

Outstanding Expenses 18,000 19,000

Provision for Taxation 95,000 85,000

16,43,000 15,34,000

Solutron:

Cash Flow Statement

Sources of Cash Rs. Applications of Cash Rs.

Opening Balances; Redemption of Preference Shares 2,00,000

Cash at Bank 1,40,000 Redemption of Debenture 50,000

Add: Repayment of Bank Loan 25,000

Cash From Operations 35,000 Purchase of Motor Vans 74,000

Depreciation on Furniture 13,000 Purchase of Long-Tenn }

Preliminary ExpenseS} Investments 40,000

written off 5,000 Increase in Stock 29,000

Issue of Share Capital 3,00,000 Decrease in Outstanding Expenses 1,000

Decrease in Debtors 19,000 Closing Balances :

Increase in Bills Payable 5,000 Cash at Bank 1,43,000

Increase in Trade Creditors 35,000

Increase in Provision Tax 10,000

5,62,000 5,62,000

223

224 A TeXlbook of Financial Cosl and Managemenl Accounling

Cash Flow Statement

Sources of Cash Rs. Applications of Cash Rs.

Fund From Operations 53,000 Redemption of preference shares 2,00,000

Issue of Equity Shares 3,00,000 Redemption of Shares 50,000

Decrease in Working } 36,000 Repayment of Bank Loan 25,000

Capital Purchase of Motor Vans 74,000

Purchase of Long-Term}

Investments 40,000

3,89,000 3,89,000

Note: While preparing Cash Flow Statement. increase or decrease in the various items of current assets and current liabilities are

taken as Sources of Cash or Applications of Cash. Here they are not adjusted while computing Cash from Operations.

Paniculars

To Depreciation on Furniture }

& Fixtures

To Preliminary Expenses }

Written off

To Closing Balance of }

Profit and Loss Nc

Calculation of Cash from Operations

(Adjusted Profit and Loss Account)

Rs. Particulars

13,000

By Opening Balance }

of Profit & Loss Nc

5,000

By Cash From Operations}

(Balancing figure)

1,10,000

1,28,000

Statement of Changes in Working Capital

Rs.

75,000

53,000

1,28,000

Paniculars 2002 2003 Changes in Working Capital

Rs. Rs. Increase Decrease

Current Assets :

Cash at Bank 1,40,000 1,43,000 3,000 -

Trade Debtors 1,09,000 90,000 - 19,000

Stock 8,00,000 8,29,000 29,000 -

Total Current Assets (A) 10,49,000 10,62,000

Current Liabilities :

Bills Payable 40,000 45,000 - 5,000

Trade Creditors 1,15,000 1,50,000 - 35,000

Outstanding Expenses 19.000 18,000 1,000 -

Provision for Taxation 85,000 95,000 - 10,000

Total Current Liabilities (8) 2,59,000 3,08,000

Working Capital (Total A - B) 7,90,000 7,54,000

Net Decrease in Working Capital - 36,000 36,000 -

7,90,000 7,90,000 69,000 69,000

Cash Flow Statement 225

Illustration: 8 .

From the following Balance sheet of Brard Well & Co. Ltd., make out the statement of Cash Flow:

Particulars 2002

Rs.

Assets :

Good Will 5,750

Land & Buildings 10,000

Machinery 4,000

Trade Debtors 8,000

Stock 3,850

Bills Receivable 1,000

Cash in Hand 750

Cash at Bank 500

33,850

Capital & Liabilities :

Equity Share Capital 15,000

Preference Share Capital 7,500

General Reserve 2,000

Profit and Loss Alc 1,500

Proposed Dividend 2,100

Trade Creditors 2,750

Bills Payable 1,000

Provision for Taxations 2,000

33,850

Additional Information

(1) Depreciation on Machinery of Rs. 500 during the year 2003.

(2) Depreciation on Land and Building of Rs. 1,000 during the year 2003.

(3) An interim dividend of Rs. 1,000 was paid during the year 2003.

(4) Income Tax Rs. 1,750 was paid during the year 2003.

Solution:

Cash Flow Statement

Sources of Cash Rs. Applications of Cash

Opening Balances : Redemption of Preference Shares

Cash in Hand 750 Machinery Purchased

Cash at Bank 500 Interim Dividend Paid

Add: Proposed Dividend of 2002 paid

Cash From Operations 8,000 Tax Paid

Issue of Equity Shares 5,000 Closing Balances :

Sale of Buildings 500 Cash in Hand

Cash at Bank

14,750

2003

Rs.

4,500

R,500

10,000

10,000

5,450

1,500

500

400

40,850

20,000

5,000

3,500

2,400

2,500

4,150

800

2,500

40,850

Rs.

2,500

6,500

1,000

2,100

1,750

500

400

14,750

226 A Textbook of Financial Cost and Management Accounting

Calculation of Cash from Operations

Particulars Rs. Rs.

Net Profit during the year (Rs. 2,400 - Rs. 1,500) 900

Add:

Depreciation on Machinery 500

Depreciation on Land & Buildings 1,000

Transfer to General Reserve 1,500

Interim Dividend 1,000

Proposed Dividend 2,500

Provision for Tax 2,250

Good Will Written off 1,250

Increase in Creditors 1,400 ll,4oo

12,300

Less:

Increase in Debtors 2,000

Decrease in Bills Payable 200

Increase in Stock 1,600

Increase in Bills Receivable 500 4,300

Cash From Operations 8,000

Note: Provision for Tax and Dividend are treated as Non-current items.

Provision for Taxation Account

To Bank (Tax Paid) 1,750 By Balance bid } 2,000

To Balance cld } 2,500 (Opening Balance)

(Closing Balance) By Profit & Loss Alc 2,250

4,250 4,250

Machinery Account

To Balance bid 4,000 By Depreciation 500

To Bank (Purchases) } 6,500 By Balance cld } 10,000

(Balancing Figure) (Provision for 2003)

10,500 10,500

Land and Buildings Account

To Balance bid } 10,000 By Depreciation 1,000

(Opening Balance) By Bank (Sale) }

(Balancing Figure) 500

By Balance cld }

(Closing Balance) 8,500

10,000 10,000

Note: Balancing figure in Land and Buildings is treated as sale of building because closing balance of depreciation on Land and

Buildings already given in the problem (Rs. 10,000 - Rs. 8,500 = Rs. 1.5(0).

Cash Flow Statement 227

QUESTIONS

1. What is meant by Cash Flow Statement?

2. Explain briefly the uses of Cash Flow Statement.

3. What are the differences between Cash Flow Statement and Fund Flow Statement?

4. What are the limitations of Cash Flow Statement?

5. Explain the procedure for preparing a Cash Flow Statement.

6. What are the components of Sources and Applications of Cash?

PARTICULAR PROBLEMS

(1) From the following Balance sheet of Gupta & Co. Ltd., as on 31st Dec. 2002 and 2003, you are required to prepare

Cash Flow Statement:

Particulars 2002 2003

Rs. Rs.

Capital and Liabnities :

Equity Share Capital 2,30,000 2,30,000

General Reserve 60,000 60,000

Profit and Loss Account 16,000 23,000

Debenture 90,000 70,000

Bills Payable 1,03,000 96,000

Outstanding Salary 13,000 12,000

Depreciation Fund 40,000 44,000

5,52,000 5,35,000

Assets :

Cash Balances 90,000 90,000

Trade Debtors 67,000 43,000

Bills Receivable l,lO,OOO 74,000

Stock 82,000 1,06,000

Prepaid Expenses 1,000 2,000

Land & Building 1,50,000 1,50,000

Machinery 52,000 70,000

5,52,000 5,35,000

Additional InC ormation

(I) Now machinery for Rs. 30.000 was purchased but old machinery costing Rs. 6,000 was sold for Rs. 4,000;

accumulated depreciation was Rs. 6,000.

(2) Rs. 20,000 8% Debenture were redeemed by purchase from open market @ Rs. 96 for a debenture of Rs. 100.

(3) Rs. 36,000 investments were sold at book value.

(4) 10% dividend was paid in cash.

[Aos : Cash From Operations Rs. 54,200; Cash Flow Statement Rs. 2,08,200]

(2) The summarized Balance sheet of X Y Ltd. as on 31st December 2002 & 2003 you are required to prepare (a) Cash

From Operations and (b) Cash Flow Statements.

Particulars 2002 2003

Rs. Rs.

Assets :

Plant and Machinery 1,00,000 1,00,000

Land and Buildings 2,00,000 1,50,000

Furniture and Fixtures 1,00,000 1,30,000

Investments 50,000 60,000

Stock 2,00,000 2,00,000

Bills Receivable 1,40,000 l,lO,OOO

Trade Debtors l,lO,OOO 2,95,000

Bank Balances 1 ,49,000 1,97,000

10,49,000 12,42,000

228

Particulars

Capital and Liabilities :

Equity Share Capital

Preference Share Capital

General Reserve

Profit and Loss Nc

Bills Payable

Trade Creditors

Tax Provisions

Long-Term Loans

Additional Information

(1) Tax Provision made during the year was Rs. 9,000.

(2) Investment costing Rs. 8,000 was sold for Rs. 8,500.

A Textbook of Financial Cost and Management Accounting

2002 2003

Rs. Rs.

2,00,000 2,00,000

2,50,000 4,50,000

3,00,000 3,10,000

56,000 68,000

1,20,000 1,10,000

48,000 24,000

75,000 10,000

- 70,000

10,49,000 12,42,000

(3) A part of the land and building costing Rs. 10,000 was sold for Rs. 12,000 and the profit was included in profit and

loss Nc.

[Ans : Cash lost in operations Rs. 1,50,500; Cash flow statements Rs. 4,39,500].

(3) The financial position of RX Ltd. as on 31st December 2002 and 2003, you are required to prepare the Cash Flow

Statement:

Particulars 2002 2003

Rs. Rs.

Assets :

Cash in Hand 1,000 1,500

Cast at Bank 3,000 2,100

Trade Debtors 35,000 38,400

Bills Receivable 15,000 13,000

Stock 10,000 9,000

Land 20,000 30,000

Buildings 50,000 55,000

Machinery 80,000 86,000

2,14,000 2,35,000

Capital and Liabilities :

Trade Creditors 28,000 30,000

Bills Receivable 8,000 11,000

Long-Term Loans - 20,000

Short-Term Loans 30,000 25,000

Capital and Reserves 1,48,000 1,49,000

2,14,000 2,35,000

Addltlonallnlonnatlon

(1) Dividend of Rs. 26,000 was paid during the year.

(2) The provision for depreciation against machinery of Rs. 27,000 was made during the year 2002 and Rs. 36,000

was during the year 2003.

[Ans : (a) Cash From Operations Rs. 36,000; (b) Cash Flow Statement Rs. 68,000; (Total Figure).]

(4) The following are the summarized Balance sheet of PH & Co. Ltd .. you are required to prepare the Cash Flow

Statement:

Particulars 2002 2003

Rs. Rs.

Assets :

Land and Buildings 1,00,000 95,000

Machinery 75,000 84,500

Stock 50,000 37,000

Cash Flow Statement

Sundry Debtors

Cash Balances

Bank Balances

Good will

Capital & Liabilities :

Share Capital

General Reserve

Profit and Loss Alc

Long-Tenn Loan

Trade Creditors

Provision for Taxation

Additional Information

During the year ended 31st December 2003 :

(1) Dividend of Rs. 11,500 was paid.

• 40,000

250

-

-

2,65,250

1,00,000

25,000

15,250

35,000

75,000

15,000

2,65,250

(2) Assets of another company are purchased for a consideration of Rs. 25,000 payable in shares.

(3) Purchase of Stock Rs. 10,000.

(4) Purchase of Machinery Rs. 12,500 on shares.

(5) Machinery was further purchased for Rs. 4,000 for cash.

(6) Depreciation written off of machinery Rs. 6,000.

(7) Income tax-provided during the year Rs. 16,500.

(8) Loss 011 sale of machinery Rs. 100 was written off to General Reserve.

[Ans : Cash From Operations Rs. 44,150; Cash Flow Statement Rs.68,8(0).

32,100

300

4,000

2,500 .

2,55,400

1,25,000

30,000

15,300

-

67,500

17,500

2,55,400

(5) From the following Balance Sheet of Ram & Co. Ltd., you are required to prepare Cash Flow Statement:

Paniculars

Assets :

Goodwill

Land & Buildings

Stock

Trade Debtors

Bank Balances

Capital and Liabilities :

Share Capital

Debentures

Trade Creditors

Profit and Loss Alc

Provision for Doubtful Debts

Bank Overdraft

Additional Information

(1)- During the year a building costing of Rs. 41,200 was purchased.

(2) Goodwill written off Rs. 10,000.

(3) Dividend of Rs. 7,000 has been paid during the year 2003.

(4) Debenture loan of Rs. 1,200 was repaid during the year 2003.

(5) An overdraft of Rs. 5,600 availed during the year 2003.

[Ans : Cash From Operations Rs. 18,240; Cash Flow Statement Rs. 65,8(0).

2002 2003

Rs. Rs.

20,000 10,000

40,000 81,200

98,400 85,400

29,800 35,400

18,000 -

2,06,200 2,12,000

1,40,000 1,48,000

24,000 12,000

20,720 23,680

20,080 21,120

1,400 1,600

- 5,600

2,06,200 2,12,000

229

23() A Textbook of Financial Cost and Management Accounting

(6) The Balance Sheet of Nair & Co. Ud., as on 31st Dec. 2002 and 2003, you are required to prepare a Cash Flow

Statement:

Balanee Sheet

Liabilities 2002 2003

Rs. Rs.

Share Capital 2,00,000 3,20,000

Profit & Loss Alc 1,40,500 1,70,600

Accumulated

Depreciation 1,20,000 80,000

Debenture 1,00,000 -

Trade Debtors 56,000 %,000

6,16,500 6.66,600

Additional Information

(1) Profit earned during the year was Rs. 54,100.

(2) Depreciation charge Rs. 20,000.

(3) Cash dividend declared during the year Rs. 24,000.

Assets

Fixed Assets

Stock

Trade Debtors

Prepaid. Expenses

Bank Balances

2002 2003

Rs. Rs.

3,04,000 4,00,000

1,86,800 1,78,400

61,600 42,200

7,900 6,000

56,200 40,000

6,16,500 6,66,600

(4) An addition to the building was made during the year at cost of Rs. 1,56,000 and fully depreciated equipment

costing Rs. 60,000 was discarded as no salvage being realized.

[Aos: (1) Cash From Operations Rs. 82,000; (2) Closing Balance of Cash Rs. 40,000]

(7) From the following Balance sheet of Ratha & Co. Ltd., as on 31st December 2003, you are required to prepare a Cash

Row Statement.

Balance sheet

Particulars 2002

Rs.

Assets :

Land and Buildings 3,20,000

Plant and Machinery 1,80,000

Stock 60,000

Trade Debtors 1,20,000

Bills Receivable 20,000

Cash Balances 40,000

7,40,000

Capital and Liabilities :

Share Capital 4,00,000

Bank Overdraft 2,40,000

Bills Payable 28,000

Sundry Creditors 68,000

Outstanding Wages 4,000

7,40,000

Additional Information

(1) Profit earned during the year was Rs.l,6O,OOO.

(2) A machine costing Rs.4O,OOO included in the plant and machinery was sold at Rs.30,OOO.

(3) The depreciation so charged on it up to the date of sale was Rs. 6,000.

2003

Rs.

3,82,000

2,76,000

80,000

1,60,000

28,000

60,000

9,86,000

5,60,000

3,20,000

32,000

68,000

6,000

9,86,000

(4) Accumulated Balance of depreciation on Plant and Machinery during the year 2002 was

Rs. 60,000 and Rs. 80,000 was in 2003.

Cash Flow Statement 231

(8) From the following Balance sheet as at 31" December 2002 and 31" December 2003, you are required to prepare a Cash

Flow Statement:

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Share Capital 1,00,000 1,50,000 Fixed Assets 1,00,000 1,50,000

Profit & Loss Alc 50,000 80,000 Goodwill 50,000 40,000

General Reserve 30,000 40,000 Inventories 50,000 80,000

12% Bonds 50,000 60,000 Debtors 50,000 80,000

Sundry Creditors 30,000 40,000 Bills Receivable 10,000 20,000

Outstanding Expenses 10,000 15,000 Bank Balance 10,000 15,000

2,70,000 3,85,000 2,70,000 3,85,000

[Ans : Cash from Operations Rs. 5,000; Total Cash Flow Statements Rs. 60,000]

(9) From the following Balance sheet of Gupta & Co. Ltd., you are required to prepare a Cash Flow Statement:

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Equity Share Capital 2,00,000 2,50,000 Cash in Hand

Preference Share Capital 2,00,000 2,50,000 Cash at Bank

Bills Payable 40,000 50,000 Sundry Debtors

Sundry Creditors 1,00,000 40,000 Bills Receivable

Profit and Loss Alc 20,000 46,000 Inventories

Land Buildings

Plant & Machinery

5,60,000 6,36,000

[Ans : Cash From Operations Rs. 34,000; Total of Cash Flow Statements Rs. 16,000]

(10) Prepare Cash Flow Statement of Rajan & Co. Ltd. from the following information :

Balance Sheet

Liabilities 2002 2003 Assets

Rs. Rs.

Share Capital 1,00,000 4,00,000 Goodwill

8% Debentures - 2,00,000 Machinery

Retained Earnings 60,000 90,000 Stock

Sundry Creditors 40,000 1,00,000 Sundry Debtors

Bills Payable 20,000 40,000 Cash at Bank

Provision for Tax 30,000 40,000 Cash in hand

2,50,000 8,70,000

Additional Information

(1) Depreciation charge on Machinery was Rs. 30,000

2002 2003

Rs. Rs.

30,000 50,000

30,000 44,000

2,00,000 1,90,000

40,000 40,000

1,60,000 1,80,000

50,000 60,000

50,000 72,000

5,60,000 6,36,000

2002 2003

Rs. Rs.

- 20,000

1,25,000 4,75,000

20,000 80,000

30,000 1,00,000

50,000 1,50,000

25,000 45,000

2,50,000 8,10,000

(2) . The debenture were issued at a premium of 5% which is included in the retained earnings

(3) Provision for tax charged in 2003 was Rs. 35,000

(4) During 2003, the business ofa firm was purchased by issuing shares for Rs. 2,00,000. The assets 'acquired from the

firm were ; Goodwill Rs. 20,000 ; Machinery Rs. 1,00,000; Stock Rs. 50,000 and Debtors Rs. 30,000

[Ans : Cash From Operations Rs. 1,15,000 ; Total of Cash Flow Statements Rs. 5,00,000]

232 A Textbook of Financial Cost and Management Accounting

(11) From the following Balance sheet of Patil & Co. Ltd. on 31" December 2002 and 2003, yO!! are required to prepare a

Cash Flow Statements :

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Equity Share Plant & Machinery

(Rs. 100 each) 10,00,000 15,00,000 (at Cost) 15,00,000 18,00,000

Redeemable Preference Inventory 6,00,000 3,00,000

Shares (Rs. 100 each 5,00,000 - Sundry Debtors 15,00,000 10,00,000

Rs. 50 Paid) Cash at Bank 2,00,000 5,00,000

Share Premium 25,000 -

Capital Redemption

Reserve - 5,00,000

General Reserve 10,00,000 7,00,000

Profit & Loss Nc 2,75,000 3,00,000

Current Liabilities 10,00,000 6,00,000

38,00,000 36,00,000 38,00,000 36,00,000

Additional Information

(1) During the year the company paid Rs. 2,00,000 as equity dividend and Rs. 56,250 as preference dividend

(2) The company redeemed the preference shares at a premium of 5% after making a call of Rs. 50 per share to make

the shares fully paid

(3) During the year one plant, the book value of which was Rs. 1,00,000, was sold at Rs. 25,000 and the company

purchased plant for Rs. 6,00,000

[Ans: Cash From Operation Rs. 7,56,250; Total of Cash Flow Statement Rs. 27,81,000]

(12) Mohan & Co. Ltd. gives you the following balance sheet as at 31" December 2002 and 2003

Balance Sheet

Liabilities 2002 2003 Assets 2002 2003

Rs. Rs. Rs. Rs.

Equity Share Capital 50,000 60,000 Fixed Assets 85,000 1,04,000

8% Redeemable } Investments 10,000 8,000

Preference Shares 20,000 - Preliminary Expenses 4,000 3,000

Capital Redemption reserve - 10,000 Stock 20,000 28,000

Share Premium 5,000 5,000 Sundry Debtors 18,000 17,000

Profit and ~ss Nc 14,000 27,000 Cash balances 6,000 11,000

General Reserve 10,000 13,000

Taxation Reserve 7,000 9,000

Proposed Dividend 5,000 6,000

Sundry Creditors 14,000 18,000

Provision for Depreciation 18,000 23,000

1,43,000 1,71,000 1,43,000 1,71,000

Additional Information

(1) During 2003 the proposed dividend was paid in addition to the preference dividend up to 3()1h June, 2003 on which

date the preference shares were reduced at a per cent of 5. The premium had been provided out of share premium

account.

(2) Tax liability in respect of 2002 carne to Rs. 5,500, the balance in the Taxation reserve as on 31" December 2002

was transferred to general reserve.

(3) During the year a fixed costing Rs. 3,000 (depreciation provided for Rs. 1,600) was sold for

Rs.l,OOO.

(4) Investment costing Rs. 2,000 we~ realized for Rs. 1,600. these matters have·been adjusted in the profit and loss

account. Prepare a statement showing the source and application of cash during 2003.

[Aos: Cash from operations Rs. 48,700; Total of cash flow statement Rs. 73,300]

000

Introduction

CHAPTER 9

Ratio Analysis

The analysis of the financial statements and interpretations of financial results of a particular period

of operations with the help of 'ratio' is termed as "ratio analysis." Ratio analysis used to determine the

financial soundness of a business concern. Alexander Wall designed a system of ratio analysis and

presented it in useful form in the year 1909.

Meaning and Definition

The term 'ratio' refers to the mathematical relationship between any two inter-related variables. In

other words, it establishes relationship between two items expressed in quantitative form.

According J. Batty, Ratio can be defined as "the term accounting ratio is used to describe significant

relationships which exist between figures shown in a balance sheet and profit and loss account in a

budgetary control system or any other part of the accounting management."

Ratio can be used in the form of (1) percentage (20%) (2) Quotient (say 10) and (3) Rates. In other

words, it can be expressed as a to b; a: b (a is to b) or as a simple fraction, integer and decimal. A ratio

is calculated by dividing one item or figure by another item or figure.

Analysis or Interpretations of Ratios

The analysis or interpretations in question may be of various types. The following approaches are

usually found to exist:

(a) Interpretation or Analysis of an Individual (or) Single ratio.

(b) Interpretation or Analysis by referring to a group of ratios.

(c) Interpretation or Analysis of ratios by trend.

(d) Interpretations or Analysis by inter-firm comparison.

Principles of Ratio Selection

The following principles should be considered before selecting the ratio:

234 A Textbook of Financial Cost and Management AccounQd~

(1) Ratio should be logically inter-related.

(2) Pseudo ratios should be avoided.

(3) Ratio must measure a material factor of business.

(4) Cost of obtaining information should be borne in mind.

(5) Ratio should be in minimum numbers.

(6) Ratio should be facilities comparable.

Advantages of Ratio Analysis

Ratio analysis is necessary to establish the relationship between two accounting figures to highlight

the significant information to the management or users who can analyse the business situation and to

monitor their performance in a meaningful way. The following are the advantages of ratio analysis:

(1) It facilitates the accounting information to be summarized and simplified in a required form.

(2) It highlights the inter-relationship between the facts and figures of various segments of

business.

(3) Ratio analysis helps to remove all type of wastages and inefficiencies.

(4) It provides necessary information to the management to take prompt decision relating to

business.

(5) It helps to the management for effectively discharge its functions such as planning, organizing,

controlling, directing and forecasting.

(6) Ratio analysis reveals profitable and unprofitable activities. Thus, the management is able to

concentrate on unprofitable activities and consider to improve the efficiency.

(7) Ratio analysis is used as a measuring rod for effective control of performance of business

activities.

(8) Ratios are an effective means of communication and informing about financial soundness made

by the business concern to the proprietors, investors, creditors and other parties.

(9) Ratio analysis is an effective tool which is used for measuring the operating results of the

enterprises.

(10) It facilitates control over the operation as well as resources of the business.

(11) Effective co-operation can be achieved through ratio analysis.

(12) Ratio analysis provides all assistance to the management to fix responsibilities.

(13) Ratio analysis helps to determine the performance of liquidity, profitability and solvency

position of the business concern.

Limitations of Ratio Analysis

Ratio analysis is one of the important techniques of determining the performance of financial strength

and weakness of a firm. Though ratio analysis is relevant and useful technique for the business concern,

the analysis is based on the information available in the financial statements. There are some situations,

where ratios are misused, it may lead the management to wrong direction. The ratio analysis suffers from

the following limitations:

Ratio Analysis 235

(1)

(2)

(3)

(4)

(5)

(6)

(7)

Ratio analysis is used on the basis of financial statements. Number of limitations of financial

statements may affect the accuracy or quality of ratio analysis.

Ratio analysis heavily depends on quantitative facts and figures and it ignores qualitative data.

I

Therefore this may limit accuracy.

Ratio ~alysis is a poor measure of a firm's performance due to lack of adequate standards laid

for ideal ratios.

It is not a substitute for analysis of financial statements. It is merely used as a tool for

measuring the performance of business activities.

Ratio analysis clearly has some latitude for window dressing.

It makes comparison of ratios between companies which is questionable due to differences in

methods of accounting operation and financing.

Ratio analysis does not consider the change in price level, as such, these ratio will not help in

drawing meaningful inferences.

CLASSIFICATION OF RATIOS

Accounting Ratios are classified on the basis of the different parties interested in making use of the

ratios. A very l?rge number of accounting ratios are used for the purpose of determining the financial

position of a concern for different purposes. Ratios may be broadly classified in to:

(1) Classification of Ratios on the basis of Balance Sheet.

(2) Classification of Ratios on the basis of Profit and Loss Account.

(3) Classification of Ratios on the basis of Mixed Statement (or) Balance Sheet and Profit and Loss

Account.

This classification further grouped in to:

I. Liquidity Ratios

II. Profitability Ratios

III. Turnover Ratios

IV. Solvency Ratios

V. Over all Profitability Ratios

These classifications are discussed hereunder :

1. Classification of Ratios on the basis of Balance Sheet: Balance sheet ratios which establish the

relationship between two balance sheet items. For example, Current Ratio, Fixed Asset Ratio, Capital

Gearing Ratio and Liquidity Ratio etc.

2. Classification on the basis of Income Statements: These ratios deal with the relationship

between two items or two group of items of the income statement or profit and loss account. For example,

Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, and Net Profit Ratio etc.

3. Classification on the basis of Mixed Statements: These ratios also known as Composite or Mixed

Ratios or Inter Statement Ratios. The inter statement ratios which deal with relationship between the item

of profit and loss account and item of balance sheet. For example, Return on Investment Ratio, Net Profit

to Total Asset Ratio, Creditor's Turnover Ratio, Earning Per Share Ratio and Price Earning Ratio etc.

236 A Textbook of Financial Cost and Management Accounting

A chart for classification of ratios by statement is given below showing clearly the types of ratios

may be broadly classified on the basis of Income Statement and Balance Sheet.

Classification of Ratios by Statement

~ ~ ~

On the basis of On the basis of On the basis of

I Balance Sheet I I Profit and Loss Account I I Profit and Loss Account I

1 1 and Balance Sheet

t

1. Current Ratio 1. Gross Profit Ratio 1. Stock Turnover Ratio

2. Liquid Ratio 2. Operating Ratio 2. Debtors Turnover Ratio

3. Absolute Liquid Ratio 3. Operating Profit Ratio 3. Payable Turnover Ratio

4. Debt Equity Ratio 4. Net Profit Ratio 4. Fixed Asset Turnover Ratio

5. Proprietary Ratio 5. Expense Ratio 5. Return on Equity

6. Capital Gearing Ratio 6. Interest Coverage Ratio 6. Return on Shareholder's Fund

7. Assets-Proprietorship Ratio 7. Return on Capital Employed

8. Capital Inventory to 8. Capital Turnover Ratio

Working Capital Ratio 9. Working Capital Turnover Ratio

9. Ratio of Current Assets 10. Return on Total Resources

to Fixed Assets 11. Total Assets Turnover

I. LIQUIDITY RATIOS

Liquidity Ratios are also termed as Short-Term Solvency Ratios. The term liquidity means the extent

of quick convertibility of assets in to money for paying obligation of short-term nature. Accordingly,

liquidity ratios are useful in obtaining an indication of a firm's ability to meet its current liabilities, but it

does not reveal h0w effectively the cash resources can be managed. To measure the liquidity of a firm, the

following ratios are commonly used:

(1) Current Ratio.

(2) Quick Ratio (or) Acid Test or Liquid Ratio.

(3) Absolute Liquid Ratio (or) Cash Position Ratio.

(1) Current Ratio

Current Ratio establishes the relationship between current Assets and current Liabilities. It attempts

to measure the ability of a firm to meet its current obligations. In order to compute this ratio, the following

formula is used :

Current Assets

Current Ratio =

Current Liabilities

The two basic components of this ratio are current assets and current liabilities. Current asset

normally means assets which can be easily converted in to cash within a year's time. On the other hand,

current liabilities represent those liabilities which are payable within a year. The following table represents

the components of current assets and current liabilities in order to measure the current ratios :

Ratio ATUliysis 237

Components of Current Assets and Current Liabilities

Current Assets Current Liabilities

1. Cash in Hand L Sundry Creditors

2. Cash at Bank (Accounts Payable)

3. Sundry Debtors 2. Bills Payable

4. Bills Receivable 3. Outstanding and Accrued Expenses

5. Marketable Securities 4. Income Tax Payable

( Short-Term) 5. Short-Term Advances

6. Other Short-Term Investments 6. Unpaid or Unclaimed Dividend

7. Inventories : 7. Bank Overdraft (Short-Term period)

(a) Stock of raw materials

(b) Stock of work in progress

(c) Stock of finished goods

Interpretation of Current Ratio: The ideal current ratio is 2: 1. It indicates that current assets

double the current liabilities is considered to be satisfactory. Higher value of current ratio indicates more

liquid of the firm's ability to pay its current obligation in time. On the other hand, a low value of current

ratio means that the firm may find it difficult to pay its current ratio as one which is generally recognized

as the patriarch among ratios.

Advantages of Cu"ent Ratios:

(1) Current ratio helps to measure the liquidity of a firm.

(2) It represents general picture of the adequacy of the working capital position of a company.

(3) It indicates liquidity of a company.

(4) It represents a margin of safety, i.e., cushion of protection against current creditors.

(5) It helps to measure the short-term financial position of a company or short-term solvency of a

firm.

Disadvantages of Cu"ent Ratio:

( 1) Current ratios cannot be appropriate to all busineses it depends on many other factors.

(2) Window' dressing is another problem of current ratio, for example, overvaluation of closing

stock.

(3) It is a crude measure of a firm's liquidity only on the basis Of quantity and not quality of current

assets.

Calculation of Current Ratio:

Illustration: 1

The following information relates to Mishra & Co. for the year 2003, calculate current ratio:

Current Assets

Current Liabilities

Rs. 5,00,000

Rs. 2,00,000

238

Solution:

, A Textbook of Financial Cost and Management Accounting

Current Ratio =

=

Current Assets

Current Liabilities

5,00,000

2,00,000

= 2.5 (or) 2.5 :1

The current ratio of 2.5 means that current assets are 2.5 times of current liabilities.

Illustration: 2

Calculate Current Ratio from the following Information

Liabilities

Sundry creditors

Bills payable

Dividend payable

Accrued expenses

Short-term advances

Share Capital

Debenture

Solution:

Current Ratio =

Current Assets =

=

Current Liabilities =

Current Ratio =

Rs. Assets

40,000 Inventories

30,000 Sundry debtors

36,000 Cash at Bank

14,000 Bills Receivable

50,000 Prepaid expenses

1,50,000 Machinery

2,00,000 Patents

Land & Building

Current Assets

Current Liabilities

Rs. 1,20,000 + 1,40,000 + 40,000 + 60,000 + 20,000

Rs. 3,80,000

Rs. 40,000 + 30,000 + 36,000 + 14,000 + 50,000

Rs. 1,70,000

3,80,000

1,70,000

= 2.24 (or) 2.24 :1

(2) Quick Ratio (or) Acid Test or Liquid Ratio

Rs.

1,20,000

1,40,000

40,000

60,000

20,000

2,00,000

50,000

1,50,000

Quick Ratio also termed as Acid Test or Liquid Ratio. It is supplementary to the current ratio. The

acid test ratio is a more severe and stringent test of a firm's ability to pay its short-term obligations 'as and

when they become due. Quick Ratio establishes the relationship between the quick assets and current

liabilities. In order to compute this ratio, the below presented formula is used :

Liquid Assets

(Current Assets - Stock and Prepaid Expenses)

Liquid Ratio = --------------------------------------- Current Liabilities

Quick Ratio can be calculated by two basic components of quick assets and current liabilities.

Quick Assets = Current Assets - (Inventories + Prepaid expenses)

Current liabilities represent those liabilities which are payable within a year.

Ratio Analysis 239

The ideal Quick Ratio of I: I is considered to be satisfactory. High Acid Test Ratio is an indication

that the firm has relatively better position to meet its current obligation in time. On the other hand, a low

value of quick ratio exhibiting that the firm's liquidity position is not good.

Advantages

(I) Quick Ratio helps to measure the liquidity position of a firm.

(2) It is used as a supplementary to the current ratio.

(3) It is used to remove inherent defects of current ratio.

Illustration: 3

Calculate Quick Ratio from the information given below :

Solution:

Current Assets

Current Liabilities

Inventories (stock)

Prepaid Expenses

Land and Building

Share Capital

Good Will

Quick Ratio

(3) Absolute Liquid Ratio

=

=

=

=

=

Quick Assets

Current Liabilities

Rs.

4,00,000

2,00,000

25,000

25,000

4,00,000

3,00,000

2,00,000

Current Assets - (Inventories + Prepaid Expenses)

Current Liabilities

Rs. 4,00,000 - (25,000 + 25,(00)

Rs. 2,00,000

Rs. 4,00,000 - 50,000

Rs. 2,00,000

Rs. 3,50,000

2,00,000

= 1.75 (or) 1.75: 1

Abso.ute Liquid Ratio is also called as Cash Position Ratio (or) Over Due Liability Ratio. This ratio

established the relationship between the absolute liquid assets and current ~iabilities. Absolute Liquid

Assets include cash in hand, cash at bank, and marketable securities or temporary investments. The

optimum value for this ratio should be one, i.e., 1: 2. It indicates that 50% worth absolute liquid assets are

considered adequate to pay the 100% worth current liabilities in time. If the ratio is relatively lower than

one, it represents that the company's day-to-day cash management is poor. If the ratio is considerably

more than one, the absolute liquid ratio represents enough funds in the form of cash to meet its short-term

240 A Textbook of Financial Cost and Management Accounting

obligations in time. The Absolute Liquid ~ariq CaR be calculated by dividing the total of the Absolute

Liquid Assets by Total Current Liabilfties. Thus,

Absolute Liquid Assets

Absolute Liquid Ratio =

Current Liabilities

Illustration: 4

Calculate Absolute Liquid Ratio from the following Information

Liabilities Rs. Assets Rs.

Bills Payable 30,000 Goodwill 2,00,000

Sundry Creditors 20,000 Land and Building 2,00,000

Share Capital 1,00,000 Inventories 50,000

Debenture 2,00,000 Cash in Hand 30,000

Bank Overdraft 25,000 Cash at Bank 20,000

Sundry Debtors 50,000

Bills Payable 75,000

Marketable Securities 10,000

Solution:

Absolute Liquid Ratio

Absolute Liquid Assets

= Current Liabilities

Absolute Liquid Assets = Cash in Hand + Cash at Bank +

Marketable Securities

= Rs. 30,000 + 20,000 + 10,000

= Rs.60,000

Current Liabilities = Rs. 30,000 + 20,000 + 25,000

= Rs.75,000

60,000

Absolute Liquid Ratio = 75,000

= 0.8

The ratio of 0.8 is quite satisfactory because, it is much higher than the optimum value of 50%.

Illustration: 5

You are given the following information:

Cash in Hand

Cash at Bank

Sundry Debtors

Stock

Bills Payable

Bills Receivable

Sundry Creditors

Outstanding Expenses

Prepaid Expenses

Dividend Payable

Rs.

10,000

15,000

75,000

60,000

25,000

30,000

40,000

20,000

10,000

15,000

Ratio Analysis

Solution:

Land and Building

Goodwill

2,00,000

1,00,000

Calculate: (a) Current Ratio (b) Liquid Ratio (c) Absolute Liquidity Ratio

Current Assets

(a) Current Ratio =

Current Liabilities

Current Assets : Rs.

Cash in Hand 10,000

Cash at Bank 15,000

Sundry Debtors 75,000

Stock 60,000

Bills Receivable 30,000

Prepaid Expenses 10,000

Total Current Assets Rs. 2,00,000

Current Liabilities Rs.

Bills Payable 25,000

Sundry Creditors 40,000

Outstanding Expenses 20,000

Dividend Payable 15,000

Total Current Liabilities = 1,00,000

Rs. 2,00,000

Current Ratio =

Rs. 1,00,000

2 times (or) 2:1

Liquid Assets

(b) Liquid Ratio =

Current Liabilities

Liquid Assets = Current Assets - (Stock and Prepaid Expenses)

= Rs. 2,00,000 - (60,000 + 10,(00)

= Rs. 2,00,000 - 70,000

= Rs. 1,30,000

1,30,000

Liquid Ratio =

1,00,000

= 1.3 times (or) 1:3:1

(c) Absolute Liquid Ratio

Absolute Liquid Assets

=

Current Liabilities i

Absolute Liquid Assets = Cash in hand + Cash at Bank

+ Marketable Securities

= Rs. 10,000 + 15,000 + Nil

Rs.25,000

241

242

Absolute Liquid Ratio

Illustration: 6

Given:

Current Ratio

Liquid Ratio

Working Capital

=

25,000

1,00,000

A Textbook of Financial Cost and Management Accounting

= 0.2.5

=

=

=

2.6

1.4

Rs. 1,10,000

Calculate: (I) Current Assets (2) Current Liabilities (3) Liquid Assets and (4) Stock.

Solution:

Calculation of current assets and current liabilities :

Working Capital

Current Ratio

Working Capital

Working Capital

Working Capital (Given)

... 1.6

( 1) Current Assets

(2) Current Liabilities

(3) Calculation of Liquid Assets :

Liquid Ratio (Given)

Liquid Ratio

1.4

Liquid Assets

(4) Calculation of Stock:

Liquid Assets

Stock

=

=

=

=

=

=

=

Current Assets - Current Liabilities

Current Assets: Current Liabilities

(or)

Current Assets = 2.6:1

Current Liabilities

Current Assets - Current Liabilities

2.6 - I

1.6

1,10,000

1,10,000

= 1,10,000 x

2.6

1.6

= Rs. 1,78,750

= 1, 10,000 x

= 1.4

=

=

=

=

Liquid Assets

Current Liabilities

Liquid Assets

Rs.68,750

68750 x 1.4

Rs.96,250

1.6

= Rs. 68,750

= Current Assets - (Stock + Prepaid Expenses)

= Current Assets - Liquid Assets

= Rs. 1,78.750 - Rs. 96,250

= Rs.82,500

Ratio Analysis 243

II. PROFITABILITY RATIOS

The term profitability means the profit earning capacity of any business activity. Thus, profit earning

may be judged on the volume of profit margin of any activity and is calculated by subtracting costs from

the total revenue accruing to a firm during a particular period. Profitability Ratio is used to measure the

overall efficiency or performance of a business. Generally, a large number of ratios can also be used for

determining the profitability as the same is related to sales or investments.

The following important profitability ratios are discussed below:

1. Gross Profit Ratio.

2. Operating Ratio.

3. Operating Profit Ratio.

4. Net Profit Ratio.

5. Return on Investment Ratio.

6. Return on Capital Employed Ratio.

7. Earning Per Share Ratio.

8. Dividend Payout Ratio.

9. Dividend Yield Ratio.

lO. Price Earning Ratio.

11. Net Profit to Net Worth Ratio.

(1) Gross Profit Ratio

Gross Profit Ratio established the relationship between gross profit and net sales. This ratio is

calculated by dividing the Gross Profit by Sales. It is uSllally indicated as percentage.

Gross Profit Ratio

Gross Profit

Net Sales

=

=

=

Gross Profit

x 100

Net Sales

Sales - Cost of Goods Sold

Gross Sales - Sales Return (or) Return Inwards

Higher Gross Profit Ratio is an indication that the firm has higher profitability. It also reflects the

effective standard of performance of firm's business. Higher Gross Profit Ratio will be result of the

following factors.

(1) Increase in selling price, i.e., sales higher than cost of goods sold.

(2) Decrease in cost of goods sold with selling price remaining constant.

(3) Increase in selling price without any corresponding proportionate increase in cost.

(4) Increase in the sales mix.

A low gross profit ratio generally indicates the result of the following factors :

(l) Increase in cost of goods sold.

(2) Decrease in selling price.

244 A Textbook of Financial Cost and Management Accounting

(3) Decrease in sales volume.

(4) High competition.

(5) Decrease in sales mix.

Advantages

(1) It helps to measure the relationship between gross profit and net sales.

(2) It reflects the efficiency with which a firm produces its product.

(3) This ratio tells the management, that a low gross profit ratio may indicate unfavourable

purchasing and mark-up policies.

(4) A low gross profit ratio also indicates the inability of the management to increase sales.

Illustration: 7

Calculate Gross Profit Ratio from the following figures :

Solution:

Sales

Sales Return

Closing Stock

Opening Stock

Purchases

Gross Profit Ratio

Net Sales

Gross Profit

Cost of goods sold

Gross Profit

Gross Profit Ratio

(2) Operating Ratio

=

=

=

=

=

=

=

=

=

=

Rs.

5,00,000

50,000

35,000

70,000

3,50,000

Gross Profit

Net Sales

x 100

Sales - Sales Return

Rs. 5,00,000 - 50,000

Rs. 4,50,000

Sales - Cost of Goods Sold

Opening Stock + Purchase - Closing Stock

Rs. 70,000 + 3,50,000 - 35,000

Rs. 4,20,000 - 35,000 = Rs. 3,85,000

Rs. 4,50,000 - 3,85,000 = Rs. 65,000

65,000

x 100

4,50,000

= 14.44 %

Operating Ratio is calculated to measure the relationship between total operating expenses and sales ..

The total operating expenses is the sum total of cost of goods sold, office and administrative expenses and

selling and distribution expenses. In other words, this ratio indicates a firm's ability to cover total operating

expenses. In order to compute this ratio, the following formula is used:

Operating Ratio =

Operating Cost =

Net Sales =

Operating Cost

x 100

Net Sales

Cost of goods sold + Administrative Expenses

+ Selling and Distribution Expenses

Sales - Sales Return (or) Return Inwards.

Ratio Analysis

Illustration: 8

Solution:

Find out Operating Ratio :

Cost of goods sold

Office and Administrative Expenses

Selling and Distribution Expenses

Sales

Sales Return

Operating Ratio =

Operating Cost =

=

=

=

=

Operating Ratio =

Operating Cost

Net Sales

x 100

Rs. 4,00,000

Rs. 30,000

Rs. 20,000

Rs. 6,00,000

Rs. 20,000

Cost of goods sold + Administrative Expenses

+ Selling and Distribution Expenses

Rs. 4,00,000 + 30,000 + 20,000

Rs. 4,50,000

Rs. 6,00,000 - 20,000

Rs. 5,80,000

4,50,000

5,80,000

x 100

= 77.58 %

245

This ratio indicated that 77.58% of the net sales have been consumed by cost of goods sold, administrative

expenses and selling and distribution expenses. The remaining. 23.42% indicates a firm's ability to cover the interest

charges, income tax payable and dividend payable.

(3) Operating Profit Ratio

Operating Profit Ratio indicates the operational efficiency of the firm and is a measure of the firm's

ability to cover the total operating expenses. Operating Profit Ratio can be calculated as :

Operating Profit Ratio =

Operating Profit =

=

=

=

Net Sales =

Operating Profit

x 100

Net Sales

Net Sales - Operating Cost

(or)

Net Sales - (Cost of Goods Sold + Office

and Administrative Expenses + Selling

and Distribution Expenses)

(or)

Gross Profit - Operating Expenses

(or)

Net Profit + Non-Operating Expenses -

Non-Operating Income.

Sales - Sales Return (or) Return Inwards

246

Illustration: 9

A Textbook of Financial Cost and Management Accounting

From the following information given below, you are required to calculate Operating Profit Ratio :

Solution:

Gross Sales

Sales Return

Opening Stock

Closing Stock

Purchases

Office and Administrative Expenses

Selling and Distribution Expenses

Operating Profit Ratio :::

Operating Profit =

Net Sales =

=

=

Total Operating Cost

Cost of Goods sold =

=

=

Total Operating Expenses

=

Operating Profit =

Operating Profit Ratio

Rs.

6,50,000

50,000

25,000

30,000

4,10,000

50,000

40,000

Operating Profit

x 100

Net Sales

Net Sales - Total Operating Cost

Gross Sales - Sales Return

Rs. 6,50,000 - 50,000

Rs. 6,00,000

Cost of Goods Sold + Office and Administrative

Expenses + Selling and Distribution Expenses

Opening Stock + Purchase - Closing Stock

Rs. 25,000 + 4,10,000 - 30,000

Rs. 4,05,000

Rs. 4,05,000 + 50,000 + 40,000

Rs. 4,95,000

Net Sales - Total Operating Expenses

Rs. 6,00,000 - 4,95,000

Rs. 1,05,000

1,05,000

x 100

6,00,000

= 17.5

llIustration: 10

Calculate Operating ~ofit Ratio frorn.the following "figures :

Solution:

Net Sales

Cost of Goods Sold

Office and Administrative Expenses

Selling and Distribution Expenses

Operating Profit Ratio

Operating Profit

Total Operating Cost

=

=

=

=

=

Operating Profit

x 100

Net Sales

Sales - Total Operating Cost

Rs. 4,00,000

Rs. 3,00,000

Rs. 20,000

Rs. 15,000

Cost of goods sold + Office and

Administrative Expenses + Selling

And Distribution Expenses

Ratio Analysis

Operating Profit

Operating Profit Ratio

(4) Net Profit Ratio

=

=

=

=

=

Rs. 3,00,000 + 20,000 + 15,000

Rs. 3,35,000

Rs. 4,00,0000 - 3,35,000

Rs.65,OOO

65,000

x 100

4,00,000

= 16.25 %

247

Net Profit Ratio is also termed as Sales Margin Ratio (or) Profit Margin Ratio (or) Net Profit to Sales

Ratio. This ratio reveals the firm's overall efficiency in operating the business. Net profit Ratio is used to

measure the relationship between net profit (either before or after taxes) and sales. This ratio can be

calculated by the following formula :

Net Profit Ratio =

Net Profit After Tax

Net Sales

x 100

Net profit includes non-operating incomes and profits. Non-Operating Incomes such as dividend

received, interest on investment, profit on sales of fixed assets, commission received, discount received

etc. Profit or Sales Margin indicates margin available after deduction cost of production, other operating

expenses, and income tax from the sales revenue. Higher Net Profit Ratio indicates the standard

performance of the business concern.

Advantages

(1) This is the best measure of profitability and liquidity.

(2) It helps to measure overall operational efficiency of the business concern.

(3) It facilitates to make or buy decisions.

(4) It helps to determine the managerial efficiency to use a firm's resources to generate income on

its invested capital.

(5) Net profit Ratio is very much useful as a tool of ihvestment evaluation.

Illustration: 11

From the folloWing Trading and Profit and Loss Account of Ramesh & Co. for the year 31st Dec.

2003 :

-- Rs. Rs.

To Opening Stock 60,000 By Sales 4,00,000

To Purchase 2,75,000 By Closing Stock 75,000

To Wages 25,000

To Gross Profit c/d 1,15,000

4,75,000 4,75,000

To Administrative Expenses 45,000 By Gross Profit bid 1,15,000

To Selling and Distribution Expenses 10,000 By Interest on Investment 10,000

To Office Expenses 5,000

To Non Operating Expenses 15,000

To Net Profit 50,000

1,25,000 1,25,000

248

You are required to calculate :

(1) Gross Profit Ratio.

(2) Operating Ratio.

(3) Operating Profit Ratio.

(4) Net Profit Ratio.

Solution:

( J ) Gross Profit Ratio

(2) Operating Ratio

Total Operating Cost

Cost of goods sold

Operating Expenses

Total Operating Cost

Operating Ratio

(3) Operating Profit Ratio

Net Operating Profit

Operating Profit Ratio

(4) Net Profit Ratio

=

A Textbook of Financial Cost and Management Accounting

Gross Profit

Net Sales

1,15,000

4,00,000

x 100

x 100

= 28.75 %

=

=

=

=

=

=

Total Operating Cost

x 100

Net Sales

Cost of Goods Sold + Operating Expenses

Opening Stock + Purchases - Closing Stock

Rs. 60,000 + 2,75,000 - 75,000

Rs. 2,60,000

Office Expenses + Administrative Expenses

+ Selling and Distribution Expenses

Rs. 5000 + 45,000 + 10,000

Rs.60,OOO

Rs.2,60,OOO + 60,000

Rs. 3,20,000

3,20,000

x 100

4,00,000

= 80%

=

=

=

=

=

Net Operating Profit

x 100

Net Sales

Net Sales - Total Operating Cost

Rs. 4,00,000 - 3,20,000

Rs.80,OOO

80,000

4,00,000

20%

x 100

Net Profit (after tax)

Net Sales

50,000

4,00,000

x 100

x 100

= 12.5 %

Ratio Analysis 249

Answers

(1) Gross Profit Ratio = 28.75%

(2) Operating Ratio = 80%

(3) Operating Profit Ratio = 20%

(4) Net Profit Ratio = 12.5 %

Illustration: 12

The following are the summarized profit and loss account of Sun India Ltd. for the year ending 3151

Dec. 2003 and the Balance sheet as on that date:

Dr. Profit and Loss Account

Particulars Rs. Particulars

To Opening Stock 10,000 By Sales

To Purchases 60,000 Less : Sales Return

To Freight Expenses 5,000 By Closing Stock

To Gross Profit cld 50,000

1,25,000

To Operating Expenses: By Gross Profit bId

Office Expenses 5,000 By Non-Trading Income:

Administrative Expenses 15,000

Selling and Distribution Expenses 5,000 Interest on Investment

Profit on sale of fixed Assets

To Non-Operating Expenses:

Loss on Sale of Fixed Assets 1,000 Dividend Received

To Net Profit 34,000

60,000

Balance Sheet for the year ending 31st Dec. 2001

Liabilities

Share Capital

Reserves

Debenture

Current Liabilities

Profit and Loss Nc

You are required to calculate:

(a) Current Ratio

(b) Liquid Ratio

(c) Gross Profit Ratio

(d) Operating Ratio

(e) Operating Profit Ratio

(f) Net Profit Ratio

Rs. Assets

15,000 ~ash in Hand

3,000 Cash at Bank

12,000 Marketable Securities

20,000 Inventories

5,000 Sundry Debtors

Prepaid Expense

Land and Building

55,000

Cr.

Rs. Rs.

1,20,000

10,000 1,10,000

15,000

1,25,000

50,000

5,000

1,000

4,000

60,000

Rs.

2,000

3,000

5,000

15,000

6,000

4,000

20,000

55,000

250

Solution:

(a) Current Ratio

Current Assets

Current Ratio

(b) Liquid Ratio

Liquid Assets

Liquid Ratio

(c) Gross Profit Ratio

(d) Operating Ratio

Total Operating Cost

Cost of Goods Sold

Operating Expenses

Total operating cost

Operating Ratio

(e) Operating Profit Ratio

Net Operating Profit

Operating Profit Ratio

=

=

=

=

A Textbook of Financial Cost and Management Accounting

Current Assets

Current Liabilities

Rs. 2,000 + 3,000 + 5000 + 15,000 + 6,000 + 4,000

Rs.35,OOO

35,000

20,000

= 1.75 (or) 1.75:1

=

=

=

=

=

Liquid Assets

Current Liabilities

Current Assets - (Stock and Prepaid Expenses)

Rs. 35,000 - (15,000 + 4,(00)

Rs. 16,000

16,000

20.000

= 0.8 (or) 0.8:1

=

=

Gross Profit

Net Sales

50,000

1,10,000

x 100

x 100

= 45.45 %

=

=

=

=

=

=

=

=

=

=

=

=

=

=

Total Operating Cost

x 100

Net Sales

Cost of Goods Sold + Operating Expenses

Opening Stock + Purchases - Closing Stock

Rs. 10,000 + 60,000 - 15,000

Rs.55,OOO

Office Expenses + Administrative Expenses

+ Selling and Distribution Expenses

Rs. 5,000 + 15,000 + 5000

Rs.25,OOO

Rs. ~~.OOO + 25,000 = Rs. 80,000

80,000

x 100 = 72.72%

I, ~O.OOO

Net Operating Profit

Net Sales

x 100

Net Sales - Total Operating Cost

Rs. 1,10,000 - 80,000 = Rs. 30,000

30,000

x 100 = 27.27%

1,10.000

Ratio Analysis

Alternatively

Net Operating Profit

Net Operating Profit

Operating Profit Ratio

if) Net Profit Ratio

Answers

(a) Current Ratio

(b) Liquid Ratio

(c) Gross Profit Ratio

(d) Operating Ratio

(e) Operating Profit Ratio

if) Net Profit Ratio

(5) Return on Investment Ratio

=

=

=

=

=

=

<=

=

=

=

=

=

=

=

251

Net Profit + Non-Operating Expenses

- Non-Operating Income

Rs. 34,000 + 1,000 - (5,000 + 1,000 + 4,000)

Rs. 35,000 - 10.000 = Rs.25,ooo

25,000

x 100

1,10,000

22.72%

Net Profit (after tax)

x 100

Net Sales

34,000

x 100

1,10,000

30.90 %

1.75 (or) 1.75 :1

0.8 (or) 0.8 : 1

45.45%

72.72%

27.27% or 22.72%

30.90%

This ratio is also called as ROL This ratio measures a return on the owner's or shareholders'

investment. This ratio establishes the relationship between net profit after interest and taxes and the

owner's investment. Usually this is calculated in percentage. This ratio, thus. can be calculated as :

Return on Investment Ratio =

Shareholder's Investments =

Net Profit =

Advantages

Net Profit (after interest and tax)

------------------------xlOO

Shareholders' Fund (or) Investments

Equity Share Capital + Preference

Share Capital + Reserves and Surplus

- Accumulated Losses

Net Profit - Interest and Taxes

(1) This ratio highlights the success of the business from the owner's point of view.

(2) It helps to measure an income on the shareholders' or proprietor's investments.

(3) This ratio helps to the management for important decisions making.

(4) It !acilitates in determining efficiently handling of owner's investment.

252

Illustration: 13

A Textbook of Financial Cost and Management Accounting

Calculate Return on Investment Ratio from the following information :

Rs.

1000 Equity shares @ of Rs.lO each

2000, 5% preference share @ of Rs. lO each

Reverses

10,000

20,000

5,000

lO,ooo

2,000

3,000

Net profit before interest and Tax

Interest

Taxes

Solution:

Return on Investment Ratio =

Shareholders' Investment =

Shareholders' Investment =

=

Net Profit after Interest and Taxes =

=

Return on Investment Ratio =

Net Profit after Interest and Tax

------------ x 100

Shareholders' Investment

Equity Share Capital + Preference Share

Capital + Reserves and Surplus

- Accumulated Losses

Rs.I0,000+ 20,000 + 5,000 - Nil

Rs.35,000

Rs. lO,ooo - (2,000 + 3,000)

Rs.lO,ooo - 5,000 = 5,000

5,000

x 100

35,000

= 14.28 %

(6) Return on Capital Employed Ratio

Return on Capital Employed Ratio measures a relationship between profit and capital employed.

This ratio is also called as Return on Investment Ratio. The term return means Profits or Net Profits. The

term Capital Employed refers to total investments made in the business. The concept of capital employed

can be considered further into the following ways :

(a) Gross Capital Employed

(b) Net Capital Employed

(c) Average Capital Employed

(d) Proprietor's Net Capital Employed

(a) Gross Capital Employed

(b) Net Capital Employed

(c) Average Capital Employed

=

=

=

Average Capital Employed =

(d) Proprietor's Net Capital Employed =

Fixed Assets + Current Assets

Total Assets - Current Liabilities

Opening Capital Employed + Closing

Capital Employed

2

(or)

Net Capital Employed + Y2 of Profit After Tax

Fixed Assets + Current Assets

- Outside Liabilities

(both long-term and short-term)

Ratio Analysis

In order to compute this ratio, the below presented formulas are used:

(1) Return on Capital Employed =

(2) Return on Capital Employed =

(3) Return on Capital Employed =

Illustration: 14

Net Profit After Taxes

Gross Capital Employed

(or)

x 100

Net Profit After Taxes Before Interest

Gross Capital Employed

(or)

Net Profit After Taxes Before Interest

Average Capital Employed or

Net Capital Employed

x 100

x 100

The following is the Balance sheet of MIs Sharma Ltd. for the year ending Dec. 31 51 2003.

Liabilities

Equity Share Capital

Reserves

Profit and Loss Alc

Debenture

Secured Loans

Creditors

Provision for Tax

Bills Payable

You are required to calculate:

(a) Current Ratio

(b) Liquid Ratio

(c) Gross Capital Employed

(d) Net Capital Employed

(e) Average Capital Employed

Rs. Assets

4,00,000 Good Will

40,000 Building

80,000 Machinery

1,00,000 Stock

1,00,000 Sundry Debtors

80,000 Bills Receivable

50,000 Cash at Bank

40,000 Preliminary Expenses

8,90,000

(f) Return on Capital Employed Ratio

Solution:

(a) Current Ratio =

Current Assets =

=

=

Current Liabilities =

=

=

Current Ratio =

Current Assets

Current Liabilities

Stock + Sundry Debtors + Bills Receivable

+ Cash at Bank + Preliminary Expenses

Rs. 80,000 + 60,000 + 50,000 + 60,000

Rs. 2,50,000

Creditors + Provision for Tax + Bills Payable

Rs. 80,000 + 50,000 + 40,000

Rs. 1,70,000

2,50,000

1,70,000

= 1.47 (or) 1.47 :1

Rs.

1,50,000

2,00,000

2,50,000

80,000

60,000

40,000

50.000

60,000

8,90,000

253

254

( b) Uquid Assets

Liquid Ratio

(c) Gross Capital Employed

Fixed Assets

Current Assets

Gross Capital Employed

(d) Net Capital Employed

Total Assets

Current Liabilities

Net Capital Employed

(e) Average Capital Employed \* of profit after tax

Average Capital Employed

if) Return on Capital Employed

Alternatively

Return on Capital Employed

Answers

(a) Current Ratio

(b) Liquid Ratio

(c) Gross Capital Employed

(d) Net Capital Employed

(e) Average Capital Employed

(f) Return on Capital Employed

=

A Textbook of Financial Cost and Management Accounting

Liquid Assets - (Stock and Preliminary Expenses)

= Rs. 2,50,000 - ( 80,000 + 60,(00)

= Rs. 1,10,000

1,10,000

= = 0.64 (or) 0.64 :1

1,70,000

= Fixed Assets + Current Assets

= Goodwill + Building + Machinery

= 1,50,000 + 2,00,000 + 2,50,000

= Rs. 6,00,000

= Rs. 2,50,000

= Rs. 6,00,000 + 2,50,000

= Rs. 8,50,000

= Total Assets - Current Liabilities

= Rs. 8,50,000

= Rs. 1,70,000

= Rs. 8,50,000 - 1,70,000

= Rs. 6,80,000

= Net Capital Employed + !h of Profit After Tax

= !h (80,000 - 50,(00)

= Rs.15,000

= Rs. 7,20,000 + 15,000

= Rs. 7,35,000

=

=

Net Profit After Tax

Gross Capital Employed

80,000 - 50,000

------xl00

8,50,000

30,000

= x 100

8,50,000

= 3.52%

=

Net Profit After Tax

Net Capital Employed

30,000

x 100

7,20,000

= 4.16 %

= 1.47 (or) 1.47 : 1

= 0.64 (or) 0.64 :1

= Rs: 8,50,000

= Rs. 7,20,000

= Rs.7,35,ooo

x 100

x 100

= 3.52 % (or) 4.16 %

Ratio Analysis 255

(7) Earning Per Share Ratio

Earning Per Share Ratio (EPS) measures the earning capacity of the concern from the owner's point

of view and it is helpful in detennining the price of the equity share in the market place. Earning Per Share

Ratio can be calculated as :

Net Profit After Tax and Preference Dividend

Earning Per Share Ratio =

No. of Equity Shares

Advantages

(1) This ratio helps to measure the price of stock in the market place.

(2) This ratio highlights the capacity of the concern to pay dividend to its shareholders.

(3) This ratio used as a yardstick to measure the overall perfonnance of the concern.

Illustration: 15

Calculate the Earning Per Share from the following data :

Net Profit before tax Rs. 2,00,000.

Taxation at 50% of Net Profit.

10 % Preference share capital (Rs. 10 each) Rs. 2,00,000, Equity share capital (Rs. 10 each)

Rs. 2,00,000.

Solution:

Earning Per Equity Share

Net Profit before Tax

Taxation at 50 % of Net Profit

Net Profit after Tax

10 % of Preference Dividend

Net Profit after Tax and

Preference Dividend

No. of Equity Shares

Earning Per Equity Share

=

=

=

=

=

=

=

=

=

=

=

=

=

=

Net Profit After Tax and

Preference Dividend

No. of Equity Shares

Rs. 2,00,000

50

2,00,000 x

100

Rs. 1,00,000

Rs. 2,00,000 - 1,00,000

Rs. 1,00,000

10

2,00,000 x

100

Rs.20,OOO

Rs. 1.00,000 - 20,000

Rs.80,OOO

2,00,000

10

20,000 Shares

80,000

20,000

Rs. 4 Per Share

256 A Textbook of Financial Cost and Management Accounting

(8) Dividend Payout Ratio

This ratio highlights the relationship between payment of dividend on equity share capital and the

profits available after meeting tax and preference dividend. This ratio indicates the dividend policy adopted

by the top management about utilization of divisible profit to pay dividend or to retain or both. The ratio,

thus, can be calculated as :

Dividend Payout Ratio =

=

Illustration: 16

Equity Dividend

Net Profit After Tax and Preference Dividend

(or)

Dividend Per Equity Share

Earning Per Equity Share

x 100

Compute Dividend Payout Ratio from the following data:

Net Profit

Provision for tax

Preference dividend

No. of Equity Shares

Dividend Per Equity Share = 0.30

Solution:

Dividend Payout Ratio

Equity Dividend

Net Profit After Tax

Preference Dividend

Alternatively

Dividend Payout Ratio

Dividend Per Equity Share

Earning Per Equity Share

Dividend Payout Ratio

=

=

=

=

=

=

=

=

=

=

=

Rs. 60,000

Rs. 15,000

Rs. 15,000

Rs. 6,000

Equity Dividend

Net Profit After Tax and Preference Dividend

No. of Equity Shares x Dividend Per Equity Share

6,000 x 0.30

Rs. 1,800

Rs. 60,000 - (15,000 + 15,000)

Rs. 60,000 - 30,000

Rs.30,000

Dividend Per Equity Share

Earning Per Equity Share

0.30

x 100

Net Profit After tax and Preference Dividend

No. of Equity Shares

30,000 = Rs. 5 Per Share

6,000

0.30

x 100

5

6%

x 100

x 100

Ratio Analysis 257

(9) Dividend Yield Ratio:

Dividend Yield Ratio indicates the relationship is established between dividend per share and market

value per share. This ratio is a major factor that determines the dividend income from the inve!>tors' point

of view. It can be calculated by the following formula :

Dividend Per Share

Dividend Yield Ratio = x 100

Market Value Per Share

Illustration: 17

The following details have been given to you for MIs I.M. Pandey Ltd., you are required to find out

(1) Dividend Yield Ratio (2) Dividend Payout Ratio and (3) Earning Per Share Ratio.

10 % Preference Shares of Rs. 10 each

60,000 Equity Shares of Rs. 10 each

Additional Information

Profit after tax at 50 %

Equity Dividend Paid 20 %

Market Price of Equity Share Rs. 30

Solution:

Profit after Tax

Rs. 5,00,000

Rs. 6,00,000

Rs. 11,00,000

=

Less: Preference dividend (10% of 5,00,000) =

Rs.

1,50,000

50,000

Equity Earnings = 1,00,000

Profit after tax and preference dividend

No. of Equity Shares

(J) Dividend Yield Ratio

(2) Earning Per Equity Share

(3) Dividend Payout Ratio

=

=

=

=

=

Rs. 1,00,000

60,000 Shares

Dividend Per Share

Market Value Per Share

20 % ofRs. 10

Rs.30

x 100

2

30

x 100 = 6.66%

x 100

=

Net Profit after tax preference dividend

No. of Equity Shares

=

1,00,000

60,000

= Rs. 1.67 Per Share

=

Dividend Per Equity Share

Earning Per Equity Share

2

= -- x 100

1.67

= 119.76%

x 100

x 100

258

Alternatively

A Textbook of Financial Cost and Management Accounting

Dividend Payout Ratio =

Equity Dividend

-------------------------------xl00

Equity Dividend =

Net Profit After Tax and Preference Dividend

20 % of Rs. 10 = Rs.2

... Equity Dividend for 60,000 Shares = 60,000 x 2 = Rs.l,20,OOO

1,20,000

Dividend Payout Ratio = x 100 1,00,000

= 120%

Illustration: 18

Compute: (1) Earning Per Share (2) Dividend Yield Ratio from the following information:

Net Profit = Rs. 3,00,000

Market Price Per Equity Share = Rs. 40

No. of Equity Shares = 30,000

Provision for Tax = Rs. 50,000

Preference Dividend = Rs. 30,000

Solution:

(1) Earning Per Share =

Net Profit After Tax and Preference Dividend

No. of Equity Shares

(2)

Net Profit After Tax and }

Preference Dividend

Earning Per Share

Dividend Yield Ratio

(10) Price Earning Ratio

=

=

Rs. 3,00,000 - ( 50,000 + 30,(00)

Rs. 3,00,000 - 80,000 = Rs.2,20,OOO

2,20,000

=

30,000

= Rs.7.33

=

Earning Per Share

x 100

Market Value Per Share

7.33 = -- x 100

40

= 18.33%

x 100

This ratio highlights the earning per share reflected by market share. Price Earning Ratio establishes

the relationship between the market price of an equity share and the earning per equity share. This ratio

helps to find out whether the equity shares of a company are undervalued or not. This ratio is also useful

in financial forecasting. This ratio is calculated as :

Price Earning Ratio =

Market Price Per Equity Share

Earning Per Share

Ratio Analysis 259

Illustration: 19

Calculate (1) Earning Per Share (2) Dividend Yield Ratio and (3) Price Earning Ratio from the

following figures:

Net Profit

Market price Per Equity Shares

No. of Equity Shares

Provision for Tax

Preference Dividend

Depreciation

Bank Overdraft

Solution:

(1) Earning Per Share

Net Profit After Tax and }

Preference Dividend

Earning Per Share

(2) Dividend Yield Ratio

(3) Price Earning Ratio

---¥:;- - Rs. 6,00,000

= Rs. 60

= 40,000

= Rs. 1,60,000

= Rs. 50,000

= Rs.70,000

= Rs.50,000

Net Profit After Tax and Preference Dividend

= No. of Equity Shares

= Rs. 6,00,000 - (l,60,000 + 50,000)

= Rs. 6,00,000 - 2,10,000 = Rs. 3,90,000

3,90,000

= 40,000

= Rs.9.75

Earning Per Share

= x 100

Market Value Per Share

9.75

= x 100

60

= 16.25%

=

Market Price Per Equity Share

Earning Per Share

= 60

9.75

= 6.15

Interpretations: The market price of a share is Rs. 60 and earning per share is Rs. 9.75, the price earning

ratio would be 6.15. It means that the market value of every one rupee of earning is 6.15 times or Rs. 6.15.

(11) Net Profit to Net Worth Ratio

This ratio measures the profit return on investment. This ratio indicates the established relationship

between net profit and shareholders' net worth. It is a reward for the assumption of ownership risk. This

ratio is calculated as :

Net Profit to Net Worth

Shareholder Net Worth

Total Tangible Net Worth

=

=

=

=

Net Profit After Taxes

Shareholders' Net Worth

Total Tangible Net Worth

x 100

Company's Net Assets - Long-Term Liabilities

(or)

Shareholders' Funds + Profits Retained in business

260

Advantages

A Textbook of Financial Cost and Management Accounting

(1) This ratio determines the incentive to owners.

(2) This ratio helps to measure the profit as well as net worth.

(3) This ratio indicates the overall performance and effectiveness of the firm.

(4) This ratio measures the efficiency with which the resources of a firm have been employed.

Illustration: 20

Compute Net Profit to Net Worth Ratio from the following data :

Solution:

Net Profit

Provision for Tax

Shareholders' Fund

Dividend to Equity Shares

Dividend to Preference

Shares @ 10 %

Net Profit to Net Worth

Net Profit after Taxes

Total Tangible Net Worth

Profit Retained in Business

Total Tangible Net Worth

Net Profit Net Worth

Net Profit to Net ·Worth Ratio

}

=

=

=

=

=

=

=

=

=

=

Rs.

80,000

15,000

8,00,000

20,000

10,000

Net Profit After Taxes

--------- x 100

Total Tangible Net Worth

Rs. 80,000 - 15,000 = Rs.65, 000

Shareholders' fund + Profit retained in business

Profit - (Taxes + Preference dividend + Equity dividend)

Rs. 80,000 - (15,000 + 20,000 + 10,(00)

Rs. 80,000 - 45,000

Rs.35,OOO

Rs. 8,00,000 + 35,000

Rs. 9,15,000

65,000

9,15,000

7.10 %

x 100 = 7.10%

III. TURNOVER RATIOS

Turnover Ratios may be also termed as Efficiency Ratios or Performance Ratios or Activity Ratios.

Turnover Ratios highlight the different aspect of financial statement to satisfy the requirements of different

parties interested in the business. It also indicates the effectiveness with which different assets are vitalized

in a business. Turnover means the number of times assets are converted or turned over into sales. The

activity ratios indicate the rate at which different assets are turned over.

Depending upon the purpose, the following activities or turnover ratios can be calculated:

1. Inventory Ratio or Stock Turnover Ratio (Stock Velocity)

2. Debtor's Turnover Ratio or Receivable Turnover Ratio (Debtor's Velocity)

2 A. Debtor's Collection Period Ratio

3. Creditor's Turnover Ratio or Payable Turnover Ratio (Creditor's Velocity)

3 A. Debt Payment Period Ratio

Ratio Analysis

4. Working Capital Turnover Ratio

5. Fixed Assets Turnover Ratio

6. Capital Turnover Ratio.

(1) Stock Thrnover Ratio

This ratio is also called as Inventory Ratio or Stock Velocity Ratio.

261

Inventory means stock of raw materials, working in progress and finished goods. This ratio is used to

measure whether the investment in stock in trade is effectively utilized or not. It reveals the relationship

between sales and cost of goods sold or average inventory at cost price or average inventory at selling

price. Stock Turnover Ratio indicates the number of times the stock has been turned over in business

during a particular period. While using this ratio, care must be taken regarding season and condition. price

trend. supply condition etc. In order to compute this ratio, the following formulae are used :

(1) Stock Turnover Ratio =

Cost of Goods Sold =

=

Total Cost of Production =

=

Average Stock =

. (2) Stock Turnover Ratio =

(3) Stock Turnover Ratio =

(4) Stock Turnover Ratio =

Cost of Goods Sold

Average Inventory at Cost

Opening Stock + Purchases + Direct

Expenses - Closing Stock

(or)

Total Cost of Production + Opening Stock

of Finished Goods - Closing Stock of Finished

Goods

Cost of Raw Material Consumed

+ Wages + Factory Cost

(or)

Sales - Gross Profit

Opening Stock + Closing Stock

2

Net Sales

Average Inventory at Cost

Net Sales

Average Inventory at Selling Price

Net Sales

Inventory

The above said formulas can be used on the basis of the information given in the illustration.

Advantages

(1) This ratio indicates whether investment in stock in trade is efficiently used or not.

(2) This ratio is widely used as a measure of investment in stock is within proper limit or not.

(3) This ratio highlights the operational efficiency of the business concern.

(4) This ratio is helpful in evaluating the stock utilization.

262 A Textbook of Financia1 Cost and Management Accounting

(5) It measures the relationship between the sales and the stock in trade.

(6) This ratio indicates the number of times the inventories have been turned over in business

during a particular period.

Illustration: 21

From the following information calculate stock turnover ,ratio:

Solution:

Gross Sales

Sales Return

Opening Stock

Closing Stock at Cost

Purchase

Direct Expenses

Inventory Turnover Ratio

Cost of Goods Sold

Average Stock

Inventory Turnover Ratio

Illustration: 22

=

=

=

=

=

=

Rs. 5,00,000

Rs. 25,000

Rs. 70,000

Rs. 85,000

Rs. 3,00,000

Rs. 1,00.000

Cost of Goods Sold

Average Inventory at Cost

Opening Stock + Purchases + Direct Expenses

- Closing Stock

Rs. 70,000 + 3,00,000 + 1,00,000 - 85,000

Rs. 3,85,000

Opening Stock + Closing Stock

2

70,000 + 85,000

2

= Rs. 77,500

3,85,000

77,500

= 4.97 times

The following figures are extract from the Trading Account of X Ale, you are required to calculate

stock Turnover Ratio :

Solution:

Opening Stock

Purchases

Direct Expenses

Gross Profit

Gross Sales

Sales Return

Closing Stock at Cost

Stock Turnover Ratio

Cost of Goods Sold

=

Rs. 30,000

Rs. 1,10,000

Rs. 10,000

Rs. 75,000

Rs. 2,20,000

Rs. 10,000

Rs. 15,000

Cost of Goods Sold

Average Inventory at Cost

Opening Stock + Purchases

+ Direct Expenses - Closing Stock

Rs. 30,000 + 1,10,000 + 10,000 - 15,000

Rs. 1,35,000

Ratio Analysis

Alternatively

Cost of Goods Sold

Net Sales

Cost of Goods Sold

Average Inventory

Stock Turnover Ratio

Alternatively

Stock Turnover Ratio

(2) Debtor's Turnover Ratio

=

=

=

=

=

=

=

=

=

Sales - Gross Profit

Sales - Sales Return

Rs. 2,20,000 - 10,000 = Rs. 2,10,000

Rs. 2,10,000 - 75,000 = Rs. 1,35,000

Opening Stock + Closing Stock

2

30,000 + 15,000

2

Rs.22,500

1,35,000

=

= 6 times

22,500

Net Sales

Average Inventory at Cost

2,10,000

22,500

45,000

2

= 9.33 times

263

Debtor's Turnover Ratio is also termed as Receivable Turnover Ratio or Debtor's Velocity.

Receivables and Debtors represent the uncollected portion of credit sales. Debtor's Velocity indicates the

number of times the receivables are turned over in business during a particular period. In other words, it

represents how quickly the debtors are converted into cash. It is used to measure the liquidity position of a

concern. This ratio establishes the relationship between receivables and sales. Two kinds of ratios can be

used to judge a firm's liquidity position on the basis of efficiency of credit collection and credit policy.

They are (A) Debtor's Turnover Ratio and (B) Debt Collection Period. These ratios may be computed as :

(1) Debtor's Turnover Ratio =

Net Credit Sales

Accounts Receivable

=

=

Average Accounts Receivable =

Net Credit Sales

Average Receivables

or

Average Accounts Receivable

Total Sales - (Cash Sales + Sales Return)

Sundry Debtors or Trade Debtors

+ Bills Receivable

Opening Receivable + Closing Receivable

2

It is to be noted that opening and closing receivable and credit sales are not available, the ratio may

be calculated as

Total Sales

Debtor's Turnover Ratio =

Accounts Receivable

264

Illustration: 23

A Textbook of Financial Cost and Management Accounting

Calculate Debtor's Turnover Ratio, from the following data:

Sundry Debtors as on

Sundry Debtors as on

Bills Receivable as on

Bills Receivable as on

Total Sales for the year 2003

Sales Return

Cash sales for the year 2003

Solution:

Debtor's Turnover Ratio =

Net Credit Sales =

=

=

Average Accounts Receivable =

=

=

Debtors Turnover Ratio =

1.1.2003

31.12.2003

1.1.2003

31.12.2003

Rs.

70,000

90,000

20,000

30,000

7,00,000

20,000

1,00,000

Net Credit Sales

Average Account Receivable

Total Sales - (Cash Sales + Sales Return)

Rs. 7,00,000 - (1,00,000 + 20,(00)

Rs. 5,80,000

Opening Receivable + Closing Receivable

2

(70,000 + 20,(00) + (90,000 + 30,(00)

2

90,000 + 1,20,000

2

Rs. 1,05,000

5,80,000

1,05,000

=

2,lO,OOO

2

= 5.52 times

2 (A) Debt Collection Period Ratio

This ratio indicates the efficiency of the debt collection period and the extent to which the debt have

been converted into cash. This ratio is complementary to the Debtor Turnover Ratio. It is very helpful to the

management because it represents the average debt collection period. The ratio can be calculated as follows:

(a) Debt Collection Period Ratio =

(b) Debt Collection Period Ratio =

Advantages of Debtor's Turnover Ratio

Months (or)Days in a year

Debtor's Turnover

(or)

Average Accounts Receivable x

Months (or) Days in a year

Net Credit Sales for the year

(1) This ratio indicates the efficiency of firm's credit collection and efficiency of credit policy.

(2) This ratio measures the quality of receivable, i.e., debtors.

Ratio Analysis

(3) It enables a firm to judge the adequacy of the liquidity position of a concern.

(4) This ratio highlights the probability of bad debts lurking in the trade debtors.

265

(5) This ratio measures the number of times the receivables are turned over in business during a

particular period.

(6) It points out the liquidity of trade debtors, i.e., higher turnover ratio and shorter debt collection

period indicate prompt payment by debtors. Similarly, low turnover ratio and higher collection

period implies that payment by trade debtors are delayed :

Illustration: 24

From the following information calculate:

(a) Debtor's Turnover Ratio and

Total Sales

Solution:

Cash Sales

Sales Return

Opening Accounts Receivable

Closing Accounts Receivable

(a) Debtor's Turnover Ratio

Net Credit Sales

Average Receivables

Debtor's Turnover Ratio

(b) Debt Collection Period Ratio

Alternatively

Debt Collection Period Ratio

=

=

=

=

(b) Debt Collection Period Ratio.

Rs. 1,00,000

Rs. 25,000

Rs. 5,000

Rs. 10,000

Rs. 15,000

Net Credit Sales

Average Receivables

Total Sales - (Cash Sales + Sales Return)

Rs. 1,00,000 - (25,000 + 5,000)

Rs.70,000

Opening Receivables + Closing Receivables

= 2

10,000 + 15,000

2

25,000

=

=

=

=

70,000

12,500

=

= 5.6 times

Month (or) Days in a year

Debtor's Turnover

12

5.6

= 2.14 months

=

=

Average Accounts Receivable x

Months in a year

Net Credit Sales for the year

12,500 x 12

70,000

= 2.14 months

2

= Rs. 12,500

266

Illustration: 25

A Textbook of Financial Cost and Management Accounting

From the following profit and loss Account and balance sheet relating to Ramesh Company

presented as on 31 st March, 2003 :

Dr. Profit and Loss Ac<;ount

Particulars Rs. Particulars

To Opening Stock 3,000 By Gross Sales

To Purchase 1,20,000 Less: Sales Return

To Wages (Direct) 7,000 By Closing Stock

To Gross Profit cld 70,000

2,00,000

To Administrative Expn. 15,000 By Gross Profit bId

To Selling and } By Dividend Received

Distribution expenses 20,000

To Loss on sale of }

Fixed Assets 5,000

To Net Profit 40,000

80,000

Balance Sheet as on 31st March 2002

Liabilities Rs. Assets

Equity Share Capital 5,00,000 Land

(5000 Equity Shares of 100 each) Building

General Reserve 50,000 Plant & Machinery

Profit and Loss Alc 70,000 Stock

Sundry Creditors 80,000 Debtors

Bank Balance

7,00,000

From the above information you are required to calculate:

(1) Gross Profit Ratio.

(2) Operating Ratio.

(3) Operating Profit Ratio.

(4) Net·Profit to Capital Employed Ratio.

(5) Current Ratio.

(6) Liquid Ratio.

(7) Stock Turnover Ratio.

(8) Debtor's Turnover Ratio.

(9) Debt Collection Period Ratio.

Solution:

Gross Profit

(1) Gross Profit Ratio ::; x 100

Net Sales

70,000

= x 100

1,95,000

= 35.89%

Cr.

Rs. Rs.

Rs. 2,00,000

Rs.5,OOO 1,95,000

5,000

2,00,000

70,000

10,000

80,000

Rs.

1,50.000

2,00,000

2,00,000

80,000

50,000

20,000

7,00,000

Ratio Analysis 267

Operating Cost

(2) Operating Ratio = x 100 Net Sales

Operating Cost = Cost of goods sold + Administrative

Expenses + Selling and distribution Expenses

Cost of Goods Sold = Opening Stock + Purchases + Direct Wages

- Closing Stock

= Rs. 3,000 + 1,20,000 -+ 7,000 - 5,000

= Rs. 1,30,000 - 5,000 = Rs.l,25,OOO

Operating Cost = Rs. 1,25,000 + 15,000 + 20,000

= Rs. 1,60,000

1,60,000

Operating Ratio = x 100 = 82.05%

1,95,000

(3) Operating Profit Ratio

Operating Profit

= x 100 Net Sales

Operating Profit = Net Sales - Total Operating Cost

= Rs. 1,95,000 - 1,60,000 = Rs. 35,000

35,000

Operating Profit Ratio = x 100

1,95,000

= 17.94%

Net Profit

(4) Net Profit TO -Capital Employed Ratio = x 100

Capital Employed

Capital Employed = Share Capital + General Reserve

+ Profit and Loss Nc

= Rs. 5,00,000 + 50,000 + 70,000

= Rs. 6,20,000

40,000

Net Profit to Capital Employed Ratio = x 100

6,20,000

= 6.45 %

Current Assets

(5) Current Ratio = Current Liabilities

Current Assets = Stock + Debtors + Bank Balances

= Rs. 80,000 + 50,000 + 20,000

= Rs. 1,50,000

1,50,000

Current Ratio = 80,000

= 1.88 (or) 1.88 :1

(6) Liquid Ratio =

Liquid Assets

Current Liabilities

Liquid Assets = Current Assets - Stock and Prepaid Expenses

= Rs. 1,50,000 - 80,000

= Rs.70,000

70,000

Liquid Ratio = ---

80,000

= 87.5 (or) 87.5 : 1

268

(7) Stock Turnover Ratio

Average Inventory

Stock Turnover Inventory

Alternatively

Stock Turnover Ratio

(8) Debtor's Turnover Ratio

=

=

=

A Textbook of Financial Cost and Management Accounting

Cost of Goods Sold

Average Inventory

Opening Stock + Closing Stock

2

3,000 + 5,000

2

= Rs.4,000

1,25,000

= 4,000

= 31.25 times

•

Net Sales

= Average Inventory

1,95,000

= = 48.75 times

4,000

Net Credit Sales

= Average Receivables

It is to be noted that credit sales, opening and closing receivables are not given in the problem, the ratio may be

calculated as :

Debtor's Turnover Ratio

(9) Debt Collection Period Ratio

(3) Creditor's Thrnover Ratio

=

=

Total Sales

Accounts Receivable

1,95,000

50,000

= 3.9 times

=

=

=

Month or Days in II year

Debtor's Turnover

365 days

3.9

(or)

12 months

3.9

= 93.58 days

= 3.07 months

Creditor's Turnover Ratio is also called as Payable Turnover Ratio or Creditor's Velocity. The credit

purchases are recorded in the accounts of the buying companies as Creditors to Accounts Payable. The

Term Accounts Payable or Trade Creditors include sundry creditors and bills payable. This ratio

establishes the relationship between the net credit purchases and the average trade creditors. Creditor's

velocity ratio indicates the number of times with which the payment is made to the supplier in respect of

Ratio Analysis 269

credit purchases. Two kinds of ratios can be used for measuring the efficiency of payable of a business

concern relating to credit purchases. They are: (1) Creditor's Turnover Ratio (2) Creditor's Payment Period

or Average Payment Period. The ratios can be calculated by the following formulas:

(1) Creditor's Turnover Ratio =

Net Credit Purchases =

Average Accounts Payable =

(2) Average Payment Period =

=

Net Credit Purchases

Average Accounts Payable

Total Purchases - Cash Purchases

Opening Payable + Closing Payable

2

Month (or) Days in a year

Creditors Turnover Ratio

(or)

Average Trade Creditors

Net Credit Purchases

x 365

Significance: A high Creditor's Turnover Ratio signifies that the creditors are being paid promptly. A

lower ratio indicates that the payment of creditors are not paid in time. Also, high average payment period

highlight the unusual delay in payment and it affect the creditworthiness of the firm. A low average payment

period indicates enhancing the creditworthiness of the company.

Illustration: 26

From the following information calculate (1) Creditor's Turnover Ratio and (2) Average Payment

Period

Total Purchase

Cash Purchases

Purchase Return

Sundry Creditors 1.1.2003

Sundry Creditors 31.12.2003

Bills Payable 1.1.2003

Bills Payable 31.12.2003

Solution:

(1) Creditor's Turnover Ratio

Net Credit Purchases

Average Accounts Payable

=

Rs.

3,00,000

1,75,000

25,000

30,000

15,000

7,000

8,000

Net Credit Purchases

Average Accounts Payables

= Total Purchases - (Cash Purchases + Purchase Return)

= Rs. 3,00,000 - (1,75,000 + 25,000)

= Rs. 1,00,000

=

=

Opening payable + Closing payable

2

(30,000 + 7,000) + (15,000 + 8000)

2

270

=

Creditor's Turnover Ratio =

(2) Average Payment Period =

=

=

Alternatively

Average Payment Period =

A Textbook of Financial Cost and Management Accounting

60,000

2

1,00,000

30,000

= Rs. 30,000

= 3.33 times

Month or Days in a year

Creditor's Turnover Ratio

12 months

3.33

(or)

365 days

3.33

= 3.60 months

= 109.61 days

Average Trade Creditors

Net Credit Purchases

30,000

1,00,000

x 365

x 365

= 109.5 days

(4) Working Capital Thrnover Ratio

This ratio highlights the effective utilization of working capital with regard to sales. This ratio

represent the firm's liquidity position. It establishes relationship between cost of sales and networking

capital. This ratio is calculated as follows :

Net Sales

Working Capital Turnover Ratio =

Working Capital

Net Sales = Gross Sales - Sales Return

Work Capital = Current Assets - Current Liabilities

Significance: It is an index to know whether the working capital has been effectively utilized or not in

making sales. A higher working capital turnover ratio indicates efficient utilization of working capital, i.e., a

firm can repay its fixed liabilities out of its working capital. Also, a lower working capital turnover ratio shows

that the firm has to face the shortage of working capital to meet its day-to-day business activities unsatisfactorily.

Illustration: 27

Calculate Working Capital Turnover Ratio :

Current Assets Rs. 3,20,000

Current Liabilities Rs. 1,10,000

Gross Sales Rs. 4,00,000

Sales Return Rs. 20,000

Ratio Analysis

Solution:

Working Capital Turnover Ratio

Net Sales

Working Capital

Working Capital

Working Capital Turnover Ratio

=

=

=

=

=

=

=

Net Sales

Working Capital

Gross Sales - Sales Return

Rs. 4,00,000 - 20,000

Rs. 3,80,000

Current Assets - Current Liabilities

Rs. 3,20,000 - 1,10,000

Rs. 2,10,000

3,80,000

2,10,000

= 1.80 times

IIIustration: 28

The following information is given about MIs Gowda Ltd. for the year ending Dec. 31't 2003 :

Find Out

Solution:

(a) Share Capital Rs. 8,40,000

(b) Bank Overdraft Rs. 50,000

(c) Working Capital Rs. 2,52,000

(d) Current Ratio = 2.5 :1

(e) Quick Ratio = 1.5 : 1

(t) Gross Profit Ratio = 20 % on sales

(g) Stock Turnover Ratio = 5 times

(h) Sales for 2003 Rs. 5,00,000

(i) Trade Debtors Rs. 70,000

(j) Opening Creditors Rs. 40,000

(k) Closing Creditors Rs. 30,000

(I) Closing Stock is Rs. 20,000 higher than the opening stock

(a) Current Assets and Current Liabilities.

(b) Cost of goods sold, Average stock and Purchases.

(c) Creditor's Turnover Ratio.

(d) Creditor's Payment Period.

(e) Debtor's Turnover Period.

(t) Debtor's Collection Period.

(g) Working Capital Turnover Ratio.

(a) Current Assets and Current Liabilities:

Working Capital

.. Rs. 2,52,000

1.5

Therefore

Current Assets

Current Liabilities

=

=

=

Current Assets - Current Liabilities

2.5 - 1

Rs. 2,52,000

2,52,000

1.5

= Rs. 1,68,000

=

=

Rs. 1.68,000 x 2.5 = Rs. 4,20,000

Rs. 1,68.000 x 1 = Rs. 1,68,000

271

272 A Textbook of Financial Cost and Management Accounting

(b) Cost of goods sold, Average Stock and Purchases:

Cost of Goods Sold = Sales - Gross Profit

= Rs. 5,00,000 - 20 % on sales

= Rs. 5,00,000 - 1,00,000

= Rs. 4,00,000

Average Stock

Cost of Goods Sold

Stock Turnover Ratio

Average Stock

4,00,000

5 times =

Average Stock

4,00,000

Average Stock =

5

= Rs.80,000

Purchases

Cost of Goods Sold = Opening Stock + Purchases - Closing Stock

Purchases Cost of Goods Sold + Closing Stock

- Opening Stock

Average Stock

Opening Stock + Closing Stock

=

2

Since closing stock is Rs. 20,000 higher than the opening stock

(c)

Rs.80,000 =

Rs. 1,60,000 =

Opening Stock

=

Closing Stock

Purchases =

Creditor's Thrnover Ratio

Creditor's Turnover Ratio =

All Purchases taken as credit purchases

Average Trade Creditors =

Average Trade Creditors =

=

Opening Stock + ( Rs.20,000 + Opening Stock)

2

2 Opening Stock + Rs.20,000

1,60,000 - 20,000 1,40,000

2 2

Rs.70,000

Rs. 70,000 + Rs. 20,000 = Rs. 90,000

Rs. 4,00,000 + 90,000 - 70,000 = Rs. 4,20,000

Net Credit Purchases

Average Trade Creditors

Opening Creditors + Closing Creditors

2

Rs. 40,000 + Rs. 30,000

2

Rs.70,000

2

= Rs.35,000

Ratio Analysis

(d) Creditor's Payment Period

Creditor's Payment Period =

=

Month or Days in a year

Creditor's Turnover Ratio

12 months

12

= 1 month

Alternatively

Creditor's Payment Period =

=

Average Trade Creditor's x No. of Working Days

Net Credit Purchases

35,000 x 365

4,20,000

= 30.41 days

(e) Debtor's Thrnover Ratio

Net Credit Sales

Debtor's Turnover Ratio =

Average Trade Debtor's

273

It is to be noted that credit sales, opening and closing receivables are not given in the problem, so the ratio may

be calculated as :

Debtor's Turnover Ratio =

=

Total Sales

Accounts Receivable or Trade Debtor's

Rs. 5,00,000

Rs. 70,000

= 7.14 times

(f) Debtors Collection Period

Debtor's Collection Period =

=

Month or Days in a year

Debtor's Turnover Ratio

12 months

7.14

= 1.68 months

Alternatively

Debtor's Collection Period =

=

Average Trade Debtors x No. of Working Days

Net Annual Sales

70,000 x 365

5,00,000

= 51.1 days

274 A Textbook of Financial Cost and Management Accounting

(g) Working Capital Thrnover Ratio

Working Capital Turnover

Ratio

=

=

Cost of Goods Sold

Net Working Capital

Rs. 4.00.000

Rs. 2.50,000

= 1.6 times

(5) Fixed Assets Thrnover Ratio

This ratio indicates the efficiency of assets management. Fixed Assets Turnover Ratio is used to

measure the utilization of fixed assets. This ratio establishes the relationship between cost of goods sold

and total fixed assets. Higher the ratio highlights a firm has successfully utilized the fixed assets. If the

ratio is depressed, it indicates the under utilization of fixed assets. The ratio may also be calculated as:

Fixed Assets Turnover Ratio =

=

Cost of Goods Sold

Total Fixed Assets

(or)

Sales

Net Fixed Assets

Components of Fixed Assets (or) Non-Current Assets

(1) Goodwill

(2) Land and Building

(3) Plant and Machinery

(4) Furniture and Fittings

(5) Trade Mark

(6) Patent Rights and Livestock

(7) Long-Term Investment

(8) Debt Balance of Profit and Loss Account

(9) Discount on Issue of Shares

(10) Discount on Issue of Debenture

(11) Preliminary Expenses

(12) Other Deferred Expenses

(14) Government or Trust Securities

(15) Any other immovable Prosperities

Ratio Analysis

Illustration: 29

Find out Fixed Assets Turnover Ratio from the following information :

Total Fixed Assets

Gross Profit

Net Sales

Debenture

Share Capital

Solution:

=

=

=

=

=

Fixed Asset Turnover Ratio =

Cost of Goods Sold =

=

=

Fixed Assets Turnover Ratio =

Rs. 6,00,000

20 % on sales

Rs. 8,00,000

Rs. 2,00,000

Rs. 3,00,000

Cost of Goods Sold

Total Fixed Assets

Sales - Gross Profit

Rs. 8,00,000 - 20 % on sales

Rs. 8,00,000 - 1,60,000 = Rs. 6,40,000

Rs. 6,40,000

Rs. 6,00,000

= 1.06 times

Alternatively

Sales

Fixed Assets Turnover Ratio =

Net Fixed Assets

Rs. 8,00,000

=

Rs. 6,00,000

= 1.33 times

Illustration: 30

From the following information find out Fixed Assets Turnover Ratio :

Solution:

Opening Stock

Purchases

Closing Stock

Sales

Total Fixed Assets

Depreciation

Rs.

Rs.

Rs.

Rs.

Rs.

Rs.

Fixed Assets Turnover Ratio =

Cost of goods sold =

=

=

Fixed Assets Turnover Ratio =

40,000

3,00,000

60,000

5,00,000

6,25,000

25,000

Cost of Goods Sold

Total Fixed Assets

Opening Stock + Purchases - Closing Stock

Rs. 40,000 + 3,00,000 - 60,000

Rs. 2,80,000

2,80,000

6,25,000

= 0.448 times

275

276 A Textbook of Financial Cost and Management Accounting

Alternatively

Sales

Fixed Assets Turnover Ratio =

Net Fixed Assets

Net Fixed Assets = Total Fixed Assets - Depreciation

= Rs. 6,25,000 - 25,000 = Rs. 6,00,000

5,00,000

Fixed Assets Turnover Ratio =

6,00,000

= 0.83 times

Illustration: 31

Find out Fixed Assets Gross Profit and Cost of Sales from the following information :

Sales Rs. 5,00,000

Gross Profit Ratio 20 %

Fixed Assets Turnover Ratio (on cost of sales) 4 times

Solution:

Gross Profit = Sales x Gross Profit Ratio

= Rs. 5,00,000 x 20 %

20

= 5,00,000 x

100

= Rs. 1,00,000

Cost of Sales = Sales - Gross Profit

= Rs. 5,00,000 - 1,00 000 = Rs. 4,00,000

Cost of Sales

Fixed Assets Turnover = Fixed Assets

Rs. 4,00,000

4 = Fixed Assets

Fixed Assets =

4,00,000 = Rs. 1,00,000

4

(6) Capital Turnover Ratio

This ratio measures the efficiency of capital utilization in the business. This ratio establishes the

relationship between cost of sales or sales and capital employed or shareholders' fund. This ratio may illso

be calculated as :

(1) Capital Turnover Ratio =

Capital Employed =

=

(2) Capital Turnover Ratio =

Cost of Sale~ Sales

(or)

Capital Employed C!lpital Employed

Shareholders' Funds + Long-Term Loans

(or)

Total Assets - Current Liabilities

Cost of Sales Sales

Shareholders' Fund

(or)

Shareholders' Fund

Ratio Analysis

Components of Capital Employed (Shareholders' Fund + Long-Term Loans)

(1) Equity Share Capital

(2) Preference Share Capital

(3) Debentures

(4) Long-Tenn Loans

(5) Share Premium

(6) Credit Balance of Profit and Loss Account

(7) Capital Reserve

(8) General Reserve

(9) Provisions

(10) Appropriation of Profits

Illustration: 32

277

From the following infonnation find out (a) Cost of Sales (b) Capital Employed and (c) Capital

Turnover Ratio.

Solution:

Total Assets

Bills Payable

Sundry Creditors

Opening Stock

Purchases

Closing Stock

(a) Cost of Sales

(b) Capital Employed

(3) Capital Turnover Ratio

Illustration: 33

Equity Share Capital

General Reserve

Preference Share Capital

Long-Term Loans

Profit and Loss Account

(Credit Balance)

Total Sales

Gross Profit

=

=

=

=

=

=

=

Rs.

10,00,000

1,50,000

75,000

50,000

3,00,000

60,000

Opening Stock + Purchases - Closing Stock

Rs. 5,00,000 + 4,00,000 - 60,000

Rs. 3,90,000

Total Assets - Current Liabilities

Rs. 10,00,000 - 2,25,000 = Rs. 7,75,000

Cost of Sales

Capital Employed

3,90,000

7,75,000

= 0.50 times

Rs. 3,00,000

Rs. 50,000

Rs. 2,00,000

Rs. 1,50,000

Rs. 70,000

Rs. 10,00,000

Rs. 80,000

From the above information find out Capital Turnover Ratio

278

Solution:

Capital Turnover Ratio

Capital Employed

Capital Turnover Ratio

Alternatively

Capital Turnover Ratio

Cost of Sales

Capital Turnover Ratio

=

=

=

=

=

A Textbook of Financial Cost and Management Accounting

Sales

Capital Employed

Shareholder fund + Long-Term Loans

Equity Share Capital + General Reserve

+ Preference Share Capital + Long-Term Loans

+ Credit Balance of P & L Alc

Rs. 3,00,000 + 50,000 + 2,00,000 + 1,50,000 + 70,000

Rs. 7,70,000

10,00,000

7,70,000

1.29 times

Cost of Sales

Capital Employed

Sales - Gross Profit

Rs. 10,00,000 - Rs. 80,000

Rs. 9,20,000

9,20,000

7,70,000

1.19 times

IV. SOLVENCY RATIOS

The term 'Solvency' generally refers to the capacity of the business to meet its short-term and longterm

obligations. Short-term obligations include creditors, bank loans and bills payable etc. Long-term

obligations consists of debenture, long-term loans and long-term creditors etc. Solvency Ratio indicates

the sound financial position of a concern to carryon its business smoothly and meet its all obligations.

Liquidity Ratios and Turnover Ratios concentrate on evaluating the short-term solvency of the concern

have already been explained. Now under this part of the chapter only the long-term solvency ratios are

dealt with. Some of the important ratios which are given below in order to determine the solvency of the

concern :

(1) Debt - Equity Ratio

(2) Proprietary Ratio

(3) Capital Gearing Ratio

(4) Debt Service Ratio or Interest Coverage Ratio

(1) Debt Equity Ratio

This ratio also termed as External - Internal Equity Ratio. This ratio is calculated to ascertain the

firm's obligations to creditors in relation to funds invested by the owners. The ideal Debt Equity Ratio is

1: 1. This ratio also indicates all external liabilities to owner recorded claims. It may be calculated as

Ratio Analysis

(a) Debt - Equity Ratio =

(b) Debt - Equity Ratio =

External Equities

Internal Equities

(or)

Outsider's Funds

Shareholders' Funds

279

The term External Equities refers to total outside liabilities and the term Internal Equities refers to all

claims of preference shareholders and equity shareholders' and reserve and surpluses.

(c) Debt - Equity Ratio =

(d) Debt - Equity Ratio =

Total Long-Term Dept

Total Long-Term Funds

(or)

Total Long-Term Debt

Shareholders' Funds

The term Total Long-Term Debt refers to outside debt including debenture and long-term loans raised

from banks.

Illustration: 34

From the following figures calculate Debt Equity Ratio :

Preference Share Capital

Equity Share Capital

Capital Reserve

Profit and Loss Account

6 % Debenture

Sundry Creditors

Bills Payable

Provision for taxation

Outstanding Creditors

Solution:

(a) Debt Equity Ratio

External Equities

Internal Equities

=

=

=

=

=

=

=

Rs.

1,50,000

5,50,000

2,00,000

1,00,000

2,50,000

1,20,000

60,000

90,000

80,000

External Equities

Internal Equities

Debenture + Sundry Creditors

+ Bills Payable + Provision for taxation

+ Outstanding Creditors

Rs. 2,50,000 + 1,20,000 + 60,000 + 90,000 + 80,000

Rs.6,00,000

Preference Share Capital + Equity Share Capital

+ Capital Reserve + Profit and Loss Alc

Rs. 1,50,000 + 5,50,000 + 2,00,000 + 1,00.000

Rs. 10,00,000

280

Debt Equity Ratio

(b) Dept Equity Ratio

Total Long-Term Debt

Shareholders' Fund

Debt-Equity Ratio

(c) Debt Equity Ratio

(d) Debt Equity Ratio

Outsider's Fund

Debt Equity Ratio

=

=

=

=

=

A Textbook of Financial Cost and Management Accounting

6,00,000

10,00,000

= 0.6 (or) 3 : 5

Total Long-Term Debt

Shareholders' Funds

Rs. 2,50,000

Rs. 10,00,000

Rs. 2,50,000

Rs. 10,00,000

= 0.25

==

=

Total Long-term Debt

Total Long-term Funds

2,50,000

12,50,000

= 0.2

=

=

=

=

Outsider's Fund

Shareholders' Fund

Total Outside Liabilities

Rs. 6,00, 000

6,00,000

10,00,000

= 0.6 (or) 3 : 5

Significance: This ratio indicates the proportion of owner's stake in the bu.siness. Excessive liabilities

tend to cause insolvency. This ratio also tell the extent to which the firm depends upon outsiders for its existence.

(2) Proprietary Ratio

Proprietary Ratio is also known as Capital Ratio or Net Worth to Total Asset Ratio. This is one of the

variant of Debt-Equity Ratio. The term proprietary fund is called Net Worth. This ratio shows the

relationship between shareholders' fund and total assets. It may be calculated as :

Proprietary Ratio =

Shareholders' Fund =

Total Assets =

Shareholders' Fund

Total Assets

Preference Share Capital + Equity Share Capital

+ All Reserves and Surplus

Tangible Assets + Non-Tangible Assets

+ Current Assets (or) All Assets including Goodwill

Significance : This ratio used to determine the financial stability of the concern in general.

Proprietary Ratio indicates the share of owners in the total assets of the company. It serves as an indicator

to the ~reditors who can find out the proportion of shareholders' funds in the total assets employed in the

business. A higher proprietary ratio indicates relatively little secure position in the event of solvency of a

concern. A lower ratio indicates greater risk to the creditors. A ratio below 0.5 is alarming for the creditors.

Ratio Analysis

Illustration: 35

From the following infonnations calculate the Proprietary Ratio :

Preference Share Capital

Equity Share Capital

Capital Reserve

Profit and Loss Account

9% Debenture

Sundry Creditors

Bills Payable

Land and Building

Plant and Machinery

Goodwill

Investments

Solution:

Proprietary Ratio

Shareholders' Fund

Total Assets

Proprietary Ratio

(3) Capital Gearing Ratio

=

=

=

=

=

=

=

Rs.

2,00,000

4,00,000

50,000

50,000

2,00,000

50,000

50,000

2,00,000

2,00,000

1,00,000

3,00,000

Shareholders' Fund

Total Assets

Preference Share Capital + Equity Share Capital

+ Capital Reserve + Profit and Loss Accol,lnt

Rs. 2,00, 000 + 4,00,000 + 50,000 + 50,000

Rs.7,OO,OOO

Land and Building + Plant and Machinery

+ Goodwill + Investments

Rs. 2,00,000 + 2,00,000 + 1,00,000 + 3,00,000

Rs. 8,00,000

7,00,000

8,00,000

= 87.5% (or) 0.87

281

This ratio also called as Capitalization or Leverage Ratio. This is one of the Solvency Ratios. The

tenn capital gearing refers to describe the relationship between fixed interest and/or fixed dividend bearing

securities and the equity shareholders' fund. It can be calculated as shown below:

Capital Gearing Ratio =

Equity Share Capital =

Fixed Interest Bearing Funds =

Equity Share Capital

Fixed Interest Bearing Funds

Equity Share Capital + Reserves and Surplus

Debentures + Preference Share Capital

+ Other Long-Tenn Loans

A high capital gearing ratio indicates a company is having large funds bearing fixed interest and/or

fixed dividend as compared to equity share capital. A low capital gearing ratio represents preference share

capital and other fixed interest bearing loans are less than equity share capital.

282

Illustration: 36

A Textbook of Financial Cost and Management Accounting

From the following information, you are requited to find out Capital Gearing Ratio

Solution:

Preference Share Capital

Equity Share Capital

Capital Reserve

Profit and Loss Account

12% Debenture

Secured loan

Capital Gearing Ratio

Equity Share Capital

Fixed Interest Bearing Funds

Capital Gearing Ratio

(4) Debt Service Ratio

=

=

=

=

=

=

=

;::

Rs.

5,00,000

6,00,000

3,00,000

1,00,000

3,00,000

1,00,000

Equity Share Capital

Fixed Interest Bearing Funds

Equity Share Capital + Capital Reserve

+ Profit and Loss Account

Rs. 6,00,000 + 3,00,000 + 1,00,000

Rs. 10,00,000

Debenture + Preference Share Capital

+ Secured Loans

Rs. 3,00,000 + 5,00,000 + 1,00,000

Rs. 9,00,000

10,00,000

9,00,000

= 10 : 9 (Low Gear)

Debt Service Ratio is also termed as Interest Coverage Ratio or Fixed Charges Cover Ratio. This

ratio establishes the relationship between the amount of net profit before deduction of interest and tax and

the fixed interest charges. It is used as a yardstick for the lenders to know the business concern will be able

to pay its interest periodically. Debt Service Ratio is calculated with the help of the following formula :

Interest Coverage Ratio =

Illustration: 37

Solution:

Calculate Interest Coverage Ratio :

Profit before Interest

Income Tax Paid

Interest On Debenture

Interest on Long-Term Loan

Interest Coverage Ratio =

Net Profit before Interest }

and Taxes =

=

Net Profit before Interest and Income Tax

Fixed Interest Charges

:: Rs. 7,00,000

= Rs. 50,000

= Rs. 3,00,000

= Rs. 1,00,000

Net Profit before Interest and Income Tax

Fixed Interest Charges

Rs. 7,00,000 + 50,000

Rs. 7,50,000

x 100

x 100

Ratio Analysis

Fixed Interest Charges

Interest Coverage Ratio

=

=

=

Rs. 3,00,000 + 1,00,000

Rs. 4,00,000

7,50,000

x 100

4,00,000

= 187.5 % (or) 1.87 :1

283

Significance: Higher the ratio the more secure the debentureholders and other lenders would be with

respect to their periodical interest income. In other words, better is the position of long-term creditors and the

company's risk is lesser. A lower ratio indicates that the company is not in a position to pay the interest but

also to repay the principal loan on time.

V. OVERALL PROFITABILITY RATIO

This ratio used to measure the overall profitability of a firm on the extent of operating efficiency it

enjoys. This ratio establishes the relationship between profitability on sales and the profitability on

investment turnover. Overall all Profitability Ratio may be calculated in the following ways:

Overall Profitability Ratio =

Net Profit

Sales

DU Pont Control Chart (or) DU Pont Analysis

Sales

x

Total Assets

ROI indicates the efficiency of the concern which depends upon the working operations of the

concern. Net Profit Ratio and Capital Turnover Ratio, as often called is usually computed on the basis of

the chart represented by DU Pont. Thus it is known as "DU Pont Chart." This system of control was

applied for the first time by DU Pont company of the United States of America. The DU Pont chart helps

to the management to identify the areas of problems for the variations in the return on investment so that

actions may initiated to improve the performance. The following chart can explain the ROI effect by a

number of factors.

Net Profit Ratio

(Net Profit/Sales)

1

Operating Ratio

(Operating Cost/Sales)

1

Cost of Goods Sold

Return on Investment (ROI)

r Office &

[

Net Profit J

Capital Employed

~

~

Fixed Asset Turnover Ratio

(Sales / Fixed Assets)

~

Selling and

Administrative Expenses Distribution Expenses

~

Capital Turnover Ratio

(Sales/Capital Employed)

k

~

Working Capital

Turnover Ratio

(Sales/Working Capital)

1 Working Capital

(Current Assets - Current Liabilities)

284

Illustration: 38

A Textbook of Financial Cost and Management Accounting

The following are the Profit and Loss Account and Balance Sheet of Mrs. Sharma Ltd. for the

purpose of analysis and calculate (a) Liquidity Ratios (b) Profitability Ratios (c) Turnover Ratios

(d) Solvency Ratios and (e) Overall Profitability Ratio.

Dr. Profit and Loss Account of Sharma Ltd. Cr.

Particulars Rs. Particulars Rs.

To Opening Stock:

Raw Materials 25,000 By Sales 5,00,000

Finished goods 50,000 By Closing Stock:

To Purchases 1,50,000 Raw Materials 75,000

To Wages 1,00,000 Finished Goods 50,000

To Factory Expenses 50,000 By Profit on Sale of Investments 25,000

To Administrative Expenses 25,000

To SelJing & Distribution Expenses 25,000

To Loss on Sale of Machinery 25,000

To Interest on Debenture 5,000

To Net Profit 1,95,000

6,50,000 6,50,000

Balance Sheet

liabilities Rs. Assets Rs.

Equity Share Capital @ Rs. 10 each 50,000 Plant & Machinery 50,000

10% Preference Share Capital 50,000 Land & Building 50,000

Retained Earnings 50,000 Furniture 25,000

12 % Debenture 1,00,000 Stock of raw material 75,000

Sundry Creditors 50,090 Sundry Debtors 50.000

BiIIs Payable 25,000 Bank Balance 25,000

Stock of finished goods 50,000

3,25,000 3,25,000

Solution:

Profit and Loss Account of MIs Sharma Ltd.

Particulars Rs. Particulars Rs.

To Opening Stock: By Sales 5,00,000

Raw Materials 25,000

Add : Purchases 1,50,000

1,75,000

Less: Closing Stock of Raw Materials 75,000

Raw Materials Consumed -1 1,00,000

To Wages 1,00,000

To Factory Expenses 50,000

Cost of Production - 2 2,50,000

Add : Opening Stock of Finished Goods 50,000

3,00,000

Less : Closing Stock of Finished Goods 50,000

Cost of Goods Sold - 3 2,50,000

To Gross Profit c/d 2,50,000

5,00,000 5,00,000

Ratio Analysis 285

To Administrative Expenses 25,000

To Selling and Distribution Expenses 25,000 By Gross Profit bId 2,50,000

Operating Expenses - 5 50,000

To Operating Profit cld - 6 2,00,000

2,50,000 2,50,000

To Loss on Sale of Plant 25,000 By Operating Profit bId 2,00,000

To Interest on Debenture 5,000 By Profit on Sale of investment

Non-operating Expenses - 7 30,000 (Non-operating income) 25,000

To Net Profit - 8 1,95,000

2,25,000 2,25,000

Balance Sheet

Particulars Rs. Rs.

Plant and Machinery 50,000

Land and Building 50,000

Furniture 25,000

Fixed Assets - I 1,25,000

Bank Balances 25,000

Sundry Debtors 50,000

Liquid Assets - 2 75,000

Stock of Raw Materials 75,000

Stock of Finished Goods 50,000

Current Assets - 3 2,00,000

Sundry Creditors 50,000

Bills Payable 25,000

Current Liabilities - 4 75,000

Working Capital (3 - 4) = 5 1,25,000 1,25,000

(Current Assets - Current Liabilities)

Capital Employed ( 1+5) = 6 2,50,000

(Fixed Assets + Working Capital)

Less: Long-Term Debt:

12 % Debenture 1,00,000

Shareholders' Fund - 7 1,50,000

Less: Preference Share Capital 50,000

Equity Shareholders' Fund or Net Worth - 8 1,00,000

Net Worth Represented by : ,

Equity Share Capital 50,000

Retained Earnings 50,000

Equity Shareholders' Net Worth 1,00,000

Gross Profit

(1) Gross Profit Ratio = x 100

Sales

2,50,000

= x 100 = 50%

5,00,000

286 A Textbook of Financial Cost and Management Accounting

Net Profit

(2) Net Profit Ratio = x 100

Sales

1,95,000

= x 100 = 39%

5,00,000

Operating Cost

(3) Operating Ratio = x 100 Sales

50,000

= x 100 = 10%

5,00,000

Operating Profit

(4) Operating Profit Ratio = x 100

Sales

2,00,000

= x 100 = 40%

5,00,000

Net Profit after Interest and Tax

(5) Return on Investment Ratio = x 100

Shareholders' Fund

Net Profit after Interest & = Net Profit - (Interest and Taxes)

Tax Net Profit = Rs. 1,95,000

12% on Debenture = Rs. 18,000

Net Profit after Interest & Tax = Rs. 1,95,000 - 18,000

= Rs. 1,77.000

1,77,000

Return on Investment Ratio = x 100

1,50,000

= 118%

(6) Return on Capital } Net Profit after Tax

Employed Ratio = x 100

Capital Employed

1,95,000

= x 100

2,50,000

= 78%

(7) Earning Per Equity } Net Profit after and Preference Dividend

Share Ratio =

No. of Equity Shares

1,95,000

= = Rs. 39

5,000

Net Profit after Taxes

(8) Net Profit to Net Worth Ratio = x 100

Shareholders' Net Worth

1,95,000

= x 100 = Rs. 130%

1,50,000

Ratio Analysis

(9) Stock Turnover Ratio (or) }

Stock Velocity =

Average Stock

Stock Turnover Ratio

(10) Debtors' Turnover Ratio

(11) Creditors' Turnover Ratio

(12) Working Capital Turnover

Ratio

( 13) Fixed Assets Turnover Ratio

(14) Capital Turnover Ratio

(15) Current Ratio

=

=

=

=

=

=

=

=

=

=

=

=

=

=

=

=

=

Cost of Goods Sold

Average Stock

Opening Stock + Closing Stock

2

(25,000 + 50,000) + (75,000 + 50,000)

2

75,000 + 1,25,000

2

Rs. 2,00,000

2

2,50,000

1,00,000

= 1,00,000

= 2.5 times

Credit Sales

Average Receivables

5,00,000

50,000

= 10 times

Credit Purchases

Average Payables

1,00,000 = 2 times

50,000

Net Sales

Working Capital

5,00,000 = 4 times

1,25,000

Cost of Goods Sold

Total Fixed Assets

2,50,000

1,25,000

Sales

= 2 times

Capital Employed

5,00,000

= 2 times

2,50,000

¥

Current Assets

Current Liabilities

2,00,000

= 2.66 times

75,000

287

288

(16) Liquid Ratio =

=

( 17) Absolute Liquid Assets =

=

(18) Debt Equity Ratio =

=

(19) Proprietary Ratio

(20) Capital Gearing Ratio =

Fixed Interest Bearing Funds =

=

Capital Gearing Ratio =

(21) Overall Profitability Ratio =

=

A Textbook of Financial Cost and Management Accounting

Liquid Assets

Current Liabilities

75,000

75,000

= I time

Absolute Liquid Assets

Current Liabilities

25,000

= 0.33 times

75,000

Total Long-Term Debt

Shareholders' Fund

1,00,000

1,50,000

= 0.66 times

Shareholders' Fund

Total Assets

1.50,000

3,25,000

= 0.46 times

Equity Share Capital

Fixed Interest Bearing Funds

Debenture + Preference Share Capital

+ Other Long-Term Loans

Rs. 1,00,000 + 50,000 = Rs. 1,50,000

1,00,000

1,50,000

Net Profit

Sales

195000

500000

= 0.66 times

Sales

x

Total Assets

500000

x = 0.6 times

325000

SUMMARY OF RATIOS

I. Liquidity Ratios

S. No. Ratio to be Computed Formula Components

I Current Ratio Current Assets l. Current Assets

Current Liabilities 2. Current Liabilities

2 Quick Ratio (or) Liquid Assets l. Liquid Assets =

Acid Test Ratio (or) Current Liabilines Current Assets -

Liquid Ratio (Stock Liquid Ratio

& Prepaid Expenses)

2. Current Liabilities

Ratio Analysis

3 Absolute Liquid Ratio

(or) Cash Position Ratio

S. No. Ratio to be Computed

1 Gross Profit Ratio

2 Operating Ratio

3 Operating Profit Ratio

4 Net Profit Ratio

5 Return on Investment

Ratio

6 Return on Capital

Employed Ratio

7 Earning Per Share

Ratio

Absolute Liquid Assets

Current Liabilities

II. Profitability Ratios

Fonnula

Gross Profit

x 100

Net Sales

Operating Cost

x 100

Net Sales

Operating Profit

x 100

Net Sales

Net Profit after tax

x 100

Net Sales

Net Profit after Interest

and Taxes

x 100

Shareholders' Funds or

Investments

Net Profit after taxes

x 100

Gross Capital Employed

(or)

Net Profit after taxes

before Interest

x 100

Gross Capital Employed

(or)

Net Profit after taxes

before Interest

x 100

Average Capital Employed

or Net Capital Employed

Net Profit after Tax and

Preference Dividend

No. of Equity Shares

289

1. Absolute Liquid Assets =

Cash in Hand + Cash at Bank

+ Marketable Securities

2. Current Liabilities

Components

I. Gross Profit = (Sales -

Cost of goods sold)

2. Net Sales = (Gross Sales

- Sales Return)

1. Operating Cost =

(Cost of goods Sold +

Administrative Expenses

+ Selling and Distribution

Expenses)

2. Net Sales

I. Operating Profit =

(Net Sales - Operating Cost)

2. Net Sales

I. Net Profit after tax =

(Net Profit - Tax paid)

2. Net Sales

I. Net Profit = Net Profit -

Interest and Taxes

2. Shareholders' Investment =

(Equity Share Capital +

Preference Share Capital +

Reserves and Surplus -

Accumulated Losses)

I. Net Profit after tax =

(Net Profit - Tax Paid)

2. Gross Capital Employed =

(Fixed Assets + Current Assets)

3. Average Capital Employed

Opening Capital Employed +

Closing Capital Employed

2 (or)

Average Capital Employed =

Net Capital Employed + Y2 of

Profit after tax

4. Net Capital Employed =

(Total Assets - Current Liabilities)

I. Net Profit after tax and

preference dividend = Net

Profit - (Tax paid + Preference

Dividend)

2. No. of Equity Shares

290 A Textbook of Financial Cost and Management Accounting

8 Dividend Equity Dividend 1. Equity Dividend =

Pay Out Ratio x 100 (No. of Equity Shares x

Net Profit after tax and Dividend Per Equity Share)

Preference Dividend 2. Net Profit after tax and

(or) preference dividend =

Dividend Per Equity Net Profit - (Tax Paid +

Share Preference Dividend)

x 100

Earning Per Equity Share

9 Earning Per Net Profit after tax and 1. No. of Equity Shares

Equity Share Preference Dividend 2. Net Profit after tax and

Preference Dividend

No. of Equity Shares

10 Dividend Yield Ratio Dividend Per share 1. Dividend Per Share

x 100 2. Market Value Per Share

Market Value Per Share

11 Price Earning Ratio Market Price Per Share 1. Market Price Per Equity Share

Equity Share 2. Earning Per Share

x 100

Earning Per Share

12 Net Profit to Net Net Profit after taxes 1. Net Profit after taxes

Worth Ratio x 100 2. Shareholder Net Worth =

Shareholders Net Worth (Company's Net Assets -

Long-Term Liabilities )

(or)

Total Tangible Net Worth =

(Shareholders' fund + Profits

Retained in business)

III. Thmover Ratios

S. No. Ratio to be Computed Fonnula Components

1 Inventory Ratio Cost of Goods Sold 1. Cost of Goods Sold =

(or) Stock Turnover Ratio (Opening Stock + Purchases +

Average Inventory at cost (or) Direct Expenses - Closing Stock

Net Sales

(or) Stock Velocity Average Inventory at cost 2. Cost of Goods Sold =

Net Sales (or) (Sales - Gross Profit)

3. Average Stock =

Average Inventory at Opening Stock + Closing Stock

SeIling Price

(or) 2

Net Sales

Inventory

Ratio Analysis 291

2 Debtors' Turnover Ratio Net Credit Sales 1. Net Credit Sales =

Average Receivables (or)

(Total Sales - Cash Sales )

2. Accounts Receivables =

Average Accounts Receivables (Sundry Debtors + Bills

(or) Receivables)

Total Sales Average Accounts =

Account Receivable

Opening Receivable + Closing

Receivable

2

3 Debt Collection Month or Days in a year 1. Months or Days in a year

Period Ratio 2. Net Credit Sales

Debtors Turnover (or) 3. Net Credit Sales =

Average Accounts (Total Sales - Cash Sales )

Receivable x Months or Days 4. Average Accounts Receivable

in a year

Net Credit Sales for the year

4 Creditors' Turnover Ratio Net Credit Purchases 1. Net Credit Purchases =

Total Purchases - Cash Purchases

Average Accounts Payable 2. Average Accounts Payable =

Opening Payable + Closing

Payable

2

5 Average Payment Period Month or Days in a year 1. Month or Days in a year

2. Average Trade Creditors

Creditors' Turnover Ratio 3. Creditors' Turnover Ratio

. Average Trade Creditors 4 . Net Credit Purchase

x 100

Net Credit Purchases

6 Working Capital Net Sales 1. Net Sales = (Gross Sales -

Turnover Ratio Sales Return)

Working Capital 2. Working Capital =

(Current Assets - Current

Liabilities)

7 Fixed Assets Cost of goods sold 1. Cost of Goods Sold

Turnover Ratio 2. Total Fixed Assets

Total Fixed Assets (or) 3. Sales

Sales 4. Net Fixed Assets

Net fixed Assets

8 Capital Turnover Ratio Cost of Sales 1. Capital Employed =

Capital Employed

(Total Assets - Current

(or) Liabilities ) (or)

Sales Capital Employed =

Capital Employed

(Shareholders' Fund + Long-Term

(or) Loans)

Cost of Sales or Sales 2. Cost of Sales (or) Sales

Shareholders' Fund

292 A Textbook of Financial Cost and Management Accounting

IV. Solvency Ratios

S. No. Ratio to be Computed Formula Components

1 Debt Equity Ratio External Equities 1. External Equities =

Total Outside Liabilities

Internal Equities (or) 2. Internal Equities =

Outsiders' Funds All claims of preference

Shareholders' Funds

shareholders + Equity

(or) shareholders + Reserves and

Total Long-Term Debt Surplus

3. Total Long-Te.rm Debt =

Total Long-Term Funds (or) Outside Debt (Debenture and

Total Long-Term Debt Long-Term Loans)

Shareholders' Funds

2 Proprietary Ratio Shareholders' Fund 1. Shareholders' fund =

Total Assets

Preference Share Capital +

Equity Share Capital + All

Reserves and surplus

2. Total Assets = Tangible

Assets + Non-Tangible Assets

+ Current Assets (or) All assets

including Goodwill

3 Capital Gearing Ratio Equity Share Capital 1. Equity Share Capital =

Fixed Interest Bearing

Equity Share Capital +

Reserves and Surplus

Funds 2. Fixed Interest Bearing Funds

= (Debentures + Preference

Share Capital + Other Long-Term

Loans)

4 Debt Service Ratio Net Profit before 1. Net Profit before Interest and

Interest and Taxes Taxes

2. Fixed Interest Charges

Fixed Interest Charges

V. Over All Profitability Ratios

S. No. Ratio to be Computed Formula Components

V Overall Profit Net Profit X Sales 1. Net Profit

Ability Ratio Sales (or) Total Assets 2. Sales

Net Profit 3. Total Assets

Total Assets

QUESTIONS

1. What is meant by Ratio?

2. What do understand by Accounting Ratio? Explain the Principles of ratio selection.

3. What are the advantages of Ratio Analysis?

4. What are the limitations of ratio analysis?

5. What are the different categories of ratios? How are they classified?

Ratio A1lIl1ysis

6. Write short notes on :

(a) Liquidity Ratios. (b) Profitability Ratios. (c) Turnover Ratios.

(d) Solvency Ratios. (e) Overall Profitability Ratios.

7. What do you understand by current ratio? What are it uses? What are its limitations?

8. Ratio analysis is widely used as a tool of financial analysis, yet it suffers from various limitations. Explain.

9. How can solvency of a firm be measured?

10. What you understand by Liquidity ratios? Discuss their significance.

11. Explain the importance of profitability Ratio. How they are worked out?

12. Discuss the usefulness of the following ratios:

(a) Inventory Ratio. (b) Operating Ratio. (c) Price Earning Ratio.

(d) Creditor's Turnover Ratio. (e) Debtor's Turnover Ratio.

EXERCISES

(1) From the following, compute both the purchases made during the year and the Stock Turnover Ratio:

Rs.

Inventory (at cost price) :

At the beginning 14,000

At the end of the year 21,000

Sales revenue 1,20,000

Sales return 6,000

Gross profit 26,500

[Ans : Purchases Rs. 94,500; Stock Turnover Ratio = 5 times]

(2) From the following particulars, you are required to find out:

(a) Current Ratio, (b) Net Profit Ratio; and (c) Gross Profit Ratio.

Stock Rs. 50,000 Cash in Hand

Debtors Rs. 40,000 Creditors

Bills Receivable Rs. 10,000 Bills Payable

Adv~nces Rs. 4,000 Bank Overdraft

Sales (Net)

Gross Profit

Net Profit

[Ans: Current Ratio = 1. 28:1; Net Profit Ratio = 4.29%; Gross Profit Ratio = 7.14%].

(3) Calculate: (a) Current Assets; (b) Liquid Assets; (c) Inventory.

Current Ratio = 2.6 : 1

Liquid Ratio = 1.5 : 1

Current Liabilities = Rs. 40,000

[Ans: Current Assets Rs. 1,04,000 ; Liquid Assets Rs. 60,000; Inventory Rs. 44,000]

(4) From the following details, you are required to find out:

Rs. 30,000

Rs. 60,000

Rs. 40,000

Rs. 4,000

Rs. 7,00,000

Rs. 50,000

Rs. 30,000

(a) Gross profit; (b) Purchases; (c) Opening Stock; (d) Closing Stock; (e) Debtors; (f) Creditors; (g) Fixed Assets

(1) Stock Velocity = 6

(2) Capital Turnover Ratio = 2

(3) Fixed Turnover Ratio = 4

(4) Gross Profit Turnover Ratio = 20%

(5) Debtor's Velocity = 2 months

(6) Creditor's Velocity = 73 days

293

The Gross Profit was Rs. 60,000. Reserve and surplus amount to Rs. 20,000. Closing stock was Rs. 5,000 in excess on

opening stock.

[Ans : (a) Rs. 60,000; (b) Rs. 2,45,000; (c) Rs. 37,500; (d) Rs. 42,500; (e) Rs. 50,000;

(f) Rs. 49,000; (g) Rs. 60,000].

(5) From the following Profit and Loss Account and Balance sheet, compute : (I) Current Ratio

(2) Liquid Ratio (3) Fixed Asset to Net Worth Ratio (4) Proprietary Ratio (5) Debt Equity Ratio (6) Operating Ratio (7) Stock

Turnover Ratio (8) Fixed Assets Turnover Ratio (9) Creditors Turnover Ratio (10) Gross Profit Turnover Ratio (II) Net Profit to Sales

Ratio (12) Return on Investment Ratio.

294 A Textbook of Financial Cost and Management Accounting

Dr. Profit and Loss Account for the year ended 31.12.2002 Dr.

Particulars Rs. Particulars Rs.

To Opening Stock of By Sales 50,000

Raw materials 5,000 Less: Return 1,000 49,000

To Purchases 32,000 By Closing

Less: Returns 2,000 30,000 Stock of Raw

To Factory Expenses 1,000 Materials 8,750

To Gross profit cld 21,750

57,750 57,750

To Operating expenses 8,750

To Interest on Debenture 400 By Gross Profit bId 21,750

To Provision for income tax 6,300

To Net Profit 6,300

21,750 21,750

Balance Sheet as on 31" Dec. 2003

Liabilities Rs. Assets Rs.

Equity Share Capital 12,500 Land & Building 10,000

Capital Reserves 5,000 Plant & Machinery 6,000

Profit and Loss Account 2,500 Stock 8,750

8 % Debenture 5,000 Debtors 4,500

Sundry Creditors 5,000 Cash 2,000

Bank Overdraft 1,250

31,250 31,250

[Ans: (1) Current Ratio = 2.44:1; (2) Liquid Ratio = 1.04 :1; (3) Fixed Asset Net Worth Ratio = 80%; (4) Debt-Equity

Ratio = 25 :1; (5) Operating Ratio = 0.74 :1; (6) Stock Turnover Ratio = 7.1 3times; (7) Fixed Asset Turnover Ratio =

3.06 times; (or) 3.1 times; (8) Creditors' Turnover Ratio = 6 times; (9) Gross Profit Turnover Ratio = 44.39%; (10) Net

Profit to Sales = 25.71 %; (il) Return on Investment Ratio = 52%; (12) Proprietary Ratio = 0.64].

(6) Ranjit Ltd. provides the following information for the year ending 31 ~ March 2003 and request you to ascertain (a)

Operating Ratio (b) Operating Profit Ratio and (c) Operating Profit:

Sales

Gross Profit

Office Expenses

Selling Expenses

. Administrative Expenses

Loss on Sale of Plant

Interest received on investments

Net Profit

Rs.

1,00,000

4,00,000

30,000

20,000

15,000

2,000

2,500

3,35,000

[Ans : Operating Ratio = 65% (b) Operating Profit Ratio = 35% (c) Operating Profit

Rs. 3,35,000].

(7) From the following information find out (a) Sales (b) Closing Stock (c) Sundry Debtors and (d) Sundry Creditors

Gross Profit Ratio 25%

Debtors' Turnover Ratio 2 months

Stock Turnover Ratio 2 times

Creditors' Turnover Ratio 3 months

Closing stock is Rs. 10,000 more than the opening stock. Bills receivable amount to Rs. 30,000 and Bills payable to Rs.

40,000. Cost of goods sold for the year is Rs. 6,00,000

[Ans : (a) Sales = Rs. 8,00,000; (b) Closing Stock Rs. 3,05,000; (d) Sundry Debtors

Rs. 93,333; (d) Sundry Creditors Rs. 71,666].

Ratio Analysis 295

(8) Calculate the average collection period from the following details by adopting 360 days to an year.

Average Inventory Rs. 3,60,000

Debtors Rs. 2,30,000

Inventory Turnover Ratio = 6

Gross Profit Ratio 10 %

Credit Sales to Total Sales 20 %

[Ans : Average Collection Period = 172.5 days].

(9) You are required to calculate Return on Investment from the following details of Mary Ltd. for the year ending 31"

March 2003.

Net Profit after tax Rs. 3,25,000

Rate of Income tax 50%

12.5% Debenture of 100 each Rs. 4,00,000

Fixed Assets Rs. 12,30,000

Depreciation Rs. 2,30,000

Current Assets Rs. 7,50,000

Current Liabilities Rs. 3,50,000

[Ans : Return on Investment =50%].

(10) The following balance sheet is given to you:

Rs. Rs.

Preference Share Capital 1,00,000 Fixed Assets 2,00,000

Reserve for Contingencies 20,000 Sundry Debtors 30,000

Term Loans 80,000 Inventories 30,000

Sundry Creditors 50,000 Bills Receivable 10,000

Profit & Loss Nc 30,000 Cash at Bank 30,000

Provision for Taxation 20,000

3,00,000 3,00,000

You are requIred to calculate :

(a) Acid Test Ratio (b) Debit Equity Ratio and (c) Current Ratio.

(11) From the following particulars, you are required to calculate (a) Current Ratio (b) Gross Profit Ratio (c) Stock Turnover

Ratio (d) Debt Equity Ratio (e) Proprietary Ratio (t) Debtor's Turnover Ratio

Rs. Rs.

Annual Sales 74,40,000 Paid up Capital 15,00,000

Gross Profit 7,44,000 Reserve & Surplus 6,00,000

Fixed Assets 16,50,000 7% Debentures 5,00,000

Inventories 9,10,000 Bank Overdraft 2,00,000

Sundry Debtors 12,40,000 Sundry Creditors 12,00,000

Short-Term Investments 1,60,000

Cash Balances 40,000

(12) Calculate the current assets of a company from the following information:

(1) Stock turnover: 5 times

(2) Stock at the end is Rs. 5,000 more than stock in the beginning

(3) Sales (all credit) : Rs. 2,00,000

(4) Gross Profit Ratio: 20%

(5) Current liabilities = Rs. 60,000

(6) Quick Ratio 0.75

[Ans: Current Assets Rs. 79,500]

(13) From the following details prepare statement of proprietary funds with as many details as possible:

(1) Stock Velocity - 6

(2) Capital turnover ratio - 2

(3) Fixed asset turnover ratio - 4

(4) Gross Profit turnover ratio - 20%

(5) Debtor's Velocity - 2 months

(6) Creditor's Velocity - 73 days

296 A Textbook of Financial Cost and Management Accounting

The Gross Profit was Rs. 60,000. Reserve and Surplus amounted to Rs. 20,000. Closing Stock was Rs. 5,000 in excess

opening stock.

[Ans : Proprietary Fund Rs. 1,20,000]

(14) A company has an inventory of Rs. 7,20,000, debtors Rs. 4,30,000 and an inventory turnover ratio of 12. The gross

profit margin is 10% and its credit sales are 20% of the total sales. Calculate the average collection period.

[Ans: 81 days]

(15) From the following Balance Sheet and other information, you are required to calculate the following ratios: (a) Gross

Profit Ratio (b) Operating Profit Ratio (c) Current Ratio and (d) Liquidity Ratio

Liabilities

Equity Share Capital

Preference Share Capital

General Reserves

Profit & Loss Nc

Bank Overdraft

Sundry Creditors

[Ans: Gross Profit Ratio - 39.96%

Operating Ratio - 17.38%

Current Ratio - 8.54%

Liquidity Ratio - 3.24%]

Balance Sheet

Rs. Assets Rs.

2,00,000 Land & Buildings 2,00,000

80,000 Plant & Machinery 40,400

4,800 Inventories 78,400

67,200 Sundry Debtors 36,000

2,800 Bank 10,000

12,000 Cash Balances 2,000

3,66,800 3,66,800

(16) From the following information, calculate the following ratios: (a) Debt Equity Ratio

(b) Interest Coverage Ratio (c) Debt to Total Fund Ratio (d) Return on Investment Ratio and (e) Capital Turnover Ratio

Dr.

Rs.

Share Capital 3,20,000

General Reserve 1,20,000

Profit and Loss Nc 2,00,000

Loan @ 15% interest 4,00,000

Sales for the year 11,20,000

Tax Paid during the year 80,000

Profit for the year after interest and tax 1,60,000

[Ans: Debt Equity Ratio 1:16; Interest Coverage Ratio - 5 times; Debt to total Fund Ratio 1:2.6; Return on Investment

- 28.84%; Capital Turnover Ratio 1.08 times]

(17) From the following particUlars, you are required to find out (a) Current Assets and (b) Stock:

(1) Current Ratio - 2.5

(2) Quick Ratio - 1.5

(3) Working Capital Rs. 75,000

(4) Bank Overdraft Rs. 25,000

(5) Cash in hand Rs. 1,000

[Ans: Current Assets 1,25,000; Stock Rs.50,ooo]

The following information relates to Gupta & Co. Ltd. for the year ended 31" December 2003 :

Trading and Profit and Loss Ale Cr.

Particulars Amount Particulars Amount

Rs. Rs.

To Opening Stock 1,50,000 By Sales 10,40,000

To Purchases 6,50,000 Less: Returns 40,000 10,00,000

To Gross Profit cld 4,00,000 By Closing Stock 2,00,000

12,00,000 12,00,000

By Gross Profit bId 4,00,000

Ratio Analysis

To Operating Expenses:

Administration 80,000

Selling & Distribution 50,000

To Non-Operating Exp.

Loss on Sale of Assets

To Net Profit

Liabilities

Share Capital

Reserves

Current Liabilities

Profit and Loss Ale

Calculate:

(a) Gross Profit Ratio

By Non-Trading Income:

Dividend 18,000

1,30,000 Profit on Sale of Shares 22,000

10,000

3,00,000

4,40,000

Balance Sheet

Amount

Rs.

4,00,000

1,80,000

3,00,000

1,20,000

10,00,000

Assets

Land and Buildinl!

Plant and Machinery

Stock

Sundry Debtors

Cash at Bank

(c) Expenses Ratio

(f) Operating Ratio

297

40,000

4,40,000

Amount

Rs.

3,00,000

1,60,000

3,20,000

1,60,000

60,000

10,00,000

(d) Return on Total Resources

(g) Net Profit Ratio

(b) Operating Profit Ratio

(e) Turnover to Total Assets

(h) Stock Turnover Ratio (i) Turnover of Fixed Assets

[Ans: (a) Gross Profit Ratio 40%

(b) Operating Profit Ratio 27%

(c) Expenses Ratio:

(I) Administrative Expenses Ratio 8%

(II) Selling & Distribution Expenses Ratio 5%

(d) Return on Total Resources 30%

(e)

(f)

(g)

(h)

Turnover to Total Assets I time

Operating Ratio 73%

Net Profit Ratio 30%

Stock Turnover Ratio 3.43 times

(i) Turnover of fixed Assets 1.30 times.]

(18) The Capital of Patel & Co. Ltd. is as follows:

9% Preference Shares of 10 each

Equity Shares of Rs. IO each

Additional Information

Profit (after tax at 60%) Rs. 2,70,000; Depreciation Rs. 60,000;

Rs.

3,00,000

8,00,000

11,00,000

Equity dividend paid 20%; Market Price of Equity Shares Rs. 40. You are required to calculate the following:

(a) Dividend yield on the Equity Shares

(b) Cover for the Preference and Equity Dividends

(c) Earnings for Equity Shares

(d) Price-Earnings Ratio

[Ans: (a) 5% (b) Preference IO times, Equity 1,52 times (c) Rs. 3.04 per Share

(d) 13.2 times.]

000

Introduction

CHAPTER 10

Cost Accou.nting

Cost Accounting is one of the important disciplines of accountancy to give proper information

required to the management for effectively discharging its functions such as planning, organizing,

controlling, directing, co-ordinating and decision making. In this regard Financial Accounting is concerned

with record keeping directed towards the preparation of Profit and Loss Account and Balance Sheet. It

provides information about the enterprise in a general way. Accordingly Financial Accounts are prepared

as per the requirement of the Companies Act and Income Tax Act. The main purpose of financial

accounting is to ascertain profit or loss of a concern as a whole for a particular period. Thus, financial

accounting does not serve as the needs of management for effective control, determination of prices,

making effective plan for future operations and formulating various policy decisions.

To overcome the limitations of the financial accounting, the cost accounting is a recent development

born in response to the needs of management for detailed information about cost of a product or a unit of

services. Every business firm is expected to make profit in the long run and, keep costs within control.

Recently the Companies Act has made obligatory the keeping of cost records in some manufacturing

companies. In essence, therefore Cost Accounting is now widely used by large manufacturing and nonmanufacturing

operations.

Definitions of Important Concepts

The definitions of the following important concepts of Cost Accountancy are given below :

(a) Cost (b) Costing (c) Cost Accounting

(d) Cost Accountancy (e) Cost Control (0 Cost Reduction

(g) Cost Allocation (h) Cost Absorption (i) Cost Audit

G) Cost Unit (k) Cost Centre

(a) Cost: The word 'Cost' is used in a variety of ways. Cost may be defined as a total of all expenses

incurred in a given thing. A I CPA defines cost as "the amount measured in money or cash expended or

other property transferred, capital stock issued, services performed or a liability incurred in considerations

of goods or services received or to be received."

Cost Accounting 299

'Cost' is defined by W.M. Harper in the following words "Cost is the value of economic resources

used as a result of producing or doing the thing cost."

(b) Costing: I C M A London has defined costing as "the technique and process of ascertaining

costs." As a technique, it refers to costing as the body of principles and rules concerned with appropriate

allocation of expenditure for the determination of cost of products and services.

(c) Cost Accounting: Cost accounting is the method of accounting for cost. The I C W A defines

Cost Accounting as the technique and process of ascertainment of costs. Cost accounting begins with the

recording of all income and expenditure, and ends with the presentation of statistical data.

(d) Cost Accountancy: According to the Chartered Institute of Management Accountants London,

cost accountancy means "the application of costing and cost accounting principles, methods and

techniques to the science, art and practice of cost control and the ascertainment of profitability. It includes

the presentation of information derived therefore for the purpose of managerial decision making. Thus,

cost accountancy is the science, art and practice of a cost accountant."

(e) Cost Control: Cost control is the guidance and regulation by executive action of cost of

operating an undertaking. It involves pre-determination of targeted costs, measuring the actual costs,

investigating into the causes of variations and instituting the corrective action.

(1) Cost Reduction: The term 'cost reduction' refers to the achievement of real and permanent

reduction in the unit of cost of goods manufactured or services rendered without impairing their suitability

or diminution in the quality of product. Cost reduction involves saving in unit cost ; such saving is of

permanent nature and the utility and quality of the goods and service:01'emain unaffected.

(g) Cost Allocation: Cost allocation is the allotment of whole item of cost to cost centres. The

technique of charging the entire overhead expenses to a cost centre is known as Cost Allocation.

(h) Cost Absorption: The term 'Cost Absorption' refers to the process of absorption of all overhead

costs allocated to or apportioned over particular cost centre or production department by the units produced.

(i) Cost Ascertainment: The term 'Cost Ascertainment' means to ascertain the cost of each product,

process or operation and ensure that all the expenses have been absorbed in the cost of products. Cost

Ascertainment is one of the important objectives of Cost Accounting.

(j) Cost Audit: I C M A defines 'Cost Audit' as a detailed examination or verification of cost

accounts and check on the adherence to the cost accounting plan. The purpose of cost audit is to examine

whether the methods laid down for ascertaining costs and other decisions are being properly implemented

and whether the cost accounting plan is being adhered to or not. The purpose can be (i) Protective and

(ii) Constructive. Protective purpose aims to examine that there is no undue wastage or losses and that the

cost accounting system reflects the correct and realistic cost of production. Constructive purpose aims at

providing the management with information useful in regulating production, choosing economic methods

of operations, reducing the operational costs, etc. based on the findings during the course of cost audit.

(k) Cost Unit: The term 'Cost Unit' refers to a unit of product, service or time in relation to which

costs may be ascertained. It is a unit of quantity in terms of which costs can be measured. Cost Unit may

be selected on the basis of (a) Single and (b) Composite (or) Commonly used.

The following are some examples of Cost Units used in different industries:

300

Name of Industry

Paper

Steel

Sugar

Cement

Textile (cloth)

Transport

Electricity

Bricks

A Textbook of Financial Cost and Management Accounting

Cost Units used

Per Tonne (or) Per Kg

Per Tonne

Per Quintal

Per Tonne

Per Metre

Passenger Kilometre

Per Kilo Watt-hour

Per 1000 bricks

Cost Centre

According to the Chartered Institute of Management Accountants, London, Cost Centre is defined as

a location, person or items of equipment (or group of these) for which costs may be ascertained and used

for purposes of cost control. In other words, cost centre is a part of an organization which includes

location, processes, equipment, (or) machine centres, various departments, persons etc. in relation to which

costs can be charged or ascertained.

Cost Centres can be classified into the following types :

(1) Personal Cost Centre: It consists of a person or group of persons, e.g., salesmen, Marketing

Manager, etc.

(2) Impersonal Cost Centre: It is a Cost Centre which consists of a location or items of

equipment.

(3) Operation Cost Centre: It consists of machines and/or persons carrying out similar operations.

(4) Process Cost Centre: It is a Cost Centre which consists of a specific process or a continuous

sequence of operations.

Objectives of Cost Accounting

The following are the important objectives of Cost Accounting:

(1) Ascertainment of cost.

(2) Determination of selling price.

(3) Cost control and cost reduction.

(4) Ascertainment of profit of each activity.

(5) Assisting Management in decision making.

(6) Formulating business policy.

(7) Matching costs with revenue.

Distinction between Financial Accounting and Cost Accounting

The following are the differences between Financial Accounting and Cost Accounting:

(1) Purpose

Financial Accounting

It is prepared for providing information

about the final results of the business

activities as a whole for a particular period

to its proprietors, outsiders etc.

Cost Accounting

The main purpose of Cost Accounting is to

provide information to the management for

the proper planning, control and decision

making.

Cost Accounting 301

Financial Accounting Cost Accounting

(2) Need Financial Accounts are maintained as per Cost accounts are maintained to to meet the

the requirements of Companies Act and requirement of the Management.

Income Tax Act.

(3) Recording Transactions are classified, recorded and In cost accounting, transactions are

analysed subjectively. classified, recorded and analysed objectively

according to the purpose for which costs

are incurred.

(4) Analysis of Profit Financial accounting reveals the profit of a Cost Accounting shows the profit made on

business as a whole. each product, job or process.

(5) Accounting period Financial accounts are prepared for a Cost reports are prepared frequently and

definite period. submitted to the management may be daily,

weekly, etc.

(6) Stock valuation In financial accounts, stocks are valued at Cost accounting stocks are valued at cost.

cost price or market price whichever is

less.

(7) Dealings Financial accounts deal with actual facts In cost account lays emphasis on both actual

and figures. facts and estimates or predetermined cost.

(8) Relative Efficiency Financial accounts do not reveal the rp.lative Cost account provides information on the

efficiency of each department or section. relative efficiencies of various plant and

Machinery.

Management Accounting

Management Accounting helps the management in effectively perfonning its functions of planning,

organizing, controlling, co-ordinating and decision-making.

The Institute of Cost and Management Accountants London has defined Management Accounting as

"the application of professional knowledge and skill in the preparation of accounting infonnation in such a

way as to assist management in the fonnation of policies, and in the planning and control of the operations

of the undertaking."

Cost Accounting'Vs Management Accounting

The following are the main distinctions between Cost Accounting and Management Accounting:

(1) Cost Accounting deals with cost ascertainment, cost allocation, cost apportionment and cost

control. Management Accounting provides all accounting infonnations to the management for

discharge of its functions effectively.

(2) Management Accounting has a wider scope as compared to cost accounting. Therefore

Management Accounting uses more advanced techniques of Management reporting.

(3) Management Accounting deals with both Cost Accounting and Financial Accounting. But cost

accounting deals with cost data.

(4) Standard Costing, Budgetary Control, Break-Even Analysis, Inventory Control etc. are the

basic tools and techniques used in Cost Accounting. But in Management Accounting, fund flow

analysis, cash flow analysis, ratio analysis etc. are the important tools used for analysis and

interpretation of financial statements.

302 A Textbook of Financial Cost and Management Accounting

Advantages of Cost Accounting

Cost Accounting helps the Management to ascertain the true cost of every operation, through setting

objectives and standard of operation, comparison of actual performance with standard to reveal the

discrepancies or Variances. If the variances are adverse, the management takes up corrective measure to

eliminate variations. The following are the advantages of cost accounting to the management, to the

employees, to the creditors, to the government and to the public:

Advantages to the Management

(1) Facilitates planning.

(2) Helps in formulating policies.

(3) Useful in setting up objectives and standards of performance.

(4) Facilitates cost comparison.

(5) Leads to effective cost control.

(6) Determines of selling price.

(7) Ascertains profit of each activity.

(8) Assists the Management in decision making.

(9) Facilitates cost reduction.

(10) Measures performance.

Advantages to the Employees

(1) Ensures fair incentive wage schemes.

(2) Facilitates job security, recognition and promotion.

(3) Useful in measuring operating efficiency of the employees.

Advantages to the Creditors

(1) Measures the financial strength and creditworthiness of the business.

(2) Attract investors for extending their credit facilities.

(3) Creates trustworthiness among the creditors, debentureholders, banks, etc.

Advantages to the Government

(1) It helps to formulate business policies and national plans for industrial development.

(2) It facilitates assessment of taxation, and establishment of indexes.

(3) It assists in effective utilization of resources, i.e., materials, labour and machines etc.

(4) It assists the government for cost reduction, price fixation, export and import and granting

subsidy etc.

Advantages to the Public

(1) It helps in elimination of wastages and inefficiencies.

(2) It facilitates the consumers to pay fair price for products.

(3) It leads to progress of national economic growth.

Cost Accounting 303

(4) Creates employment opportunities.

(5) Increases the living standards of the people.

Limitations of Cost Accounting

The following are some of the limitations of cost accounting :

(1) There is lack of uniformity in regard to its procedure and practices.

(2) Cost are classified and interpreted in such different manners that though given the same title,

they are computed on a different basis.

(3) Lack of consistency becomes more acute when projections are made beyond the recorded cost

data.

(4) Inherent limitations of cost accounting objections raised by different sections of business

societies against the introduction of cost accounting.

(5) Cost accounting is unnecessary for recently established industries. And also modern methods of

costing systems are not suitable for all types of industries.

(6) Cost accounting system involves considerable amount of expenditure at the installation stage.

Thus costing system is not economical for a small concern.

(7) Cost accounting involves accounting procedures and record-keeping. These are far more

detailed and difficult than those required in financial accounting.

Installation of Cost Accounting System

While installing a cost system, the cost accountant should consider the following factors :

(1) Objectives of Costing System: While installing a cost accounting system, it should be ensured

that it will aid in ascertainment of cost, determination of selling price, cost control and cost reduction etc.

(2) Nature of Business: Cost Accounting system should be suited to the nature of products and

business. The nature of product and business is essential to determine proper method of costing on the

basis of types of product, methods and product life cycle, quantity, quality etc.

(3) Nature of Organization: It is essential to examine existing organization structure of the company

before introducing the costing system. Since the system is to be designed to suit the organization it is

necessary to ascertain the layout, nature and size of the organization, scope of authority and responsibility.

(4) Methods and Procedures: Before introducing the costing system, the Cost Accountant should

carefully study the existing manufacturing procedures, processes, methods, system of wage payments,

receipts and issue of materials. This will help him to select the proper method of costing.

(5) Communication: A good system of cost accounting will provide information which helps in

decision making. Cost information should be made available promptly and regularly. It is necessary to

examine the prompt reporting system.

(6) Standardization: The system should be introduced after a detailed study of the standardization.

Standard Forms should be used in order to reduce clerical work to the minimum.

(7) Simplicity: The system to be adopted should be simple and easy to adopt to the changing

requirement. The costing system should be capable of being understood by the operating personnel.

(8) Co-operation: There is need for co-operation and support of the various departments involved in

the cost accounting process for being successfully implemented.

304 A Textbook of Financial Cost and Management Accounting

(9) Reconciliation: Emphasis should be on whether separate set of cost and financial books are

required or an integrated system has to be followed. This depends upon the nature and size of the industry.

Where cost books are maintained independetly of financial records there must be provision for reconciliation

between the cost and financial records.

Practical Difficulties in Installing Costing System

The following are the practical difficulties confronted in installing a costing system :

(1) Lack of top management support.

(2) Resistance from accounting departmental staff.

(3) Non co-operation from user departments.

(4) Shortage of trained staff in costing department.

(5) Heavy cost of installing the system.

Steps to Overcome Practical Difficulties

To overcome these difficulties, the steps required are given below:

(1) To sell the idea to top management to convince them of the utility of the system.

(2) Resistance and non co-operation can be overcome by behavioural approach to deal with the

staff concerned effectively.

(3) Proper training should be given to the staff at each level.

(4) Regular meetings should be held with the cost accounting staff, user departments staff and top

management to clarify points.

QUESTIONS:

1. What do you understand by Cost Accounting?

2. Define the terms Cost Centre and "Cost Unit."

3. What are the important objectives of Cost Accounting?

4. What are the differences between financial account and cost accounting?

5. Distinguish between cost accounting and management accounting.

6. What are the factors to be considered for installation of good costing system?

7. Describe the practical difficulties in installation of costing system.

8. Cost Accounting has become an essential tool of management. Give your comments on this statement.

9. Indicate the various advantages of Cost Accounting.

10. Define costing and discuss briefly its objects and advantages.

11. What are the limitations of cost accounting?

12. Write short notes on :

(a) Costing;

(b) Cost Accountancy;

(c) Cost Control;

(d) Cost Reduction;

(e) Cost Unit and Cost Centre.

000

CHAPTER 11

Cost - Methods, Techniques of Cost Accounting

and Classification of Cost

I. METHODS OF COSTING

Meaning: The term 'methods' and 'systems' are used synonymously to indicate an integrated set of

procedures based on a complex concept of ideas, principles and concepts. The term method of costing

refers to cost ascertainment. Different methods of costing for different industries depend upon the

production activities and the nature of business. For these, costing methods can be grouped into two broad

categories: (1) Job costing and (2) Process costing.

(1) Job Costing

Job costing is also termed as Specific Order Costing (or) Terminal Costing. In job costing, costs are

collected and accumulated according to jobs, contracts, products or work orders. Each job is treated as a

separate entity for the purpose of costing. The material and labour costs are complied through the

respective abstracts and overheads are charged on predetermined basis to arrive at the total cost. Job

costing is used in printing, furniture making, ship building, etc.

Job costing is further classified into (a) Contract costing (b) Cost plus contract and (c) Batch costing

(a) Contract Costing: This method of costing is applicable where the job work is big like contract

work of building. Under this method, costs are collected according to each contract work. Contract costing

is also termed as Terminal Costing. The principles of job costing are applied in contract costing.

(b) Cost plus Contract: These contracts provide for the payment by the contracted of the actual cost

of manufacture plus a stipulated profit. The profit to be added to the cost. It may be a fixed amount or it

may be a stipulated percentage of cost. These contracts are generally entered into when at the time of

undertaking of a work, it is not possible to estimate its cost with reasonable accuracy due to unstable

condition of material, labour etc. or when the work is spread over a long period of time and prices of

materials, rates of labour etc. are liable to fluctuate.

(c) Batch Costing: In Batch Costing, a lot of similar units which comprise the batch may be used as

a cost unit for ascertainment of cost. Separate Cost Sheet is maintained for each batch by assigning a batch

306 A Textbook of Financial Cost and Management Accounting

number. Cost per unit of product is determined by dividing the total cost of a batch by the number of units

of the batch. Batch Costing is used in drug industries, ready-made garments industries, electronic

components manufacturing, T V Sets, etc.

(2) Process Costing

This costing method refers to continuous operation or continuous process costing. Process costing

method is applicable where goods or services pass through different processes to be converted into

finished goods. Process costing is used in Cement industries, Sugar industries, Textiles, Chemical

industries etc.

The following are the important variants of process costing system:

(a) Operation Costing: It is concerned with the determination of the cost of each operation rather

than process. It offers scope for computation of unit operation cost at the end of each operation by dividing

the total operation cost by total output of units.

(b) Operating Costing: Operating costing is also termed as service costing. Operating costing is

similar to process costing and is used in service industries. This method of costing is suitable for concerns

rendering services. For example, Hospitals, Transport, Canteen, Hotels, etc.

(c) Output Costing: Output costing is also called Unit Costing (or) Single Costing. This method of

costing is applicable where a concern undertakes mass and continuous production of single unit or two or

three types of similar products or different grades of the same products. Under this method cost per unit is

measured by dividing the total cost by number of units produced. Output Costing is used in industries like

Cement, Cigarettes, Pencils, Quarries etc.

(d) Multiple Costing: This method of costing means combination of two or more methods of costing

like operation costing and output costing. Under this method the cost of different sections of production

are combined after finding out the cost of each and every part manufactured. This method of costing is

suitable for the industries manufacturing motor cars, engines, aircraft, tractors, etc.

II. TECHNIQUES OF COSTING

Costing is the technique and process useful to allocation of expenditure, cost ascertainment and cost

control. In order to fulfil the needs of the management it supplies necessary information to the

management. The following are the various techniques of costing:

(a) Uniform Costing

(b) Marginal Costing

(c) Standard Costing

(d) Historical Costing

(e) Absorption Costing

(a) Uniform Costing: Uniform Costing is not a distinct method of costing. In fact when several

undertakings start using the same costing principles and! or practices, they are said to be following uniform

costing. The basic idea behind uniform costing is that the different firms in an industry should adopt a

common method of costing and apply uniformly the same principles and techniques for better cost

comparison and common good.

(b) Marginal Costing: The C. I. M. A. London defines Marginal costing as "a technique of costing

which aims at ascertaining marginal costs, determining the effects of changes in costs, volume, price etc.

on the Company's profitability, stability etc. and furnishing the relevant data to the management for

enabling it to take various management decisions by segregating total costs into variable and fixed costs."

Cost - Methods, Techniques of Cost Accounting and Classification of Cost 307

(c) Standard Costing: Standard Costing is a technique of cost accounting which compares the

standard cost of each product or service with actual cost to determine the efficiency of the operation, so

that any remedial action may be taken immediately.

(d) Historical Costing: Historical costing is the ascertainment and recording of actual costs when, or

after, they have been incurred and was one of the first stages in the growth of the Cost Accountant's work.

Actual costs refer to material cost, labour cost and overhead cost.

(e) Absorption Costing: Absorption Costing is also termed as Full Costing (or) Orthodox Costing.

It is the technique that takes into account charging of all costs both variable and fixed costs to operalion

processed or products or services. .

III. CLASSIFICATION OF COST

Classification is the process of grouping costs according to their common characteristics or features.

There are various methods of classifying costs on the basis of requirements.

The following are the important bases on which costs are classified:

(a) On the basis of Nature (or) Elements.

(b) On the basis of Function.

(c) On the basis of Variability.

(d) On the basis of Normality.

(e) On the basis of Controllability and Decision Making.

The following chart can explain further the classifications cost:

Classification of Cost

On the basis of

Nature (or) Elements Function Variability

1 1

(a) Material Cost (a) Production Cost

(b) Labour Cost (b) Administration Cost

(c) Other Expenses (c) Selling Cost

(d) Distribution Cost

Decision Making & Controllability

l

(a) Controllable Cost

(b) Uncontrollable Cost

(c) Sunk Cost

(d) Opportunity Cost

(e) Replacement Cost

(0 Conversion Cost

1

(a) Fixed Cost

(b) Variable Cost

(c) Semi-Variable Cost

(or) Semi-Fixed Cost

Normality

1

(a) Normal Cost

(b) Abnormal Cost

308 A Textbook of Financial Cost and Management Accounting

(1) On the basis of Nature or Elements: One of the important classification cost is on the basis of

nature or elements. Based on elements, it is classified into Material Cost, Labour Cost and Other Expenses.

They can be further subdivided into Direct and Indirect Material Cost, Direct and Indirect Labour Cost and

Direct and Indirect Other Expenses.

(2) On the basis of Function: The classification of costs on the basis ofthe various function of a concern

is known as function-wise classification. Here there are four important functional divisions in the business

organization, viz.: (a) Production Cost (b) Administration Cost (c) Selling Cost and (d) Distribution Cost.

(3) On the basis of Variability: On the basis of variability with the volume of production Cost is

classified into Fixed Cost, Variable Cost and Semi Variable Cost; Fixed Costs are those costs incurred

which remain constant with the volume of production. Rent and rates of office and factory buildings are

examples of fixed cost.

Variable costs are those costs incurred directly with the volume of output. For example, cost of

materials and wages to workers are the expenses chargeable with direct proportion to the volume of

production.

Semi-Variable Costs are those costs incurred, partly fixed and partly variable, with the volume of

production. Accordingly, it has both fixed and variable features. For example, depreciations and ~aintenance

cost of plant and machinery.

(4) On the basis of Normality: Costs are classified into normal costs and abnormal costs on the basis

of normality features. Normal costs are those incurred normally within the target output or fixed plan.

(5) On the basis of Controllability and Decision Making: Based on the managerial decision making

and controllability the classifications are as follows: (a) Controllable Cost; (b) Uncontrollable Cost; (c) Sunk

Cost; (d) Opportunity Cost; (e) Replacement Cost; and (0 Conversion Cost.

(a) Controllable Costs: Controllable Costs are the costs which can be influenced by the action

of a specified number of an undertaking. Controllable Costs incurred in a particular

responsibility centre can be influenced by the action of the executive heading that

responsibility centre. For example, direct materials and indirect materials.

(b) Uncontrollable Costs: Uncontrollable Costs are those costs which cannot be influenced by

the action of a specified number of an undertaking. In fact, no cost is controllable, it is only

in relation to a particular individual that may specify a particular cost to either controllable

or non-controllable. For example, rent and rates.

(c) Sunk Cost: These are historical costs which were incurred in the past and are not relevant

to the particular decision making problem being considered. While considering the

replacement of a plant, the depreciated book-value of the old asset is irrelevant as the amount

is a sunk cost which is to be written-off at the time of replacement. Unlike incremental or

decremental costs, sunk costs are not affected by increase or decrease of volume. Example

of sunk cost include dedicated fixed assets, development cost already incurred.

(d) Opportunity Cost: Opportunity costs mean the costs offorgoing or giving up an opportunity.

It is the notional value of going without the next best use of time, effort and money. These

indicate the income or potential benefits sacrificed because a certain course of action has

been taken. An example of opportunity costs is the market value forgone or sacrificed when

an old machine is being used.

(e) Replacement Cost: Such expenses may be incurred due to factors like change in method of

production, an addition or alteration in the factory building, change in flow of production

Cost - Methods. Techniques of Cost Accounting and Classification of Cost 309

etc. All such expenses are treated as production overheads; when amount of such expenses

is large, it may be spread over a period of time.

if) Conversion Cost: Conversion Costs are those costs incurred while converting materials

into semi-finished or finished goods. It is the aggregate of direct wages, direct expenses

and overhead costs of converting raw materials into finished products.

QUESTIONS

1. What are theimportant methods of Costing? Describe each of them briefly.

2. What are the important techniques of costing?

3. What method of costing would you recommend for the following industries? Give reasons.

(a) Ship Building

(b) Ready-made Garment

(c) Sugar Industries

(d) Hospitals

(e) Cigarettes

(f) Motor Cars Manufacture.

4. Describe the different classification of cost in detail.

5. What are the important basic requisites for classification of cost? Explain them briefly.

6. Write short notes on :

(a) Uniform Costing

(b) Historical Costing

(c) Marginal Costing

(d) Standard Costing

(e) Sunk Costing

(f) Standard Costing.

7. What are the differences between controllable costs and uncontrollable costs?

QQQ

CHAPTER 12

Cost Sheet ( or) Statement of Cost

ELEMENTS OF COST

Introduction

Elements of cost are necessary to have a proper classification and analysis of total cost. Thus,

elements of cost provide the management with necessary information for proper control and management

decisions. For this purpose, the total cost is analysed by the elements or nature of cost, i.e., material,

labour and overheads. The various elements of costs may be illustrated as below:

Elements of Cost

~ t ~

Materials Labour Other Expenses

~ ~ ~

r l l l l l

Direct Indirect Direct Indirect Direct Indirect

l

, Production or

Factory Overhead

1

Administration

Overhead

1

Overheads

t

Selling Overhead

l

Distribution

Overhead

By grouping of the above elements of cost, the following divisions of cost are obtained:

(1) Prime Cost

(2) Works Cost (Factory)

= Direct Materials + Direct Labour + Direct Expenses

= Prime Cost + Factory Overhead

Cost Sheet (or) Statement 01 Cost

(3) Cost of Production

(4) Cost of Sales (or) Total Cost

(I) Materials Cost

= Factory Cost + Office and Administrative Overhead

= Cost of Production + Selling and

Distribution Overhead

31/

Materials Costs refer to cost of materials which are the major substances used in production and are

converted into finished goods and semi-finished goods. Materials are grouped as direct materials and

indirect materials.

Direct Materials: Direct materials are those that form part of a product. Raw materials, semifinished

products, and finished products which can be identified with production of a product are known

as direct materials. Sugar cane, cotton, oilseeds, woods etc. are examples of direct materials. The cost of

materials involves conversion of raw materials into finished products.

Indirect Materials: Material costs, other than direct material cost are known as indirect material

cost. Indirect materials cannot be identified with a particular unit of cost or product. Indirect materials are

indirectly used for producing the products. Lubricating oil, consumable stores, fuel, design, layout etc. are

examples of indirect material cost.

(II) Labour Cost

In actual production of the product, labour is the prime factor which is physically and mentally

involved. The payment of remuneration of wages is made for their effort. The labour costs are grouped

into (a) Direct Labour and (b) Indirect Labour.

(a) Direct Labour: Direct labour cost or direct wages refer to those specifically incurred for or can

be readily charged to or identified with a specific job, contract, work order or any other unit of cost are

termed as direct labour cost. Wages for supervision, wages for foremen, wages for labours who are actually

engaged in operation or process are examples of direct labour cost.

(b) Indirect Labour: Indirect labour is for work in general. The importance of the distinction lies in

the fact that whereas direct labour can be identified with and charged to the job, indirect labour cannot be

so charged and has therefore to be treated as part of the factory overheads to be included in the cost of

production. Examples are salaries and wages of supervisors, store keepers, maintenance labour etc.

(III) Expenses

All expenses are other than material and labour that are incurred for a particular product or process.

They are defined by ICMA as "The cost of service provided to an undertaking and the notional cost of the

use of owned assets." Expenses are further grouped into (a) Direct Expenses and (b) Indirect Expenses.

,(a) Direct Expenses: Direct expenses which are incurred directly and identified with a unit of

output or process are treated as direct expenses. Hire charges of special plant or tool, royalty on product,

cost of special pattern etc. are the examples of direct expenses.

(b) Indirect Expenses: Indirect expenses are expenses other than indirect materials and indirect

labour, which cannot be directly identified with a unit of output. Rent, power, lighting, repairs, telephone

etc. are examples of indirect expenses.

Overheads

All indirect material cost, indirect labour cost, and indirect expenses are termed as Overheads.

Overheads may also be classified into (a) Production or Factory Overhead (b) Office and Administrative

Overheads (c) Selling Overhead and (d) Distribution Overhead.

312 A Textbook of Financial Cost and Management Accounting

(a) Production Overhead: Production Overhead is also termed as Factory Overhead. Factory

overhead includes indirect material, indirect labour and indirect wages which are incurred in the factory.

For example, rent of factory building, repairs, depreciation, wages of indirect workers, etc.

(b) Office and Administrative Overhead: Office and Administrative Overhead is the indirect

expenditure incurred in formulating the policies, establishment of objectives, planning, organizing and

controlling the operations of an undertaking. All office and administrative expenses like rent, staff salaries,

postage, telegram, general expenses etc. are examples.

(c) Selling Overhead: Selling Overhead is the indirect expenses which are incurred for promoting

sales, stimulating demand, securing orders and retaining customers. For example, advertisement, salesmen's

commission, salaries of salesmen etc.

(d) Distribution Overhead: These costs are incurred from the time the product is packed until it

reaches its destination. Cost of warehousing, cost of packing, transportation cost etc. are some of the

examples of distribution overhead.

COST SHEET

Meaning: Cost Sheet or a Cost Statement is "a document which provides for the assembly of the

estimated detailed elements of cost in respect of cost centre or a cost unit." The analysis for the different

elements of cost of the product is shown in the form of a statement called "Cost Sheet." The statement

summarises the cost of manufacturing a particular list of product and discloses for a particular period:

(I) Prime Cost;

(II) Works Cost (or) Factory Cost;

(III) Cost of Production;

(IV) Total Cost (or) Cost of Sales.

Importance of Cost Sheet

(1) It provides for the presentation of the total cost on the basis of the logical classification.

(2) Cost sheet helps in determination of cost per unit and total cost at different stages of production.

(3) Assists in fixing of selling price.

(4) It facilitates effective cost control and cost comparison.

(5) It discloses operational efficiency and inefficiency to the management for taking corrective actions.

(6) Enables the management in. the preparation of cost estimates to tenders and quotations.

SPECIMEN OF COST SHEET

Cost Sheet for the Period

Particulars Total Cost Cost per Unit

Rs. Rs.

Direct Materials :

Opening Stock of Raw Materials xxx

Purchases xxx

Carriage Inwards xxx

Less: Closing Stock of Raw Materials xxx

Direct Materials Consumed xxx

Add : Direct Wages xxx

Direct Expenses xxx

Cost Sheet (or) Statement a/Cost 313

Particulars Total Cost Cost per Unit

Rs. Rs.

Prime Cost (1) xxx xxx

Add : Works or Factory Overheads: xxx xxx

Indirect Materials

Indirect Labour

Factory Rent and Rates

Factory Lighting and Heating

Power and Fuel

Repairs and Maintenance

Cleaning

Drawing Office Expenses

Cost of Research and Equipments

Depreciation of Factory Plant

Factory Stationery

Insurance of Factory

Factory or Work Manager's Salary

Other Factory Expenses xxx xxx

Total Factory Cost xxx xxx

Add: Opening Stock of Work in Progress

Less: Closing Stock of Work in Progress

Works Cost (or) Factory Cost (2)

Add: Office & Administrative Overheads:

Office Rent and Rates

Office Salaries

Lighting and Heating

Office Stationery

Office Insurance

Postage and Telegrams

Office Cleaning

Legal Charges

Depreciation of Furniture and Office

Equipments and Buildings Audit Fees

Bank Charges and Commission , xxx xxx

Total Cost of Production (3) xxx xxx

Add: Opening Stock of Finished Goods xxx

xxx

Less: Closing Stock of Finished Goods xxx xxx

Cost of Production (4) xxx xxx

Add: Selling and Distribution Overheads :

Showroom Rent and Rates

Salesmen's Salaries

Salesmen's Commission

Sales Office Rent and Rates

Travelling Expenses of Salesmen

Warehouse Rent and Rates

Advertisement Expenses

Warehouse Staff Salaries

Carriage Outwards

Sales Manager's Salaries

Repairs and Depreciation of Delivery Van

314 A Textbook of Financial Cost and Management Accounting

Particulars Total Cost Cost per Unit

Rs. Rs.

Sample and Free Gifts

Bad debts, Debt Collection Expenses xxx xxx

Cost of sales (5) xxx

Profit I Loss (6) xxx

Sales xxx

Illustration: 1

From the following particulars, prepare a Cost Sheet showing (1) Cost of Materials Consumed (2)

Prime Cost (3) Factory Cost (4) Cost of Production and (5) Profit

Opening stock of raw materials

Opening stock of work in progress

Opening stock of finished goods

Raw materials purchased

Direct wages

Sales for the year

Closing stock of raw materials

Closing stock of work in progress

Factory overhead

Direct expenses

Office and Administrative overhead

Selling and Distribution expenses

Solution:

Rs.

20,000

10,000

50,000

5,00,000

3,80,000

12,00,000

75,000

15,000

80,000

50,000

60,000

30,000

Cost Sheet for the year ......

Particulars

Opening Stock of Raw Materials

Purchases

Less : Closing Stock of Raw Materials

Cost of Raw Materials Consumed (I)

Add : Direct Wages

Direct Expenses

Prime Cost (2)

Add : Factory overheads

Add: Opening stock of work in progress

Less: Closing stock of Work in Progress

Works Cost (or) Factory Cost (3)

Add: Office & Administrative Overhead

Cost of Production (4)

Add: Opening Stock of Finished Goods

Less: Closing Stock of Finished Goods

Amount Rs. Amount Rs.

20,000

5,00,000

5,20,000

75,000

4,45,000

3,80,000

50,000 4,30,000

8,75,000

80,000

10,000

90,000

15,000 75,000

9,50,000

60,000

10,10,000

50,000

10,60,000

50,000

Cost Sheet (or) Statement 01 Cost 315

Particulars Amount Rs. Amount Rs.

Cost of Goods Sold (5) 10,10,000

Add : Selling and Distribution Overhead 30,000

Cost of Sales (6) 10,40,000

Profit (7) 1,60,000

Sales for the year 12,00,000

Illustration: 2

The following information relates to the manufacture of a product during the month of Jan. 2003:

Raw materials consumed Rs. 20,000

Direct wages Rs. 12,000

Machine hours worked 1,000 hours

Machine hour rate Rs. 2 per hour

Office overhead 20% on works cost

Selling overhead Re. 0.40 per unit

Units produced 20,000 units

Units sold at Rs. 3 each; 18,000 units

Prepare a Cost Sheet and show (a) Prime Cost (b) Work Cost (c) Cost of Production (d) Cost of Goods Sold

(e) Cost of Sales (f) Profit

Solution:

Cost Sheet for Jan. 2003

Particulars Amount Rs. Amount Rs.

Raw Materials Consumed 20,000

Direct Wages 12,000

Prime Cost (l) 32,000

Add: Factory Overhead 1000 x Rs. 2 2,000

Work Cost (2) 34,000

Add : Office Overhead 20% on Works Cost 6,800

Cost of Production (3) 40,800

Less: Closing Stock of Finished Goods (20000 - 18000 = 2000 Units)

= 40,800 x

2,000 }

20,000

4,080

Cost of Goods Sold (4) 36,720

Add : Selling Overhead 18000 @ Re. 0.40 7,200

Cost of Sales (5) 43,920

Profit (6) 10,080

Sales 18000 Units @ Rs. 3 54,000

Illustration: 3

The following information relates to the manufacture of a product during the month of Jan. 2003:

Direct raw materials Rs. 1,60,000

Direct wages Rs. 90,000

Machine hours worked 6000

Machine hour rate Rs. 6

3/6 A Textbook of Financial Cost and Management Accounting

Office overhead 15% of work cost

SeIling overhead Rs. 2 per unit

Units produced 5000 units

Units Sold 5,000 units @ Rs. 80 each

Prepare a cost sheet and show (a) Cost per unit and (b) Profit for the period.

Solution:

Cost Sheet for January 2003

Paniculars Total Cost

Rs.

Direct Raw Materials 1,60,000

Direct wages 90,000

Prime cost 2,50,000

Add: Factory Overhead (6000 x Rs. 6) 36,000

Works Cost { } 2,86,000

Add : Office Overhead 2,86,000 x II~

42,900

Cost of Production 3,28,900

Add: Selling Overhead (5000 x Rs. 2) 10,000

Cost of Good Sold 3,38,900

Profit 61,100

Sales 5,000 x Rs. 80 4,00,000

Illustration: 4

Total per Unit

Rs.

32.00

18.00

50.00

7.20

57.20

8.58

65.78

2.00

67.78

12.22

80.00

From the following particulars calculate (1) Prime Cost (2) Factory Cost (3) Cost of Production and

(4) Cost of Sales:

Paniculars Rs. Paniculars Rs.

Direct Raw Materials 33,000 Depreciation of office building 1,000

Direct Wages 35,000 Depreciation of delivery Van 200

Direct Expenses 3,000 Bad debts 100

Factory Rent and rates 7,500 Advertising 300

Indirect Wages (Factory) 10,500 Salaries of salesmen 1.500

Factory Lighting 2,050 Up keeping of delivery Van 700

Factory Heating 1,500 Bank charges 100

Power (Factory) 4,400 Commission on sales 1.500

Office Stationery 900 Rent and rates (Office) 500

Director's Remuneration (Factory) 2,000 Loose tools written off 600

Director's Remuneration (Office) 4,000 Output (tonnes)

Factory Cleaning 1,000 (sales @ Rs.40 per unit) 5,000

Sundry Office Expenses 200

Factory Stationery 750

Water supply (Factory) 1,300

Factory Insurance 1,100

Office Insurance 500

Legal Expenses (Office) 400

Rent of Warehouse 300

Depreciation Plant & Machinery 2,000

..

Cost Sheet (or) Statement of Cost

Solution:

Particullus

Direct materials

Direct wages

Direct expenses

Prime Cost (l)

Add : Factory overheads

Factory rent and rates

Indirect wages

Factory lighting

Factory heating

Power (Factory)

Cost Sheet for the year 0 0 0 0 0 0 0

Director's remuneration (Factory)

Factory cleaning

Factory stationery

Water supply (Factory)

Factory Insurance

Depreciation of Plant & Machinery

Loose Tools written off

Works Cost (or) Factory Cost (2)

Add: Office and Administrative Overhead:

Office stationery

Director's remuneration (Office)

Sundry office expenses

Office insurance

Legal expenses (Office)

Depreciation of office building

Bank charges

Rent and rates (Office)

Cost of production (3)

Add : Selling and Distribution Overhead:

Rent of warehouse

Depreciation of delivery van

Bad debts

Advertising

Salesmen salaries

Up keep of delivery van

Commission on sales

Total Cost of Sales (4)

Profit

Sales 5000 tones @ Rs. 40 per unit

Illustration: 5

317

Rso Rso

33,000

35,000

3,000

71,000

7,500

10,500

2,050

1,500

4,400

2,000

1,000

750

1,300

1,100

2,000

600 34,700

1,05,700

900

4,000

200

500

400

1,000

100

500 7,600

1,13,300

300

200

100

300

1,500

700

1,500 4,600

1,17,900

82,100

2,00,000

From the fpllowing particulars calculate: (a) Prime Cost; (b) Works Cost; (c) Cost of Production;

(d) Cost of Sales; (e) Profit; and (f) Cost per unit.

Pandey Industries manufacture a product A. On 1st January 2003 finished goods in Stock Rs. 50,000.

Other stocks such as :

318

Work in progress (1.1.2002)

Raw materials (1.1.2002)

Rs.

Rs.

A Textbook of Financial Cost and Management Accounting

40,000

1,00,000

The information available from cOst records for the year ended 31 51 December, 2002 was as follows:

Direct materials

Direct wages

Carriage inward

Indirect wages

Factory cost

Stock on raw materials (31.12.2002)

Work in progress (31.12.2002)

Sales (1,20,000 units)

Indirect materials

Office and Administrative overhead

Selling and Distribution overhead

Stock on finished goods (31.12.2002)

Rs.

8,00,000

3,00,000

40,000

90,000

2,75,000

80,000

70,000

25,00,000

1,75,000

80,000

1,00,000

60,000

Solution:

Cost Sheet for the year ending 31S

\ Dec. 2002

Paniculars Amount Total cost

Rs. Rs.

Stock of raw materials (1.1.02) 1,00,000

Add: Direct materials 8,00,000

Carriage inwards 40,000

9,40,000

Less: Stock of raw materials (31.12.02) 80,000

Raw Materials Consumed 8,60,000

Add: Direct Wages 3,00,000

Prime Cost (1) 11,60,000

Add: Factory overhead 2,75,000

Add: Work in Progress (1.1.02) 40,000

3,15,000

Less: Work in Progress (31.12.02) 70,000 2,45,000

Work cost (or) Factory cost (2) 14,05,000

Add: Office & Administrative overhead 80,000

Cost of production (3) 14,85,000

Add: Stock of finished goods (1.1.02) 50,000

15,35,000

Less: Stock of finished goods (31.12.02) 60,000

Cost of goods sold (4) 14,75,000

Add: Selling and distribution expenses 1,00,000

Cost "of sales (5) 15,75,000

Profit (6) 9,205,000

Sales for the year 25,00.000

Cost Sheet (or) Statement o/Cost

Illustration: 6

319

The following particulars have been extracted from the books of Sharma & Co. Ltd., Chennai for the

year ended 31 51 March 2003

Raw Materials Consumed

Direct Wages

Other Direct Expenses

Factory Overheads 80% of direct wages

Office Overheads 10% of Work Cost

Rs. 1,82,000

Rs. 58,000

Rs. 22,000

Selling and distribution expenses Rs. 2 per unit sold

Units produced and sold during the month 20,000. You are required to prepare a cost sheet for the year 2003 and

also find the selling price per unit on the basis that profit mark up is uniformly made to yield a profit of 20% of the

selling price.

Solution:

Cost Sheet (units produced: 2000 units)

Particulars Per unit Amount

Rs. Rs.

Raw Materials Consumed 9.10 1,82,000

Direct Wages 2.90 58,000

Other Direct Expenses 1.10 22,000

Prime Cost (1) 13.10 2,62,000

Add : Factory Overheads :

~8.()()(" 80 80% of direct wages ] 2.32 46,400

100

Work Cost (2) 15.42 3,08,400

Add : Office Overheads :

[3.08.400 , 10 10% of work cost ] 1.542 30,840

100

Cost of Production (3) 16.962 3,39,240

Add : Selling & Distribution Expenses 2.00 40,000

Cost of Goods Sold (4) 18.962 3,79,240

Add : Profit 20% of Selling Price (E) 4.740 94,810

Selling Price 23,702 4,74,050

Illustration: 7

From the following informations of Mani & Co. Ltd., for the year 2003 you are required to prepare:

(a) Prime Cost (b) Work Cost (c) Cost of Production (d) Cost of goods sold and (e) Net Profit

Stock of raw materials (1.1.2003)

Purchase of raw materials

Stock of raw materials (31.12.2003)

Carriage Inward

Direct Wages

Rs.

50,000

1,70,000

80,000

10,000

1,50,000

320

Indirect Wages

Other Direct Charges

Office rent and rates

Factory rent and rates

Indirect consumption of materials

Depreciation on plant

Depreciation on office furniture

Salesmen salary

Salary to office supervisor

Other factory expenses

Other office expenses

General Manager's remunerations:

Office Rs.

Factory Rs.

SeIling Dept.

Other seIling expenses

Traveling expenses of salesmen

Carriage & Freight outward

Sales

Advertisement

Solution:

Particulars

Stock of raw materials (1.1.2003)

Add: Purchases

Carriage Inw~ds

Less: Stock of raw materials (31.12.2003)

Raw Materials Consumed (1)

Wages

Other Direct Charges

Prime Cost (2)

Add: Factory Overhead: (3)

Indirect Charges

Factory rent and rates

Indirect Materials

Depreciation of Plant

Other factory Expenses

General Manager's remuneration

Factory Cost (2+3) = 4

A Textbook of Financial Cost and Management Accounting

Statement of Cost

20,000

30,000

1,000

10,000

1,000

3,000

200

4,000

5,000

11,400

1,800

4,000

8,000

12,000

2,000

2,200

2,000

5,00,000

4,000

Amount

Rs.

50,000

1,70,000

10,000

2,30,000

80,000

20,000

10,000

1,000

3,000

11,400

8,000

Amount

Rs.

1,50,000

1,50,000

30,000

3,30,000

53,400

3,83,400

Add: Office & Administrative Overheads: (5)

Office rent and rates 1,000

Depreciation on office furniture 200

Salary to Office Supervisor 5,000

Other Office Expenses 1,800

General Managers remuneration 4,000 12,000

Cost of Production: (4+5) = 6 3,95,400

Cost Sheet (or) Statement of Cost

Add: SeIling & Distribution Overheads: (7)

Salary to Salesmen

General Manager's Salary

Other Selling Expenses

Advertisement

Traveling expenses

Carriage and freight overhead

Cost of Goods Sold (8)

Profit (9)

Sales (10)

Illustration: 8

4,000

12,000

2,000

4,000

2,200

2,000 26,200

4,21,600

78,400

5,00,000

321

A fire occurred in the factory premises on October 31, 2003. The accounting records have been

destroyed. Certain accounting records were kept in another building. They reveal the following for the

period September 1, 2003 to October 31, 2003:

(i) Direct materials purchased

(ii) Work in process inventory, 1.9.2003

(iii) Direct materials inventory, 1.9.2003

(iv) Finished goods inventory, 1.9.2003

(v) Indirect manufacturing costs

(vi) Sales revenues

(vii) Direct manufacturing labour

(viii) Prime costs

. (ix) Gross margin percentage based on revenues

(x) Cost of Goods available for sale

Rs.

Rs.

Rs.

Rs.

2,50,000

40,000

20,000

37,750

40% of conversion cost

Rs. 7,50,000

Rs. 2,22,250

Rs. 3,97,750

30%

Rs. 5,55,775

The loss is fully covered by insurance. The insurance Company wants to know the historical cost of the

inventories as a basis for negotiating a settieent, although the settlement is actually to be based on replacement cost,

not historical cost.

Required:

(i) Finished goods inventory, 31.10.2003

(ii) Work-in-process inventory, 31.10.2003

(iii) Direct materials inventory, 31.10.2003

Solution: (eA Inter, Nov. 2003)

Prime Cost (given) Rs.3,97,750

Direct material used

= Prime cost - Direct manufacturing labour cost

= 3,97,750 - 2,22,250

Conversion cost =

=

Indirect manufacturing cost

Direct manufacturing labour cost

0.6

2,22,250

0.6

= Rs. 3,70,416.67 - Rs. 2,22,250

= Rs. 1,75,500

= Rs. 3,70,416.67

= Rs. 1,48,166.67

322 A Textbook of Financial Cost and Management Accounting

Schedule of Computations

Direct materials 1.9.2003

Direct materials purchased

Direct materials available for use

Less: Direct material 31.10.2003

(Balancing figure)

Direct materials used

Add: Direct manufacturing labour cost

Prime costs (1)

Add: Indirect manufacturing cost

Manufacturing cost incurred during current period

Add: WIP 1.9.2003

Manufacturing cost to account for

Less: WIP 31.10.2003

Cost of goods manufactured (2)

Add: Finished goods 1.9.2003

Cost of goods available for sale 31.10.2003

Less: Finished gods 31.10.2003

Cost of goods sold (70% of 7,50,000) (3)

Alternatively:

Finished goods inventory 31.10.2003

WIP inventory 31.10.2003

Raw material inventory 31.10.2003

QUESTIONS

Rs.

Rs.

Rs.

1. What do you understand by 'cost sheet'? Briefly explain with specimen of cost sheet.

2. Explain the different elements of total costs.

3. Explain the importance of cost sheet.

4. Explain the different functional classification of overheads.

5. What items constitute (a) Prime Cost (b) Cost of Production and (c) Cost of Goods Sold.

6. Distinguish between :

(a) Direct material and Indirect material.

(b) Direct labour and Indirect labour.

(c) Direct expenses and Indirect expenses.

7. From the following particulars of a manufacturing firm prepare a statement showing:

(1) Cost of Materials Consumed

(2) Factory or Work Cost

Cost of Production Rs.

Stock of materials on I" January 2003 80,000

Purchases during the period 22,00,000

Stock of finished goods on I" January 2003 1,00,000

Direct wages 10,00,000

Sales 48,00,000

Factory on cost 30,00,000

Office and Administrative Expenses 2,00,000

Stock of raw materials on 31st December 2003 2,80,000

Stock of finished goods on 31" December 2003 1,20,000

Ans : (1) Rs. 20,00,000 (2) Rs. 33,00,000 (3) Rs. 35,00,000

Rs.

20,000

2,50,000

2,70,000

94,500

1,75,500

2,22,250

3,97,750

1,48,166.67

5,45,916.67

40,000

5,85,916.67

67,891.67

5,18,025

37,750

5,55,775

30,775

5,25,000

30,775

67,891.67

94,500

Cost Sheet (or) Statement of Cost 323

8. Mr. Ramesh furnishes the following data relating to the manufacture of a standard product during the month of

April 2003.

Raw materials consumed

Direct labour charges

Machine hour worked

Machine hour rate

Administrative overheads 20% on works cost

Selling and distribution expenses Re.0.50 per unit

Units Produced 17,100

Units Sold 16,000 at Rs.4 per unit

Rs.15,OOO

Rs. 9,000

900

Rs. 5

You are required to prepare a cost sheet from the above, showing: (a) the cost of production per unit. (b) Profit per unit

sold and profit for the period.

[Ans : (a) Rs. 2; (b) Rs. 1.50; and Rs. 24,000)

9. From the following particulars of a manufacturing firm, prepare a statement showing: (a) Prime Cost (b) Works Cost

(c) Cost of Production (d) Cost of Sales and (e) Profit.

Rs.

Materials used in manufacturing 60,000

Materials used in primary packing 10,000

Materials used in selling the product 1,500

Materials used in the factory 750

Administrative expenses 1,250

Depreciation on office building 750

Depreciation on factory building 1,750

Materials used in the office 1,250

Wages - production 10,000

Wages - factory supervision 2,000

Indirect expenses - factory 1,000

Selling expenses 3,500

Freight on materials purchased 5,000

Advertising 1,250

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

selling price?

Ans: (1) Prime Cost Rs. 85,000; (2) Works Cost Rs. 90,500; (3) Cost of Production Rs. 93,750; (4) Cost of Sales

Rs. 1,00,000; (5) Profit Rs. 25,000; (6) Selling Price Rs. 1,25,000

10. From the following particulars prepare a Cost Sheet showing production 4,000 units in 2002 and 6,000 units in 2003:

Rs.

Cost of materials 3,20,000

Wages 4,80,000

Manufacturing Expenses 2,00,000

Depreciation 2,40,000

Rent, Rates and Insurance 40,000

Selling Expenses 1,20,000

General Expenses 80,000

Sales 16,00,000

Actual Production in Units 4,000

The company plans to manufacture 6,000 units during 2003

Additional Information

(1) Price of materials is expected to rise by 20%

(2) Wage rates are expected to show an increase of 5%

(3) Manufacturing expenses will rise in proportion to the combined cost of materials and wages

(4) Selling expenses per unit will remain the same

(5) Materials sold to earn a profit of 10% on seIling price

[Ans: Production of 2,000 units: Prime cost Rs. 8,00,000; Total cost Rs. 14,80,000;

. Profit Rs. 1,20,000; Production of 3,000 units: Prime Cost Rs. 13,32,000;

Total Cost 22,04,000; Profit Rs. 2,63,000)

324 A Textbook of Financial Cost and Management Accounting

11. Gowda & Co. Ltd. is Manufacturing a Sewing Machine and the following details are furnished in respect of its factory

operations for the year ended 31" December 2003.

Work in progress in the beginning

Manufacturing Expenses

Work in Progress at the end:

At Prime Cost

Manufacturing Expenses

Rs.

1,02,000

30,000

90,000

18,000

Opening Stock of raw materials 4,50,000

Purchase of raw materials 9,54,000

Direct Labour 2,42,000

Manufacturing Expenses 1,68,000

Closing Stock of raw materials 4,08,000

On the basis of the above data, prepare a statement showing the cost of production

[Ans: Prime Cost Rs.13,50,OOO; works cost Rs.15,30,OOO]

12. From the following particulars of a manufacturing firm prepare a statement showing:

(a) Cost of production of goods manufactured

(b) Cost of goods sold and

(c) Profit

Stock of materials on I" January 2003

Purchase of raw materials

Wages paid

Works overhead

Work in progress (1-1-2003)

Work in progress (31-12-2003)

Stock of raw materials on 31" December 2003

Stock of finished goods (1-1-2003)

Stock of finished goods (31-12-2003)

Selling and distribution expenses

Office and administration expenses

Sales

[Aos : Cost of production Rs. 8,04,000

Cost of goods sold Rs. 8,09,000

Profit Rs. 70,000]

Rs.

30,000

4,50,000

2,30,000

92,000

12,000

15,000

25,000

60,000

35,000

20,000

30,000

9,00,000

Rs.

1,22,000

1,08,000

13. Prepare cost sheet for the year 2003 from the following showing the total cost and cost per unit number of unit produced

2000 units:

Rs.

Raw materials 1.1.2003 20,000

Purchases 3,60,000

Direct wages 1,12,000

Indirect wages 96,000

Raw materials 31.12.2003 24,000

Work in progress 1.1.2003 10,000

Work in progress 31.12.2003 12,000

Factory overheads 52,000

Office overheads 90,000

Selling overheads 32,000

Stock of finished goods 1.1.2003 (100 units) 40,000 stock of finished goods 31.12.2003 120 units. DIo.ing :he year

2003, it is decided to increase the production to 2400 units. It is anticipated that:

(a) Material prices will increase by 10% (b) Wages will reduce by 20%

(c) Other expenses will remain constant per unit (d) Expected profit 20% on sales

Ascertain selling price to be fixed per unit

[Aos : Productions 2000 units: Prime cost Rs.4,68,OOO; Cost of goods sold Rs. 7,33,760; Profit Rs.81,528; Production

2400 units: Prime Cost Rs. 5,77,440; Cost of goods sold Rs. 9,01,824; Profit Rs. 2,25,456]

Cost Sheet (or) Statement of Cost 325

14. From the following particulars relating to the manufacture of a standard product during the 2003, you ate required to

prepare a statement of cost and profit per unit.

Raw materials used Rs. 40,000

Direct wages Rs. 24,000

Man hours worked 9,500 hours

Man hour rate Rs. 4 per hour

Office overheads 20% on works cost

Selling overheads Rs. 1 per unit

Units produced 20,000 units

Units sold 18,000 @ Rs. 10 per unit

[Ans: Prime cost Rs. 64,000; Cost of production Rs. 1,22,400 at Rs. 6.12 per unit; Cost of goods sold Rs. 1,28,160 at

Rs. 7.12 per unit; Profit Rs. 51,840 at Rs. 2.88 per unit]

15. From the following particulars, prepare cost sheet

Opening stock of raw materials

Opening stock of finished goods

Closing stock of raw materials

Closing stock of finished goods

Purchase of raw materials

Opening stock of work in progress

Closing stock of work in progress

Sales during the year

Direct wages

Factory expenses

Office expenses

Selling expenses

Distribution expenses

[Ans : Prime cost Rs. 54,800

Cost of goods sold Rs. 1,05,400

Net Profit Rs. 72,000]

61,000

40,800

97,000

20,000

50,000

16,000

18,000

1,90,000

40,800

21,000

11,000

7,600

5,000

000

Meaning of Materials

CHAPTER 13

Materials Cost Control

..

Materials cost is one of the important elements of cost of product or unit. It constitutes a substantial

proportion of the total cost of production. For material cost control purposes, it is very essential to know

the important aspects of material, material control and material purchase control.

Materials: The term 'materials' refers to all commodities or components which are consumed in the

process of manufacture. The materials may be classified into Direct Materials and Indirect Materials.

Direct Materials: Direct Materials form part of the finished products. They can be easily identified

with a particular cost unit. For example, cotton used in textile mills, timber used in furniture industries.

Indirect Materials : Indirect materials indirectly used for conversion from raw materials into

finished products. They cannot be easily identified with a particular cost unit. For example, spare parts,

tools, nails, lubrications etc.

Materials are further classified on the basis of the nature which have to be used such as:

(a) Raw Materials, e.g., rubber, timber, steel etc.

(b) Components, e.g., instruments

(c) Consumable stores, e.g., cotton waste, brushes

(d) Maintenance Materials, e.g., spare parts

(e) Tools, e.g., jigs and fixtures

Materials Control

Materials control may be defined as the systematic control over the procurement, storage and usage

of materials so as to maintain an even flow of materials and at the same time avoiding excessive

investment in inventories.

Materials Cost Control

From the above definition we can derive the following important aspects:

(1) To ensure the smooth flow of production without interruptions.

(2) Prevention of excessive investments in materials stock.

Functions of Materials Control

327

The following are the important functions involved in materials control in order to achieve the

objectives of the stores department :

(1) Purchasing of Materials

(2) Receiving of Materials

(3) Inspection of Materials

(4) Storage of Materials

(5) Issue of Materials

(6) Maintenance of Stores Records

(7) Stock Audit.

Objectives of Stores Control

The following are the objectives of stores control :

(1) To receive materials and store them properly.

(2) To ensure proper production and preservation of materials.

(3) To make sure proper classification and codification of materials.

(4) To provide proper information to the management about stock of materials.

(5) To ensure good housekeeping and effective material handlings.

(6) To assist in verification and provision of supporting information for effective purchase action.

(7) To minimize obsolescence of materials adopted through effective control measures.

(8) To ensure the optimum investment in materials to avoid overstocking or understocking of

materials.

(9) To maintain proper records about materials, receipts, issues and balances.

(10) To issue materials as per specifications.

(11) To make sure of the availability of all types of materials.

(12) To ensure proper utilization of floor space.

Essentials of Material Control

Effective materials control is required for the following essesentials to be considered:

(1) Systematic planning for requirement of materials.

(2) Essentials for co-ordination and co-operation among different departments.

(3) Fixing of stock level is essential for avoiding overstocking.

(4) Hoor space is required for smooth handling of materials.

328 A Textbook of Financial Cost and Management Accounting

(5) Proper filing system should be adopted.

(6) Proper codification and classification of materials as per specifications.

(7) Perpetual inventory system should be adopted for verification of materials in stock.

(8) Proper planned storage control and issue.

(9) Systematic procedure should be adopted for materials, receipts and issues.

(10) Qualified personnel required to manage the materials functions effectively.

(11) Appropriate system of internal auditing should be adopted.

Advantages of Materials Control

The following are the advantages of materials control :

(1) It ensures continuous flow of production.

(2) There is maximum utilization of stores resources.

(3) It facilitates economy of buying.

(4) It ensures optimum investments in inventories.

(5) There is possibility of reduction of loss of theft, leakage, obsolescence etc.

(6) It minimizes cost of materials during purchase, storage and issue of materials.

(7) It facilitates effective information system to management.

Materials Purchase Control

Materials Purchase is one of the important functions of stores department. The basic objectives of the

material purchasing is to ensure continuous supply of raw materials to production and maximum reduction

of cost product. In other words, the chief aim of purchasing is to ensure, not only to procure the raw

materials at the lowest price but to reduce the cost of the finished product. In order to achieve the above

said objectives the following aspects and procedure should be adapted:

Organization of Purchasing

Materials may be purchased based on the size of the concern, nature of materials to be used, nature of

operations and management polices etc. A large company will have a separate purchase department while

a small firm on the other hand may have all functions including purchasing, carried out by the owner

himself. Materials may be purchased through Centralized Organization or Decentralized Organization.

Centralized Organization

Under this system, all the materials purchased are centralized. Accordingly all type of materials are

purchased through one purchase department. The following are the advantages of centralized purchasing :

Advantages of Centralized Purchasing

(1) Cheaper rate and favourable trade discounts are possible because of bulk purchasing.

(2) It ensures right quality and quantity because of specialized personnels.

(3) Buying and carrying cost can be reduced because of bulk purchasing.

(4) Blocking of funds in inventories can be avoided.

(5) Effective material purchase control is possible.

Materials Cost Control

Disadvantages of Centralized Purchasing

(1) Centralized Purchasing involves high initial cost.

(2) Material issue may be delayed because of many formalities.

(3) Purchasing procedure becomes rigid.

(4) There is lack of good housekeeping and material handling because of overcrowding.

(5) It is not suited where the plant is located far away.

Decentralized Purchasing

329

In decentralized purchasing each department is authorized to make its own purchase. This system is

suited where different production units are located at different places far away from each other. The

material procurement is done by different purchase departments.

It may be concluded that, most business concerns are operating on central purchasing system subject

to the terms and conditions of purchases.

Purchase Manager

Management is becoming increasingly concerned over the costs and risks of carrying investments. It

is a great pressure on the operating division to reduce the cost of inventories and cost cf finished products.

In this regard, an efficient purchase manager plays a vital role in handling the purchasing functions in

order to reduce the inventory cost. The duties and responsibilities of the purchasing managers depend on

the nature of product, size of the concern and management policies.

Qualities of the Purchasing Manager

(1) Integrity: Personal integrity is the important quality of the purchase manager because purchasing

involves huge sums of company money.

(2) Dependability: He must have this personality trait because continuous operations depend on the

reliability of the supplies.

(3) Initiative: He must have the ability of initiative to continuous search for alternative sources of

supply or alternative materials.

(4) Co-operation: Purchasing Manager must possess an unusual ability to co-operate.

(5) Tact: To maintain a sound and friendly relationship with suppliers, tact is considered to be an

important characteristic of the purchasing manager.

(6) Ability to Learn: A Purchasing personnel must have an inquiring mind. He must always be

seeking information about company's products, materials and process.

(7) Ability to Work on Details: He must have ability to work on details even though it is routine in nature.

(8) He must have the technic~1 knowledge of materials and sources acquired.

Duties of Purchasing Manager

The following are the most important and essential duties of a purchase manager:

(1) To organize and direct the purchasing functions effectively.

(2) To prepare a purchase budget.

(3) To search right source of supply.

330 A Textbook of Financial Cost and Management Accounting

(4) To execute agreement and placing of orders on supplies.

(5) Follow up of purchase orders for ensuring the delivery of ordered goods on time.

(6) Receiving the materials as per the specifications and placing of orders.

(7) Inspecting and testing of materials.

(8) Return the materials which are not in accordance with orders.

(9) Checking and passing of bills of payment

(10) He should maintain the reputation of the concern for integrity and fair dealings with others.

(11) To spend on purchases very carefully and wisely.

(12) To give suggestions to the top management for important decision making.

Functions of the Purchase Department

The basic objectives of the purchasing department is to ensure not only to procure the raw materials

at the cost price but to reduce the cost of finished products. For ensuring this, it will be useful to take into

considemtion the well-known factors such as right quality, right quantity, right price, right materials, right

source, right suppliers, right mode of transports and right attitude etc. This responsibility involves the

following procedure to be adopted :

Purchasing Procedure

(1) Bill of Materials.

(2) Purchase Requisition.

(3) Selection of Suppliers.

(4) Purchase Orders.

(5) Goods Received Note.

(6) Inspection of Materials.

(1) Bill of Materials (Specification of Materials): Bill of Materials is a list of containing all

materials required for manufacturing a product. In other words, it is a form which indicates the quantity

~d quality and other specifications of materials required for a particular job or process or operation. This

is a form sent to the purchase department for asking to purchase the said materials required for a particular

work order. At least five copies of bill of materials are prepared by materials requiring department. Out of

these copies one copy is sent to purchase department, to the stores, to the production section, to the cost

office and to the office copy for further reference.

(2) Purchase Requisition: It is a form which indicates indent for materials. In any industry, the

purchase department places orders for materials based on the purchase requisition form. Usually the

purchase requisition form is initiated by the storekeeper for the standard items, the stock which require

restocking again and again. Sometimes, it is initiated by other departments for special materials which are

not stocked in stores. Whenever any special material is required for production, the purchase requisition

form is prepared in three copies. Out of these copies one copy is sent to purchase department, one to the

production control department and one to the initiating department.

(3) Selection of Suppliers: On receipt of the purchase requisition, the purchasing department

prepares a list of suppliers who deals with the business of the materials to be purchased and are reliable. It

is useful for the purchasing department to call for quotations. If the material to be purchased is of small

Materials Cost Control 331

quantities and is required urgently, it may be purchased locally. After receiving the quotations, prepare a

comparative statement of the rates, terms and conditions mentioned in the tenders. If required samples may

be received from the suppliers who have quoted the lowest rates. After satisfying the above, select the

suitable suppliers to place the purchase order for required materials.

(4) Purchase Order: Purchase order is a letter which is sent to the suppliers for asking to supply the

specified materials. Purchase order must contain the rates, terms, quantity, quality, time of delivery and

other conditions mentioned therein. At least five copies of purchase order are prepared by the purchase

section and eaqh copy sent to :

(1) Original to the Suppliers.

(2) Storekeeping Department.

(3) Account Section.

(4) Inspection Department.

(5) Retained in the purchase department for further reference.

(5) Goods Received Note: The materials receiving section is responsible to receive the goods and

verify the contents of the packages along with Goods Received Note sent by the suppliers. This section

should ensure that the goods have been received as per the purchase order and record the same in the

Consignment Note. Five copies of the materials received report are generally prepared. Out of these

copies, the original is sent to purchasing department and remaining each copy sent to Stores department,

Inspection, Accounts department and one copy retained by it for future reference.

(6) Inspections of Materials: A detailed inspection is carried out after the materials are received.

The Inspection Section should ensure that the goods have been received according to purchase order

specification. Return of materials to suppliers, if any, damaged, spoiled, excess or not in accordance with

orders. If the materials are found to be satisfactory the bill of the suppliers is passed and the payment is

made to the suppliers.

QUESTIONS

1. What do you understand by the concept material?

2. Define Material Control.

3. What are the important functions of Materials Control?

4. Explain the objectives of Material Control.

5. Explain briefly the essentials of Materials Control.

6. What are the advantages of Material Control?

7. What do you mean by material purchase control?

8. What is Centralized Purchasing? What are its merits and demerits?

9. What is meant by Decentralized Purchasing?

10. What are the important functions of the purchasing department?

11. Explain briefly the duties of a purchase Manager in a large organization.

12. What are the important functions of the purchasing department?

13. What are the procedure to be adopted for purchasing the materials?

14. Write Short notes on:

(a) Bill of Materials

(b) Material Requisition

(c) Goods Received Note

(d) Purchase Order

000

Store and Storekeeping

CHAPTER 14

Materials: Inventory Control

Stores playa vital role in the operation of a company. Generally unworked material is stored and the

place where it is stored is called Store Room. It is in direct touch with the user departments in its day-today

activities. The chief aim of the stores is to ensure the smooth flow of production without any

interruption. Stores generally include raw materials, work in progress and finished goods.

Effective storekeeping and inventory control are indispensable to the control of material cost.

Further, stores often equated directly with money, as cap~taI is blocked in inventories.

Purpose of Storekeeping

(1) Storekeeping helps to examine carefully all goods and materials on receipts.

(2) It is essential to arrange for a systematic and efficient storing of materials.

(3) Storekeeping ensure accurate and prompt distribution of materials to user departments as per

issue requisition note.

(4) It is essential because stores often equated directly with money, as capital is blocked in

inventories.

Functions of the Storekeeper

The store is a service department headed by the storekeeper who holds the responsible position in the

organisation of the stores department. He is as much responsible for the articles incharge as a cashier for

the cash. Important functions of the storekeeper are given below:

(1) He must receive raw materials, components, tools, equipment and other items and account for

them properly.

(2) He must provide adequate and proper storage and preservation to the various items.

(3) He must check, and provide proper classification and codification of materials.

Materials: Inventory Control

(4) Issue the materials as per material issue requisition duly signed by an authorized person.

(5) He has to take steps to prevent leakage, theft, wastage and deterioration.

'(6) He must ensure good storekeeping.

(7) He should not permit any person without authorization.

(8) He should maintain proper records in order to know desired quantities available.

333

(9) He must provide adequate informations to the top executives for verifications and effective

decision making.

Stores Layout

In order to achieve the objectives of effective inventory control, well planned layout of stores should be

required. A planned stores layout will facilitate easy movement of materials, good housekeeping, sufficient

space for materials handling. It ensures effective utilization of storage space and judicious use of storage

equipments. The stores department should be equipped with shelves, racks, pallets and proper preservation

from rain. light and other such elements. An ideal location of stores should facilitate the volume and variety

of goods to be handled. In order to bring down the transport cost it should be close to roads or railway stations.

And also as far as possible, a the stores department should be near to the receiving department. In the case of

large organizations usually stores attached to each consuming department, whereas receiving is done centrally.

Types of Stores

The types of stores depend on the size, types and policy of the organization. Organization of stores

varies from concern to concern. As per the requirement of the firm the stores organization may be

classified into :

(a) Centralized Stores.

(b) Decentralized Stores.

(c) Combination of both, i.e., Centralized Stores with Sub Stores.

(a) Centralized Stores: This system is suitable to small-scale industries where it is desirable to

centralize the materials in one department. Under this system, the store room will be most conveniently

situated where it is near to all the departments.

Advantages of Centralized Stores

(1) Well planned layout of stores.

(2) Effective utilization of floor space.

(3) Better supervision of stores is possible.

(4) Effective material handling is possible.

(5) Lot of manual work may be eliminated.

(6) Better control is possible.

(7) Less investment is required.

(8) Ensures minimum wastages.

(9) Facilitates prompt flow of materials.

(10) Better forecasting is possible.

334

Disadvantages

(1) Increases transportation costs.

A Textbook of Financial Cost and Management Accounting

(2) Delay and inconvenience because of over-crowding of materials.

(3) Greater risk of loss in case of fire.

(4) Break down in transport will affect continuous flow of production.

(5) Increases cost of materials handling.

(b) Decentralized Stores: Under this system each department has its own stores. It is suitable to

large concern where there are several departments each using a different type of material from its own

stores. In this system all the disadvantages of centralized stores can be eliminated.

(c) Combination of Both : This system is also termed as Imprest System or stor~s control.

Centralized Stores with Sub Stores is usually adopted in large factories where departments are situated at a

distance from the central stores. In order to minimize the cost of transportation and materials handling, this

type of organization would be located nearer to the receiving department. Under this system material

receipts are stored in the central stores and issues are made to the sub-stores. Under imprest system of

stores control sub stores which are located nearer to the central stores for the purpose of draw supplies

from central stores and issue the required quantity to production. To maintain the stocks at the

predetermined level, the sub-stores make requisition from the central stores.

Fixation of Stock Level

Material control involves physical control of materials, preservation of stores, minimization of

obsolescence and damages through timely disposal and efficient handling. Effective stock control system

should ensure the minimization of inventory carrying cost and materials holding cost. Level of stock is the

important aspect of inventory control. Stock level may be overstocking or understocking. Overstocking

requires large capital with high cost of holding. In the case of understacking, production and overall

performance of the concern as a whole will affect. Thus, fixation of stock level is essential to maintain

sufficient stock for the smooth flow of production and sales. The following are the important techniques

usually adopted in different industries :

(a) Maximum Stock Level.

(b) Minimum Stock Level.

(c) Danger Level.

(d) Re-Order Level.

(e) Economic Ordering Quantity (EOQ).

(f) Average of Stack Level.

(a) Maximum Stock Level: The maximum stock level indicates the maximum quantity of an item

should not be allowed to increase. The maximum quantity of an item can be held in stack at any time. The

following factors can be considered while fixing the maximum stock levels :

(1) Availability of capital.

(2) Availability of floor space.

(3) Cost of storage.

(4) Possibility of fluctuation of prices in raw materials.

(5) Cost of insurance.

(6) Economic order of quantity.

Materials: Inventory Control

(7) Average rate of consumption.

(8) Re-order level and lead time.

(9) Seasonal nature of supply.

(10) Risk of obsolescence, depletion, evaporation etc.

The maximum stock level can be calculated by the following formula :

Maximum Stock Level = Re-Order Level + Re-Ordering Quantity

(Minimum Consumption x Minimum Re-Ordering Period)

335

(b) Minimum Stock Level:- Minimum stock level indicates the minimum quantity of material to be

maintained in stock. Accordingly, the minimum quantity of an item should not be allowed to fall. The

minimum stock is also known as Safety Stock or Buffer Stock. The following formula is adopted for

calculation of minimum stock level :

Minimum Stock Level = Re-Order Level - (Normal Consumption x Normal Re-Order Period)

(c) Danger Level: It is the stock level below the Minimum Level. This level indicates the danger

point to affect the normal production. When materials reach danger level, necessary steps should be taken

to restock the materials. If there is any emergency, special arrangements should be made for fresh issue.

Generally this level is fixed above the minimum level but below the reording level. The formula for

determination of danger level is :

Danger Level = Average Rate of Consumption x Emergency Supply Time

(d) Re-order Level: Re-order level is also termed as urdering Level. It indicates when to order, i.e.,

orders for its fresh supplies. This is the stock level between maximum and the minimum stock levels. The

re-order stock level is fixed on the basis of economic order quantity, lead time and average rate of

consumption. Calculation of re-order level is adopted by the following formula :

Re-order Level = Minimum Level + Consumption during the time to get fresh delivery

(or)

Re-order Level = Maximum Consumption x Maximum Re-ording Period

(e) Economic Order Quantity (EOQ): Economic Order Quantity is one of the important techniques

used to determine the optimum quantity or number of orders to be placed from the supp.liers. The main

objectives of economic order quantity is to minimize the cost of ordering, cost of carrying materials and

total cost of production. Ordering costs include cost of stationery, salaries of those engaged in receiving

and inspecting, general office and administrative expenses of purchase departments. Carrying costs are

incurred on stationery, salaries, rent, materials handling cost, interest on capital, insurance cost, risk of

obsolescence, deterioration and wastage of materials and evaporation. Economic Order Quantity can be

calculated by the following formula :

EOQ =

Where:

EOQ

A

B

C

S

=

=

=

=

=

~AB

CS

Economic Ordering Quantity

Annual Consumption

Buying Cost per Order

Cost Per Unit

Storage and Carrying Cost per Annum

336 A Textbook of Financial Cost and Management Accounting

(f) Average Stock Level: Average stock level is determined on the basis of minimum stock level and

re-order quantity. This is calculated with the help of the following formula:

Average Stock Level

= Minimum Stock Level + \t2 of Re-order Quantity

(or)

Minimum Level + Maximum Level

= 2

Illustration: 1

From the following particulars calculate the

(a) Maximum Stock Level.

(b) Minimum Stock Level.

(c) Re-ordering Level.

(d) Average Stock Level.

(1) Normal consumption = 600 units per week.

(2) Maximum consumption = 840 units per week.

(3) Minimum consumption = 480 unit per week.

(4) Re-order quantity = 7200 units.

(5) Re-order period = 10 to 15 weeks.

(6) Normal reorder period = 12 weeks.

Solution:

Re-order Level

= Maximum Consumption x Maximum Re-order Period

= 840 x 15 = 12600 units

Minimum Stock Level

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

= 12600 - (600 x 12)

= 12600 - 7200 = 5400 units

Maximum Stock Level

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

= 12600 + 7200 - (480 x 10)

= 19800 - 4800 = 15000 units.

Average Stock Level

Minimum Stock Level + Maximum Stock Level

=

=

5400 + 15000

2

20400

2

= 10200 units

2

Materials: Inventory Control

Illustration: 2

The following information available in respect of a material X :

Re-order Quantity

Maximum Consumption

Minimum Consumption

Normal Consumption

Re-order Period

Calculate the following :

(a) Re-order Level

=

=

=

=

=

(b) Minimum Stock Level

(c) Maximum Stock Level

Solution:

(a) Re-order Level :

1800 units

450 units per week

150 units per week

300 units per week

3 to 5 weeks

= Maximum Consumption x Maximum Re-order Period

= 450 x 5 = 2250 units

(b) Minimum Stock Level:

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

= 2250 - (300 x 4)

= 2250 - 1200 = 1050 units.

(c) Maximum Stock Level:

= Re-order Level + Re-order Quantity - (Minimum Consumption x

Minimum Re-order Period)

= 2250 + 1800 - (150 x 3)

= 4050 - 450 = 3600 units.

(d) Normal Re·order Period:

Minimum Re-order period + Maximum Re-order Period =

=

=

Illustration: 3

3 weeks + 5 weeks

8

2

2

= 4 weeks

2

337

Two components P, Q are used as follows. Normal usage 1000 units per week each. Re-ordering

quantity P - 20,000; Q 8,000. Re-ordering period P - 4 to 6; weeks; Q 2 to 4; minimum usage 2000 units

per week; each maximum usage 3000 units per week each.

You are required to calculate the following each of the components :

(1) Minimum Stock Level

(2) Maximum Stock Level

(3) Average Stock Level

(4) Re-ordering Level

338 A Textbook of Financial Cost and Management Accounting

Solution:

(1) Re-ordering Level

Product P

Product Q

(2) Minimum Level

Product P

Product Q

(3) Maximum Level

Product P

Product Q

(4) Average Stock Level

Product P

Product Q

Illustrat~on: 4

=

=

=

=

=

=

=

=

=

=

Maximum Consumption x Maximum Re-Order Period

3000 x 6 = 18,000 units

3000 x 4 = 12,000 units

Re-order Level - (Normal Consumption x Normal

Re-order Period)

18,000 - (1,000 x 5)

18,000 - 5,000 = 13,000 units

12,000 - (1,000 x 3)

12,000 - 3,000 = 9,000 units

Re-order Level + Re-order Quantity -

(Minimum Consumption x Minimum

Re-order Period)

18,000 + 20,000 - (2,000 x 4)

= 38,000 - 8,000 = 30,000 units

= 12,000 + 8,000 - (2,000 x 2)

= 20,000 - 4,000 = 16,000 units

=

=

=

Minimum Level + Yz of Re-order Quantity

13,000 + ~ (20,000)

13,000 + 10,000 = 23,000 units

= 9,000 + ~ (8,000)

= 9,000 + 4,000 = 13,000 units

From the following information for last twelve months, compute the

(1) Re-order Level

(2) Minimum Level

(3) Maximum Level

(4) Average Stock Level for the components of X and Y

Maximum Consumption in a month

Minimum Consumption in a month

Average Consumption in a month

Re-order period in a month

Re-order quantity in units

X

3,000

2,000

1,000

8 to 12

8,000

Components

y

3,000

2,000

1,000

4 to 8

12,000

Materials: Inventory Control

Solution:

( 1) Re-order level

Product X

Product Y

(2) Minimum Level

Product X

Product Y

(3) Maximum Level

Product X

Product Y

(4) Average Stock Level

Product X

Product Y

Normal Re-order Period :

Product X

Produci Y

Illustration: 5

=

=

=

=

=

Maximum Consumption x Maximum Re-order period

3,000 x 12 = 36,000 units

3,000 x 8 = 24,000 units

Re-order Level - (Normal Consumption x Normal

Re-order Period)

36,000 - (1,000 x 10)

= 36,000 - 10,000 = 26,000 units

= 24,000 - (1,000 x 6)

= 24,000 - 6,000 = 18,000 units

= Re-order Level + Re-order quantity -

(Minimum Consumption x Minimum Re-order Period)

= 36,000 + 8,000 - (2,000 x 8)

= 44,000 - 16,000 = 28,000 units

= 24,000 + 12,000 - (2,000 x 4)

= 36,000 - 8,000 = 28,000 units

= Minimum Level + ~ of Re-order Quantity

= 28,000 + ~ (8,000)

= 28,000 + 4,000 = 32,000 units

= 28,000 + ~ (12,000)

= 28,000 + 6,000 = 34,000 units

=

=

=

=

8 Months + 12 Months

20

2

2

= 10 months

4 Months + 8 Months

12

2

2

= 6 months

From the following particulars calculate Economic Order Quantity :

Annual Consumption = 16,000 Units

Buying Cost per order = Rs. 18

Cost per unit of material = Re. I

Storage and Carrying cost = 20% of average inventory

339

340

Solution:

A Textbook of Financial Cost and Management Accounting

Calculation of Economic Order Quantity:

Economic Order Quantity = . [2'AB \fCS

Where :

A = Annual Consumption

B = Buying Cost per order

C = Cost per unit of material

S = Storage and Carrying cost

EOQ = ~ 2C

A

: -----------

2 x 16000 x 18

= 1 x 20 %

= 1700 units

Illustration: 6

2 x 16000 x 18

=

x 20

100

A company uses a particular material in a factory which is 20000 units per year. The cost per unit of

material is Rs. 10. The cost of placing one order is Rs. 100 and the inventory carrying cost 20% on average

inventory. From the above information calculate Economic Order Quantity.

Solution:

C.'",,,,o. of ::' oro... ~w .. tity ~ 2;:

A - Annual Consumption = 20000 units

B - Buying Cost per order = Rs. 100

C - Cost per unit = Rs. 10

S - Storage and Carrying cost = 20% on average inventory

E OQ = ~ 2;S" \_\_\_\_\_\_\_\_\_\_ \_

2 x 20000 x 100

= 10 x 20 %

= 1414 units

Illustration: 7

=

2 x 20000 x 100

10 x 20

100

Find out the Economic Order Quantity and order schedule of raw materials and packing materials

with the following data given to you:

(l) Cost of ordering:

Raw materials = Rs. 1000 per order

Packing materials = Rs. 5000 per order

Materials: Inventory Control

(2) Cost of holding Inventory :

Raw materials = 1 Paise per unit per month

Packing materials = 5 Paise per unit per month

(3) Production rate :

2,00,000 Units per month

Solution:

Calculation of Economic Order Quantity :

EOQ = .~

\fCS

Where:

EOQ = Economic Order Quantity

A = Units Consumed in a month

B = Buying Cost per order

C = Cost per unit

S = Inventory Carrying Cost per month

(a) Raw materials :

EOQ =

2 x 2,00,000 x 1000

0.01

= ~ 40,00,00,00,000

= 2,00,000 units

Thus one order for 2,00,000 units each month

(b) Packaging Materials

EOQ =

=

=

Thus one order for 2,00,000 units per month

Illustration: 8 •

2 x 2,00,000 x 5000

0.05

~ 40,00,00,00,000

2,00,000 units

341

A Ltd. Co. is committed to supply 24000 bearings per annum to B Ltd. on a steady basis. It is

estimated that it costs 10 paise as inventory holding cost per bearing per month and that the set up cost per

run of bearing manufacture is Rs. 324. .

(I) What should be the optimum run size for bearing manufacture?

(2) What would be the interval between two consecutive optimum runs?

(3) Find out the minimum inventory cost per annum.

342

Solution:

A Textbook of Financial Cost and Management Accounting

(1) Economic batch or run size

A

B

C

EOQ =

Where:

=

=

=

Annual Consumptions

Buying Cost or set up cost

Cost per unit

.~

\fCS

S = Carrying Cost or Holding Cost per unit

=

Alternative Solution ~ 2 x 324 x 24000 --------- = 3600 units

10

The economic batch size figure can also be obtained by taking monthly figure as follows:

=

=

(2) Number of Set Up per Annum

2 x 2000 units x Rs. 324

0.10

3600 units

Annual Production

Number of set up per annum =

Interval between two consecutive optimum runs =

(3) Minimum Inventory Cost per Year

24,000 3,600

Economic run size

24,000

3,600

2

6

3

12

20

3

times

=

= x 324 + x 1.2

3,600 2

= Rs. 2,160 + Rs. 2,160 = Rs. 4320

Illustration: 9

12 x 3

20

36

= = 1.8 months

20

A company manufactures a product from a raw material which is purchased at Rs. 60 per kg. The

company incurs a handling cost of Rs. 360 plus freight of Rs.390 per order. The incremental carrying cost

of inventory of raw material is Re. 0.50 per kg. per month. In addition, the cost of working capital finance

on the investment in inventory of raw material is Rs. 9 per kg. per annum. The annual production of the

product is 1,00,000 units and 2.5 units are obtained from one kg. of raw material.

Materials: Inventory Control 343

Required:

(1) Calculate the Economic Order Quantity of raw materials.

(2) Advise, how frequently should order for procurement be placed.

(3) If the company proposes to rationalize placement of orders on quarterly basis, what percentage of discount

in the prices of raw material should be negotiated?

Solution:

( 1 ) Economic Order Quantity =

A

B

S

=

=

=

Annual Consumption

Buying Cost per order

Storage and Carrying cost

{ CA Inter; Nov. 2001J

A (Annual requirement of Raw materials in kgs) =

1 kg x 1,00,000 units

2.5 units

S Carrying Cost and Storage Expenses

B Buying Cost per order

EOQ

(2) Annual Consumption

Quantity per order

No. of orders

Frequency

(or)

(3) Quarterly Orders

No. of orders

Total Cost:

Order Placing Cost (4 x 750)

10,000

Carrying Cost =

0.5 x 4

x 15

=~

=

=

=

=

=

=

=

=

=

=

= 40000 kg.

= (0.5 x 12) + Rs.9

= Rs. 15 per unit

= Rs.360 = Rs. 390 = Rs. 750

2 x 40000 x 750

15

2000 kgs

40000 kgs

2000 kgs

40,000 = 20 orders in 12 months

2,000

12 months

20 orders

365 months

20 orders

40,000 kgs

4 orders

40,000

10,000

Rs.

3,000

75,000

78,000

= 0.6 months

= 18 days (approx.)

= 10000 kgs per order

= 4 orders

344

Total Cost of EOQ :

No. of Orders =

Order Placing Cost (20 x 750) =

2,000

Carrying Cost = --- x 15 = 0.5 x 4

Increase in cost to be compensated by discount :

Total Cost =

Total Cost E 0 Q =

Increase in Cost

Price of discount per unit

A Textbook of Financial Cost and Management Accounting

20 Rs.

15,000

15,000

30,000

Rs.78,OOO

Rs.30,OOO

48,000

48,000

40,000 kg

= Rs. 1.20 per unit

Percentage of discount in the prices of raw materials =

Rs. 1.20

60

x 100

= 2% discount

The ABC Analysis

ABC Analysis is one of the important techniques which is based on grading the items according to

the importance of materials. This method is popularly known as Always Better Control. This is also termed

as Proportional Value Analysis - In inventory control, this technique helps to analyze the distribution of

any characteristic by money value of importance in order to determine its importance. Accordingly,

materials are grouped into three categories on the basis of the money value of importance of materials.

(1) High Value Materials - A

(2) Medium Value Materials - B

(3) Low Value Materials - C

The items, which are of high value and less than 10 per cent of the total consumption or inventory

can be called as 'A' grouped materials. It is required to exercise selective control and focus more attention

because of high value items. Similarly, 70 per cent of materials in total consumption or inventory which

lies 10 per cent of the inventory value can be grouped under 'C' categories. The materials which have

moderate value that lies between the high value materials and low value materials are grouped under 'B'

category. The following table shows more explanation about ABC Analysis :

Category Percentage to total inventory Percentage to total inventory cost

A

B

C

Advantages of ABC Analysis

Less than 10

10 to 20

70 to 80

(1) Exercise selective control is possible.

(2) Focus high attention on high value items is possible.

(3) It helps to reduce the clerical efforts and costs.

(4) It facilitates better planning and improved inventory turnover.

(5) It facilitates goods storekeeping and effective materials handling.

70 to 80·

15 to 25

Less than 10

Materials: Inventory Control 345

Classification and Codification

In order to ensure the effective inventory control, it should be carried out with the classification and

codification of materials. Codification is the process of representing each item by a number, the digits of

which indicate the group, the sub group, the type and the size and shape of the items. The codification

process could be obtained by the nature of materials in grouping all items of the same metal content say

ferrous and non-ferrous etc. The system of codification could be built by the end use of items, that is, items

grouped according to maintenance, spinning, weaving, packing, foundry, machine shop etc.

Advantages of Codification

(1) Codes ensure the secrecy of materials.

(2) It is essential for mechanical accounting.

(3) Easy identification of material is possible.

(4) It ensures effective material control.

(5) It minimizes length in description of materials.

(6) Effective materials handling is possible.

(7) It helps in avoiding duplication of materials.

(8) Codification facilitates less clerical work.

(9) Cost reduction is possible.

Methods of Coding

The following are the three important Methods of Codification :

(1) Numerical Method.

(2) Alphabetical Method.

(3) Numerical Cum Alphabetical Method.

(1) Numerical Method: Under this method, each number or numerical digit is allotted to each item

or material. Accordingly, each code should uniquely indicate one item. For example, in printing press

following codes may be assigned :

Paper 145

Ink 155

Gum 165

There are various universal decimal classification of codification used in libraries may be indicated

for identification of items.

(2) Alphabetical Method: In this method alphabets or letters are used for codification of each

category of materials. Accordingly each letter or alphabet is allotted for each item or material. For

example, 'C' for copper, 'S' for steel and so on.

(3) Numerical Cum Alphabetical Method: This method is done by a combination of numerical and

alphabetical method. Under this method both numerical along with alphabet is allotted for each item. For

example, IR 5 may indicate Ink Red of Grade 5, Steel wire 6 may be denoted by SW 6 etc.

346 A Textbook of Financial Cost and Management Accounting

Inventory System

The chief aims of inventory control is as follows :

(1) To maintain a balanced inventory.

(2) To ensure the smooth flow of production.

(3) To keep the investment in inventory as low as possible.

Accordingly stock verification is an important aspect to ensure and maintain a balanced inventory.

The following are the two systems of stock verification adopted in different industries :

(1) Periodic Inventory System.

(2) Perpetual Inventory System.

(3) Continuous Stock Varification.

(1) Periodic Inventory System: Under this system, quantity and value of materials are checked and

verified at the end of the accounting period after having a physical verification of the units in hand.

(2) Perpetual Inventory System: The Perpetual Inventory System is also known as Automatic Inventory

System. This is one of the important methods adopted for verification inventories to know the physical balances.

According to I C M A London defines Perpetual Inventory System as a method of recording stores balances

after every receipt and issue to facilitate regular checking and to obviate closing down for stock taking.

Advantages of Perpetual Inventory System

(1) It facilitates rigid control over stock of materials.

(2) It gives upto date details about materials in stock.

(3) Not necessary to stop production for stock taking.

(4) It assists to minimize pilferage and fraudulent practices.

(5) It enables to reconcile the stock records and document for accuracy.

(6) It helps to take the important decisions for corrective actions.

Perpetual Inventory Records

Perpetual Inventory represents a system of records maintained by the organization. The records are

of two types, viz. :

(a) Bin Cards

(b) Stores Ledger

A constant comparison of the quantity balances of these two set of records is made and the balances

are reconciled.

(a) Bin Cards: Bin Card is only quantitative record of stores receipt, issue and balance and is kept by

the Storekeeper for each item of stores.

(b) Stores Ledger: Stores ledger is both quantitative and monetary value record of stores receipt,

issue and balance and is prepared by the Cost Accounting Department.

Materials: Inventory Control 347

Bin Card V s Stores Ledger

The Difference between Bin Card and the Stores Ledger can be summarized as follows:

Bin Card

(1) Bin Cards are maintained at the stores

(2) It is posted by Issue Clerk

(3) Bin Cards meant for recording record of quantity

only

(4) Transactions posted individualIy

(5) Posting can be made at the time of issue.

Stores Ledger

(1) Stores Ledger is maintained in the Accounts

Department.

(2) It is posted by Ledger Clerk.

(3) It is as a record of quantity and value.

(4) Transactions can be posted periodicalIy.

(5) In stores ledger posting can be made after issue.

(3) Continuous Stock Verification: Since Verification of physical inventory is an essential feature of

a sound system of material control, a system of continuous stock taking is introduced. Continuous stock taking

ensures that the balances of all items of stocks are checked at least three to four times in a year by physical

verification. It avoids long and costly procedure of closing down the stores for stock taking on periodical

basis. Stock discrepancies are detected on timely basis and preventive measures can be taken. The correctness

of the physical stocks as reflected in the books is ensured and thus the monthly accounts represent a true and

fair view of the business. Continuous Stock Verification not only serves as an essential tool of material control

but also will help in proper presentation of accounting information to the management.

Continuous Stock Taking Vs Periodic Stock Taking

The differences between Continuous Stock Taking and Periodic Stock Taking can be summarized as

follows:

Continuous Stock Taking

(1) Continuous stock taking is held throughout the year.

(2) Stock discrepancies are detected and prevented

without delay.

(3) Under this system normal work will not be disrupted.

(4) Permanent personnels are required.

(5) Long and costly procedure on continuous stock

verification.

(6) Physical verification of materials are on random

basis.

Material Storage Losses

Periodic Stock Taking

(1) It is held once in a year.

(2) Under this system preventive measures is the delay

process.

(3) Under this system there is closing down the stores

for stock taking.

(4) Temporary personnel are required.

(5) It is cheaper and shorter period is required.

(6) AlI materials are thorougly checked.

The investment in materials constitute a major portion of current assets, so it is essential to exercise

effective stores control. Stores control helps to avoid losses from misappropriation, damage, deterioration

etc. Generally material storage losses arising during storage may be classified as :

(1) Normal Loss

(2) Abnormal Loss

(1) Normal Loss: Normal Losses arise during the storage of materials due to the avoidable reasons of

pilferage, theft, careless of materials handling, clerical errors, improper storage, wrong entries etc.

(2) Abnormal Loss: Abnormal Losses arise during the storage of materials due to unavoidable causes

of evaporation, shrinkage, bulk losses due to accident, fire, etc.

348 A Textbook of Financial Cost and Management Accounting

Accounting Treatment of Normal Loss and Abnormal Loss

The following are the accounting treatment of normal and abnormal loss of materials arising during

storage:

(1) Normal Loss: (a) Inflate the issue price. (b) Charge to stores overheads. (c) Treat it as a

separate item of overheads to be recovered as a percentage of materials consumed.

(2) Abnormal Loss: Abnormal losses are directly charged to Costing Profit and Loss Account.

(3) If the loss is due to error in documentation it should be corrected through adjustment entries.

Inventory Thrnover Ratio

Inventory Turnover Ratio may be defined as "a ratio which measures the number of times a firm's

average inventory is sold during a year." It is a ratio which is useful to measure the firm's inventory

performance. High rate of inventory turnover ratio denotes that materials are fast moving stock. A low

turnover rate indicates the locking up of working capital in undesirable items. The Inventory turnover ratio

is calculated by the following formula :

Material Turnover Ratio =

Material Turnover in days =

Illustration: 10

Cost of Material Used

Average Value of Material in Stock

Days during the period

Inventory Turnover Ratio

Calculate the Inventory Turnover Ratio for the year 2003 from the following details :

Opening Stock

Closing Stock

Purchases

Determine fast moving materials

Solution:

Opening Stock

Add : Purchases

Less: Closing Stock

Materials Consumed

Average Inventory =

=

=

Material X

Rs.

50,000

30,000

Material Y

3,80,000

X Rs.

50,000

3,80,000

4,30,000

30,000

4,00,000

Rs.

1,75,000

1,25,000

2,50,000

Y Rs.

1,75,000

2,50,000

4,25,000

1,25,000

3,00,000

Opening Stock + Closing Stock

2

50,000 + 30,000

2

80,000

2

3,00,000

2

1.75,000 + 1,25,000

2

= Rs. 40,000; Rs. 1,50,000

Materials: Inventory Control

Material Turnover Ratio

Material X =

Material X =

=

4,00,000

40,000

3,00,000

1,50,000

Materials Consumed

Average Inventory

= 10 times

= 2 times

The turnover ratio of Material X being higher than that of Material Y, the former is a fast moving material.

QUESTIONS

1. What do you meant by store and store keeping?

2. Explain the purpose of storekeeping.

3. What are the important functions of storekeeper?

4. What do you mean by stores layout?

5. Explain briefly the different types of stores.

6. What do you understand by Maximum Stock. Minimum Stock and Re-order Level?

7. What is Economic Order Quantity? Explain its significance.

S. Explain the concept of ABC Analysis .

. 9. Explain briefly the Classification and Codification of materials.

10. What are the advantages of Codification?

11. Explain briefly the Methods of Coding.

12. What is Perpetual Inventory System? Explain its advantages.

13. What do you understand by Bin Card and Stores Ledger?

14. What are the differences between Bin Card and Stores Ledger?

349

15. What is Continuous Stock Verification? What are the differences between Continuous Stock Taking and Periodic Stock

Taking?

16. Explain briefly the material storage losses.

17. What is Inventory Turnover Ratio? Explain its importance.

IS. From the following particulars calculate :

(a) Re-order Level. (b) Minimum Level. (c) Maximum Level. (d) Average Level.

Normal usage 100 units per day

Maximum usage 130 units per day

Minimum usage 60 units per day

Economic Order Quantity 5000 units

Re-order Period 25 to 30 days.

[Ans: (a) Re-order Level = 3900 units. (b) Minimum Level = 1150 units. (c) Maximum Level = 7400 units. (d)

Average Level = 4275 units]

19. Calculate E 0 Q from the following:

Annual Consumption = 600 units.

Ordering Cost Rs. 12 per order.

Carrying Cost 20% Price per unit Rs. 20.

[Ans : EO Q = 60 units].

20. Calculate (a) Maximum Level, (b) Minimum Level, and (c) Re-order Level.

Re-order Quantity = 1500 units.

Re-order Period = 4 to 6 weeks.

Maximum Consumption = 400 units per week.

Normal Consumption = 300 units per week.

Maximum consumption = 250 units per week.

[Ans : Re order Level = 2400 units.

Maximum Level = 2900 units.

Minimum Level = 900 units.

Normal Re order Period = 5 weeks].

350 A Textbook of Financial Cost and Management Accounting

21. A manufacturing company purchases 2000 units of a particular material per year at a unit cost of Rs.20, the ordering

cost per order is Rs.50 and the inventory carrying cost is 25%. Find out the Economic Order Quantity and number of

orders to be placed in a year.

[Ans : EO Q 200 units each in 10 orders].

22. Calculate Economic Order Quantity from the following particulars :

Annual Consumption = 20000 units.

Buying Cost per order Rs. 10.

Cost per unit Rs. 100.

Inventory Carrying Cost 10% of cost.

[Ans : E 0 Q = 200 units].

23. The following information is available in respect of Material X

Re-order Quantity = 3000 units

Re-order Period = 4 to 6 weeks

Maximum Consumption = 800 units per week

Normal Consumption = 600 units per week

Minimum Consumption = 500 units per week

Calculate: (a) Re-order Level, (b) Minimum Level,

(c) Maximum Level, (d) Average Stock Level.

[Ans : (a) Re-order Level = 4800 units; Minimum Level = 1800 units;

Maximum Level 5800 units; Average Stock Level: 3800].

24. The following information is available in respect of Component Y :

Maximum Stock Level 8,400 units

Maximum Consumption 1,500 units per month

Minimum Consumption 800 units per month

Re-order period 2 to 4 months

You are required to calculate:

(l) Re-order Level

(2) Re-order quantity

[Ans : 6,000 units; 4,000 units]

25. Two Components of X and Y are used as follows:

Normal usage 50 units per week each

Minimum usage 25 units per week each

Maximum usage 75 units per week each

Re-order quantity X: 400 units, Y : 600 units

Re-order period X: 4 weeks , Y : 2 to 4 weeks

Calculate for each components :

(a) Re-order Level

(b) Minimum Level

(c) Maximum Level

(d) Average Stock Level

[Ans: (a) 300 units (b) ISO units (c) 850 units (d) 500 units].

26. Calculate the economic order quantity from the following particulars :

Annual requirement 1,600 units

Cost of materials per units Rs.40

Cost of placing and receiving one order Rs.50

Annual carrying cost of inventory 10% of inventory value

27. Calculate Economic Order Quantity from the following:

Annual consumption 600 units

Ordering cost Rs.12 per unit

Carrying cost 20%

Price per unit Rs.20

[Ans : 60 units]

28. Find out the Economic Order Quantity and the number of orders per year from the following information:

Annual consumption 36,000 units

Cost per unit Rs. 54

Ordering cost Rs. ISO per order

Materials: Inventory Control

Inventory carrying cost 20% of the average inventory

[Ans : EOQ - 1000 units; No. of orders 36]

29. The following information relating material Q.75 is available:

Annual consumption 2.400 units

Cost per unit Rs. 2.40

Ordering cost per order Rs. 4

Storage cost 2% per annum

Interest rate 10% per annum

Calculate EOQ and No. of orders to be placed in a year.

[Ans : EOQ - 258 units; No. of orders lO]

35/

000

Introduction

CHAPTER 15

Valuation of Materials Issues

All receipts and issues of materials are the important aspects to continuous flow of production. A

systematic. procedure should be adopted for movement of materials from one place to another place.

Materials received and stored are issued on the basis of stores requisition, bills of materials, stock in

balance, proper authorization and pricing material issues etc. It is clear that ascertainment of accurate

material cost, fixing of material issue and effective cost control are the primary objective in order to fulfil

the needs of management. For this reasons the following aspects considered to be the subject matter of

valuation of materials issues.

1. Valuation of total cost of materials purchased.

2. Material Issue Procedure.

3. Important methods of pricing of materials issued.

1. VALUATION OF TOTAL COST OF MATERIALS PURCHASED

Material costing is very important in terms of the valuation of the cost of materials consumed by the

production department as well as in terms of the estimation of the value of materials in stock. For costing

purposes, the material cost is worked out by the actual cost incurred by taking price quoted by supplier as

the basis subtracting the discounts and adding any other expenses not covered. In practice discounts may

be allowed by the supplier in the following ways such as : (a) Trade Discount. (b) Quantity Discount and

(c) Cash Discount.

(a) Trade Discount: Trade Discount is allowed by the seller to the buyer who has to resell the goods.

This allowance is to compensate the buyer for the cost of storage, breaking bulk, selling repacking the

goods etc.

(b) Quantity Discount: This discount refers to the allowance which is allowed by the supplier to the

buyer to encourage large orders. Placing the large orders from the buyers gives savings in costs which arise

from large-scale production to the supplier. Part of the savings allowed by supplier to the buyer by means

of a quantity discount.

Valuation of Materials Issues 353

(c) Cash Discount: Cash Discount is allowed by the supplier to a buyer to encourage prompt

payment of cash within the stipulated period.

2. MATERIALS ISSUE PROCEDURE

Issues of materials are based on production programme. Based on this and the bill of materials

work orders are printed, listing for each material quantity to be issued against each component requiring

that material. The storekeeper is very much concerned with the material control, as he is responsible for the

issue of materials based on the proper authorization of material requisition and bills of materials.

Materials Requisition: Purchase or Material Requisition is also known as Intent for Materials. This

is a document prepared by the production department for requisition of materials is known as Materials

Requisition. The storekeeper is authorized to issue the materials based on the proper authority to avoid the

misappropriation of material. The store keeper is responsible to maintained a record of serial number on

requisition, issues and stock balances are up to date are must be posted in stores ledger.

Bill of Materials: Bill of materials is a document which shows a complete listing for each material,

quantity to be issued against each component requiring that materials for a particular job order or process.

Bill of Materials is prepared by the production department before the quantity of the components to be

manufactured. This is helpful for the purpose of initiate material requisition and estimation of cost

materials to collect quotations.

3. METHOD OF PRICING OF MATERIALS ISSUES

In the relation to the estimation of the cost of the product for pricing decisions, material issues

assures a key role. Material price usually refers to the price quoted and accepted in the purchase orders.

Materials are issued from the stores to work orders based on the material requisition. But stock of materials

consists of different consignment received at different dates and prices. There are different methods used

for pricing the materials issues may be summarized in the following categories :

(A) Actual Price Method (or) Cost Price Method

(1) First In First Out (FIFO).

(2) Last In First Out (LIFO).

(3) Specific Price Method.

(4) Base Stock Method.

(5) Highest In First Out (HIFO).

(B) Average Cost Method

(1) Simple Average Method.

(2) Weighted Average Method.

(3) Periodic Simple Average Method.

(4) Periodic Weighted Average Method.

(C) Standard Price Method.

(D) Inflated Price Method.

(E) Market Price Method (or) Replacement Price Method.

354 A Textbook of Financial Cost and Management Accounting

A. Actual Price Method

In this method, the materials issued are priced at their actual cost and this involves identification of

each lot purchased. This method is suitable only in the case of materials purchased for a specific job.

There are several methods frequently used under actual cost price method which will be discussed in

details:

(1) First In First Out (FIFO): First In First Out is also known as FIFO. Under this method, the

pricing of issue is based on an assumption made that the oldest stock is issued first. Therefore at the time

of issue, the rate pertaining to that will be applied until the whole lots is exhausted.

Advantages

(1) It is simple and easy to adaptability.

(2) It is beneficial when the prices are falling.

(3) As actual prices are issued, it reflects on profit no loss in the pricing.

(4) This method is very useful for slow moving materials.

Disadvantages

(1) Calculation becomes complicated due to fluctuation of material prices.

(2) More chances of clerical errors due to complicated calculations.

(3) Under fluctuating prices, one requisition involves more than one price.

(4) In times of raising prices this method tends to show the production at low cost since the cost of

replacing the material will be higher.

Illustration: 1

From the following particulars, prepare the Stores Ledger Account showing how the value of the

issues would be recorded under FIFO methods.

01.12.2003 Opening Stock 1,000 Units at Rs. 26 each

05.12.2003 Purchased 500 Units at Rs. 24.50 each

07.12.2003 Issued 750 Units

10.12.2003 Purchased 1,500 Units at Rs. 24 each

12.12.2003 Issued 1,100 Units

15.12.2003 Purchased 1,000 Units at Rs. 25 each

17.12.2003 Issued 500 Units

18.12.2003 Issued 300 Units

25.12.2003 Purchased 1,500 Units at Rs. 26 each

29.12.2003 Issued 1,500 Units

Valuation of Materials Issues 355

Solution:

Stores Ledger Account (FIFO)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.12.2003 - - - - - - 1,000 26 26,000

05.12.2003 500 24.50 12,250 1,000 26 26,ooo}

500 24.50 12,250

07.12.2003 750 26 19,500 250 26 6,500}

500 24.50 12,250

10.12.2003 1,500 24 36,000 250 26 6,5oo}

500 24.50 12,250

1,500 24 36,000

12.12.2003 250 26 500 24.50 1~2,s2r50: }

350 24 8,400 1,150 24 27,600

1,100

15.12.2003 1,000 25 25,000 1,150 24 27,600}

1,000 25 25,000

17.12.2003 500 24 12,000 650 24 15,600}

1,000 25 25,000

18.12.2003 300 24 7,200 350 24 8.400}

1,000 25 25,000

25.12.2003 1,500 26 39,000 350 24 8,4oo}

1,000 25 25,000

1,500 26 39,000

29.12.2003 350 24

1,000 25 285,.040000 }

150 26 3,900 1,350 26 35,100

1,500

(2) Last In First Out ( LIFO): This method is just opposite to First In First Out method. The basic

assumption here is that the most recent receipts are issued first. The price of the materials to be issued

would be the cost price of the last lots of materials purchased.

Advantages

(1) It is beneficial when the period of raising prices.

(2) Under this method, latest prices are issued thereby leading to lower reported profits hence

savings in taxes.

(3) When there are wide fluctuations in price levels this methods tends to minimize unrealized

gains or losses in inventory.

Disadvantages

(1) This method involves more clerical work which leads to complicated calculations.

(2) Under this method more than one price is to be adopted for the same issue lot of material.

(3) Due to wide fluctuation of prices, comparison of cost of similar jobs is very difficult.

356

Illustration: 2

A Textbook of Financial Cost and Management Accounting

By Solving the illustration No.1, under LIFO method.

Solution:

Stores Ledger Account (LIFO)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.12.2002 - - - - - - 1,000 26 26,000

05.12.2002 500 24.50 12,250 1,000 26 26,ooo}

500 24.50 12,250

07.12.2002 500 24.50 12,250}

250 26 6,500 750 26 19,500

750

10.12.2002 1,500 24 36,000 750 26 19,5oo}

1,500 24 36,000

12.12.2002 1100 24 26,400 750 26 19,5oo}

400 24 9,600

15.12.2002 1,000 25 25,000 750 26 19,5oo}

400 24 9,600

1,000 25 25,000

17.12.2002 500 25 12,500 750 26 19,5oo}

400 24 9,600

500 25 25,000

18.12.2002 300 25 7,500 750 26 19,5oo}

400 24 9,600

200 25 5,000

25.12.2002 1,500 26 39,000 750 26 !9.SllO}

400 24 9,600

200 25 5,000

1,500 26 39,000

29.12.2002 1500 26 39,000 750 26 19,5oo}

400 24 9,600

200 25 5,000

(3) Specific Price Method: Specific Price Method is one of the methods of actual price method. In

this method adopted where the materials are purchased for particular job or operation and the issue is

charged with the actual cost price. This method is suitable only in the case of special purpose materials are

purchased for a particular job. This method has been widely used in job order industries which carry out

individual jobs or contract against specific orders .

•

Advantages -

(1) This method is simple and easy to operate.

(2) This method is useful where the job costing is in operation.

(3) Under this method, the actual material cost can be easily identified.

(4) This method is desirable because actual cost of materials is charged to production and therefore

no profit no loss.

Valuation of Materials Issues 357

Disadvantages

(1) This method involves considerable amount of clerical work.

(2) If the purchases and issues are numerous, it is difficult to identification of issues for a particular

job.

(4) Base Stock Method: Under this method pricing is determined on the basis of assumption made

here is that a certain minimum quantity of materials maintained in stock. This minimum quantity is known

as Base Stock or Safety Stock. This quantity cannot be used unless an emergency arises. The minimum

stock is in the nature of fixed assets because it is created out of the first lot of the material purchased.

Therefore it always valued at the actual cost price of the first lot and is carried forward as fixed assets.

This method is usually applied with FIFO or LIFO.

Illustration: 3

From the following details of stores receipts and issues of materials in a manufacturing unit, prepare

the stores ledger using Base Stock Method of valuing the issues; assume base stock 200 tonnes.

1.1.2003

10.1.2003

15.1.2003

20.1.2003

25.1.2003

27.1.2003

31.1.2003

Solution:

Date

01.01.2003

10.01:2003

15.01.2003

20.01.2003

25.01.2003

27.01.2003

31.01.2003

Purchased 500 tones at Rs. 2 per ton

Purchased 300 tones at Rs. 2.10 per ton

Issued 600 tons

Purchased 400 tones at Rs. 2.20 per ton

Issued 300 tons

Purchased 500 tons at Rs. 2.10 per ton

Issued 200 tons

Stores Ledger Account (Base Stock - FIFO)

Receipts Issues

Qty Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs.

500 2 1,000

300 2.10 630

300 2 600}

300 2.10 630

400 2.20 880

300 2.20 660

500 2.10 1,050

100 2.20 220}

100 2.10 210

Closing Stock = 600 tons (200 x Rs. 2 + 400 x Rs. 2.10) = Rs. 1,240

Illustration:

By solving illustration 3 Under Base Stock - LIFO method

Balance

Qty. Rate AmI.

Rs. Rs.

500 2 1000

500 2 l000}

300 2.10 630

200 2 400

200 2 40~}

400 2.20 880

200 2 400}

100 2.20 220

200 2

100 2.20 422:0 }

500 2.10 1,050

200 2 4~} 400 2.10 840

358

Solution:

A Textbook of Financial Cost and Management Accounting

Stores Ledger Account (Base Stock-LIFO)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.01.2003 500 2 1,000 500 2 1,000

10.01.2003 300 2.10 630 500 2 1,000}

300 2.10 630

15.01.2003 300 2 :O} 300 2.10 200 2 400

20.01.2003 400 2.20 880 200 2 4oo}

400 2.20 880

25.01.2003 300 2.20 660 200 2 4oo}

100 2.20 220

27.01.2003 500 2.10 1,050 200 2

4oo}

100 2.20 220

500 2.10 1,050

31.01.2003 200 2.10 420 200 2

100 2.20 422o0o }

300 2.10 330

Closing stock = 600 tons (200 x Rs. 2 + 100 x Rs. 2.20 + 300 x Rs. 2.10) = Rs. 1,250.

(5) Highest In First Out (HIFO): This method is based on the assumption that the stock of

materials should always be valued at the lowest possible price. Accordingly materials purchased at the

highest price should be used for making the issue. This method is useful because issues are based on actual

cost. It aims at recovering the highest cost of materials when the market is constantly fluctuating. But at

the same time this method involves too many complicated calculations. And also this method has not been

adopted widely.

Illustration: 4

From the following details of stores receipts and issues of material "XYZ" in a manufacturing unit,

prepare the Stores Ledger using Highest In First Out Method (HIFO):

2003 January 1 Opening stock 4,000 units at Rs. 5

4 Purchased 1,000 units at Rs. 7 per unit

8 Purchased 1,200 units at Rs. 8 per unit

12 Issued 1,000 units

15 Purchased 700 units at Rs. 10 per units

19 Purchased 300 units at Rs. 8 per unit

23 Issued 800 units

25 Purchased 509 units at Rs. 10 per unit

31 Issued 400 units.

Valuation of Materials Issues

Solution:

Date Qty.

2003

Jan.l

"4 1,000

"8 1,200

" 12

" 15 700

" 19 300

.. 23

"25 500

"31

B. Average Cost Method

Stores Ledger Account

(Highest In First Out (HIFO) Method)

Receipts Issues

Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs.

7 7,000

8 9,600

1,000 8 8,000

10 7,000

9 2,700

700 10 7,000

-10-0 9 900

800

10 5,000

400 10 4,000

359

Balance

Qty. Rate Amt.

Rs. Rs.

4,000 5 20,000

4,000 5 20,OOO}

1,000 7 7,000

4,000 5 20,OOO}

1,000 7 7,000

1,200 8 96,000

4,000 5 20,OOO}

1,000 7 7,000

200 8 1,600

4,000 5 20,OOO}

1,000 7 7,000

200 8 1,600

700 10 7,000

4,000 5

1,000 7 W7',O00O0O I

200 8 1,600

700 10 7,000

300 9 2,700

4,000 5 20,OOO}

1,000 7 7,000

200 8 1,600

200 9 1,800

4,000 5

1,000 7 W7',O00O0O I

200 8 1,600

200 9 1,800

500 10 5,000

4,000 5

1,000 7 W7',O00O0O I

200 8 1,600

200 9 L,800

100 10 1,000

In this method, the issues to the production department are split into equal batches from each

shipment at stock. It is a realistic method reflecting the price levels and stabilizing the cost price. The

following various methods of averaging issue prices may be used :

(1) Simple Average Method

(2) Weighted Average Method

(3) Periodic Simple· Average Method

(4) Periodic Weighted Average Method

360 A Textbook of Financial Cost and Management Accounting

(1) Simple Average Method: Under this method, price of issue materials is determined by dividing

the total of the prices of the materials in stock, i.e., adding of different prices by the number of different

prices. Then, this average price is applied to the issues to production. This method is simple and easy to

operate. The value of closing stock becomes unrealistic. The following formula is applied for calculation

of material issue price under simple average method :

Total of Unit Prices of Materials in Stock

Issue Price =

Number of Prices

Illustration: 5

From the following prepare stores ledger account using Simple Average Method for the month of

January 2003:

January 1 opening balance 500 units at Rs. 2 per unit

3 Issued 100 units

4 Issued 100 units

8 Issued 100 units

13 Purchased 400 units at Rs. 3 per unit

14 Purchased 200 units at Re. 1 per unit

16 Issued 150 units

20 Purchased 400 units at Rs. 4 Per unit

24 Issued 250 units

25 Purchased 500 units at Rs. 5 per unit

26 Issued 300 units

28 Purchased 200 units at Rs. 2 per unit

31 Purchased 200 units at Rs. 4 per unit

Solution:

Stores Ledger Account (Simple Average Method)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.01.2003 500 2 1,000 500 2 1,000

03.01.2003 100 2 200 400 2 800

04.01.2003 100 2 200 300 2 600

08.01.2003 100 2 200 200 2 400

13.01.2003 400 3 1,200 200 2 400}

400 3 1,200

14.1.2003 200 1 200 200 2

400}

400 3 1,200

200 1 200

16.01.2003 150 2 300 650 1,500

20.01.2003 400 4 1,600 1,050 3,100

24.01.2003 250 2.5 625 800 2,475

25.01.2003 500 5 2,500 1,300 4,975

26.01.2003 . 300 3.25 975 1,000 4,000

28.01.2003 200 4 400 1,200 4,400

31.01.2003 200 4 800 1,400 5,200

Valuation of Materials Issues 36/

Working Notes

Issue rate on 3n1 , 4th and 8th at Rs. 2 per unit

Rs. 2 + Rs. 3 + Rs. 1 Rs.6

Issue rate on 16th = = = Rs.2

3 3

Rs. 2 + Rs. 3 + Rs. 1 + Rs. 4 10

Issue rate on 24th = = = Rs.2.5

4 4

Rs. 3 + Rs. 1 + Rs. 4 + Rs. 5 13

Issue rate on 26th = = = Rs.3.25

4 4

Total Unit Prices of Materials in Stock

Simple Average Rate =

Number of Prices

(2) Weighted Average Method: Under this method, the price of materials issue is determined by dividing

the total cost of materials in stock by the total quantity of material in stock. Here weighted average rate is

calculated based on both quantity and price of the materials in stock. As more issues are made, a new average

rate is computed and this average rate is applied to the subsequent issues. The material issue price is calculated

by the formula given below:

Value of Materials in Stock

Weighted Average Price = ----------Quantity

in Stock

Illustration: 6

From the following particulars, prepare stores Ledger Account on weight Average basis:

2003 March I Opening balance 200 units at Rs. 2 per unit

Solution:

10 Purchased 300 units at Rs. 2.40 per unit

15 Issued 250 units

18 Purchased 250 units at Rs. 2.60 per unit

20 Issued 200 units.

25 Purchased 300 units at Rs. 2.50 per unit

31 Purchased 100 units at Rs. 2 per unit

Stores Ledger Account (Weighted Average Method)

Receipts Issues

Date Qty. Rate Amt. Qty. Rate AmI. Qty.

Rs. Rs. Rs. Rs.

01.03.2003 200 2 400 200

10.03.2003 300 2.40 720 200

300

15.03.2003 250 2.24 560 250

18.03.2003 250 2.60 650 500

20.03.2003 200 2.42 484 300

25.03.2003 300 2.50 750 600

31.03.2003 100 2 200 700

Balance

Rale

Rs.

2

2

2.40

AmI.

Rs.

400

4oo}

720

560

1,210

726

1,476

1,676

362 A Textbook of Financial Cost and Management Accounting

Working Notes

Issue Price =

Issue Rate on 15th =

Issue Rate on 20th =

Value of Materials in Stock

Quantity in Stock

400 + 720

200 + 300

560 + 650

250 + 250

=

=

1120

500

1210

500

= Rs.2.24

= Rs.2.42

(3) Periodic Simple Average Method: Under this method, the simple average rate is calculated for

a particular period ignoring the rate of opening stock. The issue price is calculated by totaling the unit

price of all materials purchased during a particular period by the total number of prices during that period.

Thus this rate is applied to the issue to production for a particular period say a month and not at the

occasion of each issue of materials.

Illustration: 7

From the following detail of stores receipts and issues of material "EXE" in a manufacturing unit,

prepare the Stores Ledger using Periodic Simple Average Method.

2003 Jan. 1 Opening Stock 200 units at Rs. 2 per unit

Jan. 5 Purchased 400 units at Rs. 3 per unit

Jan. 10 Issued 250 units

Jan. 16 Purchased 500 units at Rs. 3 per unit

Jan. 20 Issued 300 units

Jan. 31 Purchased 200 units at Rs. 4 per unit

Feb. 10 Issued 500 units

Feb. 15 Purchased 400 units at Rs. 4.50 per unit

Feb. 20 Issued 300 units

Feb. 25 Purchased 200 units at Rs. 6 per unit

Stores Ledger Account (Periodic Simple Average Method)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.01.2003 200 2 400 200 2 400

05.01.2003 400 3 1,200 400

10.01.2003 250 350

16.01.2003 500 3 1,500 850

20.01.2003 300 550

31.01.2003 200 4 800 750

1,300 3,900 550 4.66 2,563 750 4.66 3,495

Feb.l Balance 750 4.66 3,495 750 4.66 3,495

10.02.2003 500 250

15.02.2003 400 4.50 1,800 650

20.02.2003 300 350

25.02.2003 200 6 1,200 550

1,350 6,495 800 5.25 4,200 550 5.25 2,888

Valuation of Materials Issues

Working Notes

Issue rate on Jan.

Issue rate on Feb.

=

=

3+3+4

3

4.50 + 6

2

=

=

14

3

10.50

2

363

= Rs.4.66

= Rs.5.25

(4) Periodic Weighted Average Method: This method is similar to the periodic simple average

method. In this method issue rate is calculated by total cost of materials purchased during a period by the

total quantity of materials purchased during that period. Here both quantity and prices of materials in

stock during a particular period are taken into account for calculation of periodic weighted average rate.

Under this method the issue rate is determined for a particular period ignoring the rate and quantity of

opening stock. A new average rate is computed at the end of each period say a month and this average rate

is applied to subsequent issues.

Illustration: 8

By solving the illustration No.6, under Periodic Weighted Average Method.

Solution:

Stores Ledger Account (Periodic Simple Average Method)

Receipts Issues Balance

Date Qty. Rate Amt. Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs. Rs. Rs.

01.01.2003 200 2 400 200 -

05.01.2003 400 3 1,200 400

10.01.2003 250 350

16.01.2003 500 3 1,500 850

20.01.2003 300 550

31.01.2003 200 4 800 750

1,300 3,900 550 3.18 1,749 750 3.18 2,385

Feb'! Balance 750 3.18 2,385 750

10.02.2003 500 250

15.02.2003 400 4.50 1,800 650

20.02.2003 300 350

25.02.2003 200 6 1,200 550

1,350 5,385 800 5 4,000 550 5 2,750

Working Notes

1200 + 1500 + 800 3500

Issue rate on Jan. = = = Rs.3.18

400 + 500 + 200 1100

1800 + 1200 3000

Issue rate on Feb. = = = Rs.5

400 + 200 600

Ignoring Opening Stock of Jan. & Feb.

364 A Textbook of Financial Cost and Management Accounting

C. Standard Price Method

Under this method, standard price of material issues are calculated on the basis of detailed analysis of

market prices and trends. The standard price also referred to as predetermined price is fixed for a definite

period of six months or more. Accordingly the material issue is done on the basis of standard price

irrespective of actual rate. The difference between actual price and standard price is treated as material

variance. At the end of the period, new standard price is fixed for a further period.

Illustration: 9

From the following particulars, prepare a stores Ledger Account by Standard Price Method of issue

of materials. The standard price of a material is fixed at Rs. IO per unit.

2003

Mar. 1

3

7

12

15

19

22

27

29

30

31

Solution:

Date

2003

Mar. I

3

7

12

15

19

22

27

29

30

31

Opening stock of materials 1,000 units at Rs. 15 per unit

Purchased 500 units at Rs.1O per unit

Issued 500 units

Purchased 1,000 units at RS.15

Purchased 800 units at Rs.I0

Issued 700 units

Issued 500 units

Purchased 600 units at Rs.12

Issued 300 units

Purchased 100 units at Rs.14

Issued 400 units

STORES LEDGER ACCOUNT

(Standard Price Method)

Receipts Issues

Qty. Rate Amt. Qty. Rate Amt.

Rs. Rs. Rs. Rs.

500 10 5,000

500 10 5,000

1,000 15 15,000

800 10 8,000

700 10 7,000

500 10 5,000

600 12 7,200

300 10 3,000

100 14 1,400

400 10 4,000

D. Inflated Price Method

Balance

Qty. Rate Amt.

Rs. Rs.

1,000 15 15,000

1,500 20,000

1,000 15,000

2,000 30,000

2,800 38,000

2,100 31,000

1,600 26,000

2,200 33,200

1,900 30,200

2,000 31,600

1,600 27,600

This method is used to cover material losses on account of obsolescence, deterioration, and materials

handling expenses. Under this method cost of materials issue, such losses and expenses are directly

charged to material cost. Therefore, when the issue of materials is made, the price is to inflated to cover all

the losses and expenses.

Valuation of Materials Issues 365

E. Market Price Method

This method is also known as Replacement Rate Method. Under this method issue materials that are

valued at the market rate prevailing at the time issue. It therefore follows that when prices increase the

stock on hand is continuously under estimated because receipts are cost at actual and issued at higher rates.

Conversely Hand grossly over estimated. This method is most suitable when quotations or tenders have to

be made because they are to be quoted at competitive prices. Besides this system requires continuous

monitoring of market price for all materials and hence it is very unwieldy.

QUESTIONS

I. Discuss the various methods of pricing materials issues to production.

2. Which of the issuing methods would you recommend under conditions of raising prices and why?

3. What do you understand by FIFO? What are its merits and demerits?

4. What do you understand by LIFO? What are its merits and demerits?

5. What is Specific Price Method? Explain its significance.

6. Write short notes on: (a) Base Stock Method. (b) Market Price Method. (c) Inflated Price Method. (d) Standard Price Method.

7. What do you understand by Simple Average Method and Weighted Average Method?

8. Explain briefly the Periodic Simple Average Method and Periodic Weighted Average Method.

9. The following transactions occur in the purchase and issue:

2003 Jan. 2 Purchased 4000 units at Rs. 4.40 per unit

Jan. 20 Purchased 500 units at Rs. 5 per unit

Feb. 5 Issued 2000 units

Feb. 10 Purchased 6000 units at Rs. 6 per unit

Feb. 12 Issued 4000 units

March 2 Issued 1000 units

March 5 Issued 2000 units

March 15 Purchased 4500 units at Rs. 5.50 per unit

March 20 Issued 3000 units

From the above, prepare the stores ledger account in two ways (a) by adopting FIFO (b) by adopting LIFO method.

[Ans: (I) FIFO Closing Stock = 3,000 units at Rs. 5.50 = Rs. 16,500

(2) LIFO Closing Stock = 3,000 units

1,500 units at Rs. 4

1,500 units at Rs. 5.50

6,000

8,250

Total 3000 units = 14,250 I

10. From the following receipts and payments of a material X prepare a stores ledger account showing under Simple

Average Method and Weighted Average Method.

2003 Jan. 1 Opening stock 200 units at Rs. 3.50 per unit

3 Purchased 300 units at Rs. 4 per unit

5 Issued 400 units

13 Purchased 900 units at Rs. 4.30 per unit

15 Issued 600 units

23 Purchased 600 units at Rs. 3.80 per unit

25 Issued 600 units.

[Ans : Issued price rate 5"', 15"', 25"', closing stock

(a) Simple Average Rs. 3.75, 4.15, 4. 400 units Rs. 1,630

(b) Weighted Average Rs. 3.80,4.25, 3.98, 400 units Rs. 1,5921

11. From the following receipts and payments of a material X prepare stores ledger account under Base Stock Method with

FIFO. Assume base stock of 400 units out of opening stock.

2003 Jan. I Opening stock 1000 units at Rs. 2 each

3 Purchased 800 units at Rs. 2.10 per unit

5 Issued 800 units

12 Purchased 1,600 units at Rs. 2.10 per unit

17 Issued 1,500 units

20 Purchased 900 units at Rs. 2.50 per unit

25 Issued 600 units

[Ans : Closing stock: Base Stock 400 units at Rs. 2 per unit = Rs. 800

Closing Balance 100 units at Rs. 2.10 = Rs. 210 900 units at Rs. 2.50 = Rs. 2250 I

12. From the following details of store receipts and issues of materials 'PQ' in a manufacturing visit prepare the stock

ledger using weighted average methods of valuing the issues.

366 A Textbook of Financial Cost and Management Accounting

2003 January 1 Opening stock 2.000 units at Rs. 5 per unit

4 Issued 1.500 units

5 purchased 4,500 units at Rs. 6 per unit

9 issued 1,600 units

12 Returned to stock 100 units (from the issue of January 4)

15 Purchased 2,400 units at Rs. 6.50 per unit

18 Purchased to supplier 200 units out of the quantity received on January 5'"

25 Purchased 1,000 units at Rs. 7 each

28 Issued 2,100 units

29 Purchased 1,200 units at Rs. 7.50 per unit

30 Issued 2800 units

[Aos: Value of closing stock Rs. 19.558 (Le. 3,000 units @ Rs. 6.52 per unit)

13. Show the Stores Ledger entries as then would appear when using: (a) Weighted Average Method (b) Simple Average

Method and (c) LIFO Method.

Units Rater Per unit

2003 March 1 Opening Balance 600 2.00

4 Purchased 400 2.20

7 Issued 300

9 Purchased 400 2.30

15 Issued 300

20 Issued 400

25 Purchased 400 2.40

29 Issued 300

[Aos : Value of Stock (a) Rs. 1.140 (Le., 500 units @ Rs. 2.28

(b) Rs. 1,074

(c) Rs. 1.040 (Le .• 400 units @ Rs. 2750 units Rs. 2.50 units @ Rs. 2.40»)

14. The following information refers to the receipts and issues of a certain material during January 2003.

2003 January 1 Purchased 1.000 units at Re. I per unit

.. 5 Purchased 1,000 units at Rs. 1.10 per unit

11 Issued 500 units

15 Purchased 1,600 units at Rs. 1.15 per unit

18 Issued 1.200 units

20 Purchased 1,500 units

25 Purchased 1,500 units at Rs. 1.20 per unit

29 Issued 200 units

Write up the priced stores ledger card adopting the standard method of issue at Rs. 1.10 per unit

[Aos : 29.01.2003 Balance 1,700 units, Rs. 2.000)

15. Kapur & Co. Ltd. Purchased and Issued the Materials during the month of March 2003 is the following order.

2003 March 1 Opening stock 1.000 units at Rs. 26 each

3 Purchased 500 units at Rs. 24.50 each

7 Issued 750 units

12 Purchased 1.500 units at Rs. 24 per unit

17 Issued 1.100 units

19 Purchased 1.000 units at Rs. 25 each

25 Issued 500 units

27 Issued 300 units

29 Purchased 1.500 units at Rs. 26 each

30 Issued 1.500 units

Adopt first in first out method of issue and find out the value of the chasing stock.

[Aos: 1.350 units at Rs. 26 per unit worth of Rs. 35.100)

16. The following were the receipts and issues of materials Zed during January 2003.

January 2003 1 Opening stock 1.100 unit at Rs. 60 per unit

4 Issued to production 140 units

7 Issued to production 250 unit

9 Issued to production 210 unit

10 Purchased materials 400 unit at Rs. 59 per unit

15 Returned to stares 30 unit at Rs. 58 per unit

17 Issued to production 350 unit

25 Purchased materials 480 unit at Rs. 62 per unit

26 Issued to production 60 unit

Valuation of Materials Issues

27 Purchased materials 640 unit at Rs. 60 per unit

29 Issued to production 524 unit

30 Returned to stores 24 units at Rs 60 per unit

31 Purchased materials 150 units at Rs. 64 per unit

From the above information write the stress ledger account 'bn simple average basis.

[Ans : closing balance 742 units for Rs. 45,598]

367

17. Prepare a stores ledger account from the following transactions assuring that the issue of stores has been priced on the

principle of the last in first out.

March 2003 1 Opening balance of 1,000 units at Rs. 20 per unit

5 Purchased 260 units at Rs. 21 per unit

7 Issued to production 700 units

11 Purchased 400 units at Rs. 23 per unit

15 Purchased materials 300 units at Rs. 25 per unit

20 Issued to production 620 units

23 Issued to production 240 units

25 Purchased materials 500 units at Rs. 22 per unit.

31 Issued to production 380 units.

[Ans: Closing balance 520 units of Rs 10,640]

18. Prepare a stores ledger account from the following information adopting FIFO method of Principle of issue of materials.

March 2003 1 Opening balance 500 units at Rs. 200 per unit

4 Issued to production 70 units

5 Issued to production 100 units

7 Issued to production 80 units

12 Purchased materials 200 units at Rs. 190 per unit

15 Returned to stores 15 units

17 Issued to production 180 units

20 Purchased materials 240 units Rs. 195 per unit

23 Issued to production 300 units

25 Purchased materials 320 units at Rs. 200 per unit

27 Issued to production 115 units

29 Returned to stores 35 units

31 Purchased materials 100 units at Rs. 200 per unit

[Ans: Closirg balance 565 units valued at Rs. 1,12,275]

000

Introduction

CHAPTER 16

Labour Cost Control

Labour cost is the second important element of cost of production. Wages, salaries and other forms of

remunerations represent a major portion of the total cost of a product or services. The growth and

profitability of the concern depends upon proper utilization of human resources or labour forces which in

turn needs proper accounting and control of cost. Thus, control of labour cost is a very significant issue

from the viewpoint of management.

Types of Labour Cost

The labour cost can be classified into two types :

(1) Direct Labour Cost.

(2) Indirect Labour Cost.

(1) Direct Labour Cost: Any labour cost that is specially incurred for or can be readily charged to or

identified with a specific job, contract, work order or any other unit of cost is termed as direct labour cost.

Wages for supervision, wages for foremen, wages for labours who are actually engaged in operation or

process are the examples of direct labour cost.

(2) Indirect Labour Cost: Indirect labour is for work in general. The importance of the distinction

lies in the fact that whereas direct labour can be identified with and charged to the job, indirect labour

cannot be so charged and has, therefore to be treated as part of the factory overheads to be included in

the cost of production. For example, salaries and wages of supervisors, storekeepers and maintence

labour etc.

Control of Labour Cost

Control of labour cost is a significant influence on the growth, profitability and cost of production.

Labour cost may become unduly high rate due to inefficiency of labour, ineffective supervision, ideal time,

unusual overtime work etc. The primary objectives of the management therefore is to efficiently utilize the

labour as economically as possible.

Labour Cost Control 369

Techniques of Labour Cost Control

In order to achieve the effective utilization of manpower resources, the management has to apply

proper system of labour cost control. The labour cost control may be determined on the basis of

establishment of standard of efficiency and comparison of actuals with standards. The management applies

various techniques for the effective control of labour costs as under:

(1) Scientific method of production planning.

(2) Use of labour budgets.

(3) Establishment of labour standards.

(4) Proper system of labour performance report.

(5) Effective system of job evaluation and job analysis.

(6) Devise a proper system of control over ideal time and unusual overtime work.

(7) Establish a fair and equitable remuneration system.

(8) Effective cost accounting system.

Organisation for Control of Labour Cost

The objectives of proper control on labour cost is effectively achieved through the functions of

various departments responsible for controlling labour cost in an organisation. The following are the

important departments for control over labour costs:

(1) Personnel Departments.

(2) Engineering and Works Study Department.

(3) Time Keeping Departments.

(4) Pay Roll Department.

(5) Cost Accounting Department.

(1) Personnel Department

Personnel department plays a very important role in control of labour costs. It is primarily concerned

with the recruitment of labours on the basis of employee placement requisition and imparting training to

them. And thereafter placing them to the job for which they are best suited. In order to achieve the efficient

utilization of manpower resources, this department is responsible to execution of labour policies which

have been laid down by top management.

(2) Engineering and Works Study Department

Engineering department is primarily concerned with maintaining control over working conditions

and production methods for each job, process, operation or departments. It is performed by undertaking the

following functions :

(I) Preparation of plan and specification of each job.

(2) Maintaining required safety and efficient working conditions.

(3) Making time and motion studies.

(4) Conducting job analysis, job evaluation and merit rating.

370 A Textbook of Financial Cost and Management Accounting

(5) Setting fair and equitable piece rate or time wage system.

(6) Conducting research and experimental work.

In order to maintain control over working conditions and production methods carrying a detailed

study of the following operations is necessary :

(a) Method Study

(b) Motion Study

(c) Time Study

(d) Job Analysis

(e) Job Evaluation

(f) Merit Rating.

(a) Method Study: It is one of the important components of work study. The chief aims of this

study is to find a scheme of least wastage. Method Study is defined as "a systematic and scientific

evaluation of existing and proposed plans and performance of any work system and the evaluation of

improvement, through analytical process of critical examination."

(b) Motion Study: Frank Gilbreth, who is the real founder of Motion Study. According to him

motion study may be defined as the "science of eliminating wastefulness resulting from ill-directed and

inefficient motions. The following are the important objectives of the motion study:

(1) Effective utlisation of material, machine and labours.

(2) Elimination of wastage of time and labours.

(3) Maintaining higher standards of safety and health.

(4) Reducing unnecessary movements in order to minimize wastages.

(5) Better design of work place layout for effective production process.

(6) Ensure fair remuneration with job satisfaction.

(c) Time Study: Time study is also called work measurement. Time study may be defined as "the art

of observing and recording the time required to do each detailed element of an industrial operation."

Uses of Time Study

(1) It assists in setting standard time for each operation.

(2) It facilitates effective labour cost control.

(3) It helps to ascertain ideal time and over time to men and machines.

(4) It is useful to establish fair and suitable wage rates and incentives.

(5) It facilitates effective utilization of resources.

(d) Job Analysis: Job Analysis is a formal and detailed study of jobs. Job analysis may be defined

as "the process of determining by observation and study the task, which comprise the job, the methods and

equipment used and the skills and attitudes required for successful performance of the job."

Labour Cost Control

Advantages of Job Analysis

The following are the important advantages of job analysis :

(1) It is useful in classifying job and interrelationship among them.

(2) If facilitates forecasting of manpower requirements.

(3) It helps in effective utilization of manpower resources.

(4) Effective employee development programme can be established.

(5) Enables in determining performance standards of each process or job.

371

(e) Job Evaluation: Job evaluation may be defined as "a process of analyzing and describing

positions, grouping them and determining their relative value by comparing the duties of different

positions in terms of their different responsibilities and other requirements." Job evaluation is determined

on the basis of job description and job analysis. The primary purpose of job evaluation is developing

appropriate wage and salary structure with internal pay equity between jobs.

(0 Merit Rating: Merit rating may be defined as "a systematic evaluation of an employee's performance

on the job in terms of the requirement of the job." Merit rating is a system of measuring both qualitatively and

quantitatively of an employee's capacity in relation to his job. The following are the personal qualities of an

employee which are usually considered for determining merit and worth of labours as:

(1) Academic qualification and knowledge~

(2) Skill and experience.

(3) Attitude to the work.

(4) Quality of work done.

(5) Initiative intelligence.

(6) Accuracy.

(7) Judgement.

(8) Leadership.

(9) Adaptability and Co-operation.

(10) Leadership and self-confidence.

(11) Reliability and Integrity.

(12) Discipline.

Importance of Merit Rating: The following are some of the important advantages of merit rating:

(1) It assists in determining fair rates of wages for each worker on the basis of his I her performance.

(2) It helps to know the suitability of the worker for a particular job.

(3) This method helps in removing grievances and it improves labour-management relations.

(4) Enables to ascertaining an employee's merit for grant of promotion or demotion or tansfer or

increment etc.

(5) If facilitates effective labour cost control.

372 A Textbook of Financial Cost and Management Accounting

Distinction Between Job Evaluation and Merit Rating: The following are the important points of

differences between Job Evaluation and Merit Rating:

(1) Job evaluation is the assessment of the relative worth of jobs within a company and merit rating

is the assessment of the relative worth of the man behind the job.

(2) Job evaluation and its accomplishments are means to setup a rational wage and salary structure

whereas merit rating provides a scientific basis for determining fair wages for each worker

based on his ability and performance.

(3) Job evaluation simplifies wage administration by bringing uniformity in wage rates whereas

merit rating is used to determine fair rate of pay for different workers.

(3) Timekeeping Department

This department is concerned with following two important activities : (1) Timekeeping and

(2) Time Booking

Timekeeping: It refers to recording of each worker's time of coming in and going out of the factory

during engagement of the factory. It is essential for the purpose of attendance and determination of wage

payable to each worker.

Objectives of Timekeeping: The following are the important objectives of timekeeping:

(1) Preparation of payrolls

(2) Ensuring discipline in attendance

(3) Apportionment of overhead on the basis of labour hours

(4) Effective utilization of human resources

(5) Minimization of labour costs

(6) Ascertaining ideal labour time and ideal machine time.

Methods of Timekeeping: The following are the two important methods of timekeeping:

(1) Manual Method:

(a) Attendance Register Method.

(b) Token or Disc Method.

(2) Mechanical Method:

(a) Time Recording clocks.

(b) Dial Time Records.

(c) Key Recorder System.

Manual Method: The choice of the manual method adopted by the factory depends upon its size, number

of workers employed, nature of the business and policy of a firm. Under manual methods, there are two

important methods which are in use: (a) Attendance Register Method and (b) Token or Disc Method.

(aJ Attendance Register Method: Under this method, an Attendance Register is maintained by

the Timekeeper in the time office. This register may be filled in by the Timekeeper when

the worker gets inside the factory and the time of departure, normal time and overtime.

Workers may be required to sign both at the time of arrival and time of departure. This

Labour Cost Control 373

method is very simple and most suitable to small-scale industries. It is very difficult to

operate when the number of workers is large.

(b) Token or Metal Disc Method: In this method, each worker is given a metal disc or a

token bearing his identification number. All the tokens or discs are hung on a board

serially at the entrance of the gate in the factory. As the worker enters the gates of the

factory, he removes his disc from the board and drops it into a box. This process is

continued until the scheduled time expires. Latecomers may drop their tokens in a separate

box or handover personally to the timekeeper. In the case of absentees the tokens are not

removed from the board. Based on the above process, the Timekeeper records the

attendance in the register known as Muster Roll for the purpose of pay rolls.

This method is simple and economical. But it suffers from certain disadvantages given below:

(a) There is chance to remove the disc of fellow worker's token from the board to ensure his

presence.

(b) Difficult to ascertain about overtime work, early leaving, ideal time etc.

(c) Lack of accuracy regarding the exact time of arrival of a worker which may result in many

disputes.

(d) Unless there is strict supervision, the timekeeper may include dummy or ghost workers in

the Muster Rolls.

Mechanical Method

In order to achieve the accuracy and reliability of recording of time of workers, the following

different mechanical devices are used :

(1) Time Recording Clocks.

(2) Dial Time Records.

(3) Key Recorder System.

(a) Time Recording Clocks: Under this system, each worker is' given a time card for a week or

fortnight. These time or clock cards are serially arranged in a tray at the entrance to the factory. When the

worker enters the factory, he takes his attotted card from the tray and puts it in the time recording clock

that records the exact arrival time at the space provided on the card against the particular day. This process

is repeated for recording time of departure for lunch, return from lunch, leaving the factory after his day's

work. Late arrivals, early leavings and over time are printed in red so as to distinguish these from normal

period spent in the factory. This method is very popular for correct recording of attendance.

(b) Dial Time Records: This is a machine which is used for recording correct attendance time of

arrival and departure of worker automatically. This recorder has a number of holes about the circumference.

Each hole represents worker's number which corresponds to identification of allotted clock numbers. At

the time of arrival and departure of worker, by operating this machine, the dial arm into a hole and the time

is automatically recorded on an attendance sheet placed inside. This machine is most suitable in smallscale

industries.

(c) Key Recorder System: In this machine there are a number of keys, each key denotes worker's

number. When the time of arrival and departure the worker inserts his allotted key in the key hole and

gives a tum, the ticket time and clock time are recorded on a sheet of paper. This method is economical and

easy to operate.

374 A Textbook of Financial Cost and Management Accounting

Time Booking

It refers recording the time of each worker for each department, operation, process or job during

engagement of the factory. It is useful for the purpose of cost analysis and effective cost control.

Objectives of Time Booking: The following are the main objectives of time booking:

(1) To ascertain the cost of each job, operation or process.

(2) To ascertain the cost of ideal time.

(3) Apportionment of overhead based on the suitable basis.

(4) To establish the fair and suitable wage system.

(5) To ensure the proper utilization of attendance time.

(6) To ensure the effective cost control and cost reduction.

Methods of Time Booking: In order to achieve the effective utilization of manpower resources, recording

the correct time of workers and labour cost control is essential to adopt various methods of time booking. The

following are the important methods used for time booking :

(1) Daily Time Sheet

(2) Weekly Time Sheet

(3) Job Cards or Job Tickets

(a) Job Card For Each Worker (b) Job Card For Each Job

(c) Combined Time and Job Card (d) Piece Work Card

(1) Daily Time Sheet: This is one of the important methods which is used for a daily record of the

work done by each worker. This record indicates that the nature of work, actual time spent by the worker

on each job or operation. The daily time sheet is allotted to each worker on which the record is made by

the worker himself or by the official incharge. This method is suitable only for small-scale industries.

(2) Weekly Time Sheet: This system may be done as in the case of daily time sheet. Under this

method, instead of recording time on daily time sheets, worker is given a weekly time sheet on which

recording by the worker on each job for a week. This method is useful for those concerns where the

workers usually carry on a few jobs in a week.

(3) Job Card or Job Tickets: This method is adopted for recording of time booking for a worker's

time spent on a job. A job card is prepared for each job giving detailed particulars of the work to be

carried out by the worker. Job cards are classified into four types:

(a) Job Card for Each Worker

(b) Job Card for Each Job

(c) Combined Time and Job Card

(d) Piece Work Card.

(a) Job Card For Each Worker: Under this system, job card is issued to each worker at the

beginning of each day or week. The job card is used to record the time of starting and

finishing the each job or work. It indicates the nature of work, time spent by the worker for

each job or operation, idle time, total hours, rates and remuneration of different jobs during

a scheduled time.

Labour Cost Control 375

(b) Job Card for Each Job: In this system, separate card is prepared and allotted to each job.

The job card is used to each job passes along with the job from worker to worker. As soon

as the worker receives the job card he records the time of starting and finishing the job or

operation. This system is useful not only for correct calculation of wages for each job but

also it shows the details of the work to be done by the worker.

(c) Combined Time and Job Card: Under this system, job card is prepared on the basis of

attendance time and actual time spent by the worker. This system is useful to ascertain idle

time, time taken and time booking on account of pay rolls.

(d) Piece Work Card: This system is adopted where the piece wage payment is applicable.

I. Idle Time

Accordingly wage payment is made on the basis of quantity of output produced by the

worker. A piece work card is allotted to each worker on which recording the quantity of

work to be done by each worker. For determination of piece wage payment, the time spent

by the worker is not taken into account. This method is sui~able only for small-scale

industries.

Idle Time is that time during which the workers spend their time without giving any production or

benefit to the employer and concern. The idle time may arise due to non-availability of raw materials,

shortage of power, machine breakdown etc.

Types of Idle Time: It refers that any loss of time is inherent in every situation which cannot be

avoided. Any cost associated with the normal idle time are mostly fixed in nature. The normal idle time

arises due to the following reasons :

(1) Time taken for personal affairs.

(2) Time taken for lunch and tea break.

(3) Time taken for obtaining work.

(4) Time taken for changing from one job to another.

(5) Waiting time for getting instructions, tools and or raw materials, spare parts etc.

(6) Time taken by the workers to walk between factory gate and place of work.

II. Abnormal Idle Time

Abnormal idle time refers that any loss of time which may occur due to some abnormal reasons.

Abnormal idle time can be prevented through effective planning and control. The abnormal idle time may

arise due to the following avoidable reasons :

(1) Faulty planning.

(2) Lack of co-operation and co-ordination.

(3) Power failure.

(4) Time lost due to delayed instructions.

(5) Time lost due to inefficiency of workers.

(6) Time lost due to non-availability of raw materials, spare parts, tools etc.

(7) Time lost due to strikes, lock outs and lay-off.

376 A Textbook of Financial Cost and Management Accounting

Accounting Treatment of Normal Idle Time and Abnormal Ideal Time

Normal Idle Time: Normal idle time wages is treated as a part of cost of production. Thus, in case

of direct workers an allowance for normal idle time is built into labour cost rates. In the case of indirect

workers, normal idle time wage is spread over ,all the products or jobs through the process of absorption

of factory overheads.

Abnormal Idle Time: Abnormal idle time cost is not included as a part of production cost and is

shown as a separate item in the Costing Profit and Loss Account. So that normal cost are not distributed.

Over Time: The term "over time" refers to when a worker works beyond the normal working hours

or scheduled time is known as 'overtime.' According to Factories Act, the wage rate of overtime work to

be paid at double the normal rate of wages. The extra amount of remuneration is paid to the worker in

addition to normal rate of wages is said to be overtime premium.

Effect of Over Time Payment on Productivity: The following are the effects of over time payment

on productivity:

(1) Overtime premium is an extra payment over normal wages and hence will increase the

production cost.

(2) The efficiency of workers during overtime work may fall and hence output may be reduced.

(3) To earn more, workers may not concentrate on work during normal hours, and thus the output

during normal hours may fall.

(4) Reduced output and increased premium will increase the cost of production.

Accounting Treatment of Overtime Wages

The following are the ways of charging of overtime premium:

(I) If overtime is resorted to at the desire of the customer then overtime premium is charged to

concerned job directly.

(2) If overtime is required to cope with general production schedule or for meeting urgent orders,

the overtime premium should be treated as overhead cost of particular department or cost center

which works overtime.

(3) If overtime is worked on account of abnormal conditions such as flood, earthquake etc. that

should be charged to costing profit and loss account.

Control of Overtime: Control of overtime is essential to minimize the cost of production and

increase the overall performance of the efficiency. Effective control of overtime can be possible through

the following ways :

(1) Effective sound planning of production

(2) Adequate supervision

(3) Ensuring availability of raw materials, spare parts

(4) Encouraging productivity

(5) Reducing labour turnover

(6) Ensuring effective system of repairs and maintenance, material handling and smooth flow of

production

(7) Fair and equitable remuneration to efficient and inefficient workers.

Labour Cost Control 377

Casual Workers: Casual workers are those who are engaged casually whenever there is extra load of

work or due to planned maintenance during off season.

System of Control: In order to achieve the effective control of casual workers the following system to

be adopted:

(1) Assess work load, for example, planned maintenance during off season.

(2) Asses manpower requirement.

(3) Obtain prior sanction for number of workers giving the period for which engagement is to be

done.

(4) Obtain periodical report on performance and compare with the plan to ensure that there is no

lagging behind.

(5) Provide for automatic termination after the period for which sanction is given expenses.

Out Workers: Out workers are those who are engaged in production operations outside the factory. For

example, works carried on construction and electricity.

Control of Out Workers : The following are the important aspects to be considered for effective

control of out workers :

(1) Keep a log book at reception.

(2) Record complaint specifying date and time of receipt of complaint.

(3) Keep proper complaint slips and send the same to technical department.

(4) Prepare duty sheets in duplicate to note down time on and time off.

(5) Summarise time spent by each service man daily.

(6) Summarise chargeable amount and non-chargeable amount.

(7) Advise accounts department for billing.

(4) Pay Roll Department

This is one of the important departments which is responsible for computation, preparation and

payment of wages to all employees of the entire organization. Wage Sheet or Pay Roll is prepared on the

basis of the Piece Work Card or Time Card or both. It is a statement which shows the detailed records of

the employees' remunerations such as gross wages, various reductions and net wages for particular period.

In order to ensure the proper determination and preparation of wage sheet, the pay roll department

should be taken a special care. A systematic procedure for payment of wages should be adopted to

preventing of frauds and irregularities in wage payments. Effective supervision and strict control are

essential to ensure that the worker is not paid twice or no dummy name of workmen have been entered in

the pay roll.

Labour Thrnover: Labour Turnover may be defined as "the rate of changes in labour force, i.e., the

percentage of changes in the labour force of an organization during a specific period. Higher rate of labour

turnover indicates that labour is not stable and there are frequent changes in the labour force in the organization.

It will affect the efficiency of the workers and overall profitability of the firm. The determinant result of labour

turnover is expressed in terms of percentage.

378 A Textbook of Financial Cost and Management Accounting

Methods of Measurement of Labour Thrnover : The following are the important methods of measuring

labour turnover:

(a) Separation Method

(b) Replacement Method

(c) Flux Method.

(a) Separation Method: Under this method, labour turnover is calculated by dividing the total

number of separation (number of employees left or discharged) during the period by the

average number of workers on the pay roll. Thus the formula is :

No. of Separation during the period

Labour Turnover = ----------------- x 100

Average No. of Workers during the period

(b) Replacement Method: In this method, labour turnover is measured by dividing the number of

replacement of workers during the period by average number of workers during the period.

Thus formula may be expressed as :

Labour Turnover

No. of Workers Replaced during the period

= x 100

Average No. of Workers during the period

(c) Flux Method: Under this method, labour turnover is measured by dividing the total number of

separation and replacement of workers by the average number of workers during the period.

Thus the formula is :

No. of Separation + No. of Replacement

Labour Turnover = x 100

Average No. of Workers during the period

Illustration: 1

From the following information, calculate labour turnover ratio and turnover flux rate

No. of workers as on 1" Jan. 2003 = 7,600

No. of workers as on 31" Dec. 2003 = 8,400

During the year, 80 workers left while 320 workers were discharged, 1,500 workers were recruited

during the year of these, 300 workers were recruited because of exits and the rest were recruited in

accordance with expansion plans.

Solution:

Labour Thrnover Ratio

(1) Replacement Method:

(A) Due to Exit:

No. of Replacement = 300 workers

Average No. of Workers = 7600 + 8400

2

= 8000

Labour Cost Control

Labour Turnover =

=

(8) Due to New Recruitment:

No. of new recruitment

Labour Turnover

Labour Turnover

(2) Flux Method

Labour Turnover

Labour Turnover

No. of Replacement

x 100

Average No. of Workers

=

=

=

=

=

=

=

=

=

=

300

x 100 = 3.75 %

8000

1200 workers

No. of New Recruitment

x 100

Average No. of Workers

1200

x 100 = 15 %

8000

No. of Accession

x 100

Average No. of Workers

1500

x 100 = 18.75 %

8000

\_\_N\_o\_. \_o\_f Sep\_ara\_tion\_ \_+\_ N\_o\_. \_o\_f \_R\_ep\_lac\_em\_ent\_ x 100

Average No. of workers

1500 + 400

8000

1900

x 100 = 23.75 %

x 100 = 8.75 %

8000

(or)

400 + 300 700

x 100 =

8000 8000

8.75%

x 100

379

Causes for Labour Thrnover: The causes for labour turnover can be classified into two categories :

(1) Avoidable Causes

(2) Unavoidable Causes.

380 A Textbook of Financial Cost and Management Accounting

(1) Avoidable Causes

(1) Lack of job involvement

(2) Lack of co-operation among the employees

(3) Lack of smooth relationship between employer and employees

(4) Dissatisfaction with wages and incentives

(5) Bias attitude of Management

(6) Poor working conditions

(7) Dissatisfaction with promotion, recognition, transfer etc.

(8) Lack of Co-ordination

(9) Non-availability of adequate protection, proper instructions, accommodation etc.

(2) Unavoidable Causes

(1) Retirement or Death of employer

(2) Marriage in the case of female workers

(3) Permanent disability due to accident or illness

(4) Dismissal or discharged due to inefficiency or disciplinary ground

(5) Dissatisfaction with job

(6) Shortage of power, raw materials etc.

(7) Personal responsibilities

(8) Personal betterment with regard to new job

(9) Change in nature of business and plant location.

Effect of Labour Thrnover:

(1) Increased cost of recruitment, training and placement

(2) Increased cost of production

(3) Decrease in output due to inefficient or newly recruited workers

(4) Higher accident rate due to negligence or mishandling of machines

(5) Low team spirit due to lack of co-operation and co-ordination between the workers and employers.

Cost of Labour Thrnover:

The chief aim of the preventive costs which are incurred in order to keep the workers satisfied and

reduce the labour turnover rate as much as possible. These preventive costs which include the following:

(a) Cost of providing medical facilities, canteen and other welfare facilities

(b) Cost of administration

(c) Cost of providing better working conditions

(d) Cost of pension, gratuity, provident fund and other retirement benefits.

Labour Cost Control

Replacement Costs:

These cost include the following :

(a) Cost of recruitment, training. placement

(b) Increase wastages and scrap

(c) Cost of repairs and maintenance including machine breakdowns

(d) Cost of compensation on account of accidents

(e) Loss of output due to inefficiency or newly recruited workers.

QUESTIONS

1. What do you understand by labour cost control?

2. Explain briefly the techniques of labour cost control.

3. Explain briefly the organization for labour cost control.

4. What do you understand by time study? Explain its significance.

5. What do you understand by Job Analysis? Explain its merits.

6. What is motion study? What are the objectives of motion ~tudy?

7. Write short notes on: (a) Method Study. (b) Job Evaluation. (c) Merit Rating.

8. What is Merit Rating? Explain briefly its significance.

9. Distinguish between job evaluation and merit rating.

10. What do you understand by timekeeping?

11. Explain briefly the different methods of timekeeping.

12. What do you understand by time booking? What are the objectives of time booking?

13. Distinguish between timekeeping and time booking.

14. Write short notes on: (a) Daily Time Sheet. (b) Weekly Time Sheet. (c) Job Card.

15. What is job card? Explain briefly the types of cards.

16. What is idle time? Explain briefly the types of idle time.

17. Explain briefly the reasons for normal idle time and abnormal idle time.

18. Explain briefly the accounting treatment of idle time and abnormal idle time.

19. What is meant by overtime? What are its effects?

20. Explain briefly the accounting treatment of overtime wages.

21. What is labour turnover? How is it measured? What are the cost of labour turnover? How can these be reduced?

22. What do you understand by labour turnover? How is it measurd? Suggest measures to minimize labour turnover.

23. What is meant by labour turnover? What is the effect of labour turnover on cost of production?

24. From the following particulars calculate labour turnover rate by applying:

(1) Separation Method; (2) Replacement Method; and (3) Flux Method.

No. of workers on the pay roll

At the beginning of the month = 900 At the end of the month = llOO

381

During the month 10 workers left, 40 workers were discharged and 150 workers were recruited. Of these 25 workers

are recruited in the vacancies of those leaving while the rest were engaged for an expansion scheme

[Ans: (1) Separation Method = 5% (2) Replacement Method = 25% and (3) Flux Method = 7.5% I

000

Introduction

CHAPTER 17

Labour Cost Accounting

Labour cost is one of the important elements of production. Wage. salaries and other incentives of

employee remuneration constitute a very large component of operating costs. Remuneration of employees

is a vital factor not only affecting the cost of production but also industrial relations of the organization.

No organization can expect to attract and attain qualified and motivated employees unless it pays them fair

remuneration. Employee remuneration. therefore. influences vitally the growth and profitability of the

company. For employees. remuneration is more than a means of satisfying their physical needs. Wages and

salaries have significant influence on our distribution of income. consumption. savings. employment and

prices. Thus. employee remuneration is a very significant issue from the viewpoint of employers.

employees and the nation as whole.

Objectives of an Ideal Wage System

An ideal wage system is required to achieve the following objectives:

(1) The wage system should establish a fair and equitable remuneration.

(2) A sound wage system helps to attract qualified and efficient worker by ensuring an adequate

payment.

(3) It assists to improve the motivation and moral of employees which in turn lead to higher

productivity.

(4) It enables effective control of labour cost.

(5) An Ideal wage system helps to improve union-management relations. It should reduce

grievances arising out of wage inequities.

(6) It should facilitate job sequences and lines of promotion wherever applicable.

(7) An ideal system seeks to project the image of a progressive employer and to comply with legal

requirements relating to wages and salaries.

Labour Cost Accounting

Principles of an Ideal Wage System

The following principles should be adopted for an ideal wage system

(1) Differences in pay should be based on differences in job requirements.

(2) Follow the principle of equal pay for equal work.

383

(3) The scheme should be based on work study, and the work contents of various jobs should be

stabilized.

(4) Recognize individual differences in ability and contributions.

(5) The scheme should not be very costly in operation.

(6) The scheme should be flexible.

(7) The scheme should encourage productivity.

. (8) The scheme should not undermine co-operation amongst the workers.

(9) The scheme should be sufficient to ensure for the worker and his family reasonable standard of

living.

Method of Remuneration

There are two basic methods of wage payment: (1) Time Wage System and (2) Piece Wage System.

Under time wage system. wages are paid on the basis of time spent on the job irrespect of the amount of

work done. This is known as Time Rate or Day Wage System. The unit of time may be a day, a week, a

fortnight or a month. Under piece wage system, remuneration is based on the amount of work done or

output of a worker. This is known as "Piece Rate System" or "Payment by Result." Thus. a workman is

paid in direct proportion to his output. A variety of bonus and premium plans have been designed to

overcome the drawbacks of two basic methods of wage payments. A system of incentive plans also takes

into consideration the primary principles of these two basic plans known as Incentive or Bonus or

Premium Plan.

The following are the important methods of remuneration which may be grouped into :

(1) Time Rate Systems

(2) Piece Rate Systems

(3) Bonus System (or) Incentives Schemes.

(4) Indirect Monetary Incentives.

These may be further classified as under:

(1) Time Rate Systems:

(a) At Ordinary Levels

(b) At High Wage Levels

(c) Guaranteed Time Rates.

(2) Piece Rate Systems:

(a) Straight Piece Rate

(b) Piece Rates with Guaranteed Time Rate

384

(c) Differential Piece Rates:

(i) Taylor's Differential Piece Rate System

(ii) Merrick Differential Piece Rate System

(iii) Gantt Task and Bonus Plan.

(3) Bonus System or Incentive Schemes:

(1) Halsey Premium Plan

(2) Halsey-Weir Premium Plan

(3) Rowan Plan

(4) Barth Variable Sharing Plan

(5) Emerson Efficiency Plan

(6) Bedaux Point Premium System

(7) Accelerating Premium Plan

(8) Group or Collective Bonus Plans.

(4) Indirect Monetary Incentives:

(5) Non-Monetary Incentives:

A Textbook of Financial Cost and Management Accounting

Comparison between Time Rate and Piece Rate System

Time Rate System

(1) Under this system earnings of a worker are

calculated on the basis of time spent on the job

(2) In this system, minimum guaranteed time rate

is paid to every worker.

(3) Under time rate system, remunerations are not

directly linked with productivity.

(4) Under this system emphasis is on high quality

of work.

(5) Under time rate system, strict supervision is

essential.

(6) This method may lead to trade unions to

support it.

(7) More idle time arises in time rate systems.

(1) Time Wage System

Piece Rate System

(I) In this system earnings of a worker are

calculated on the basis of number of units

produced.

(2) Under this system, no guarantee of minimum

payment to every worker.

(3) Remuneration of workers directly linked with

productivity.

(4) Under piece rate system there is no

consideration for the quality of work.

(5) In this system, close supervision is not required.

(6) Under this method the attitude of trade unions

is not to co-operate with the schemes.

(7) Compared with time rate system there is no

change of idle time in piece rate schemes.

(a) Time Rate at Ordinary Levels: This is also termed as "Day Wage System" or "Flat Rate

System." Under this system, wages are paid to the workers on the basis of time spent on the job

irrespective of the quantity of work produced by the workers. Payment can be made at a rate per day or a

[

Time Rate System

1

At Ordinary

Levels

1

I 1

At High Guranteed

Wage Levels Time Rates

1 1

1

Straight

Piece Rate

Taylor's Differential

Piece Rate System

Merrick Differential

Piece Rate System

1 I I

Halsey Premium Halsey-Weir Rowan

Plan Premium Plan Plan

Method of Remuneration

I

I

Piece Rate System

1

I

Piece Rate

with Guranteed

Time Rate

1

1

Differential

Piece Rates

1

Gantt Task and

Bonus Plan

I I

I

Bonus System

1

1 1

Individual Group

Bonus Plan Bonus Plan

I

I

Indirect

Monetary

Incentives

1

1

Non-monetary

Incentives

Barth Variable Emerson Efficiency Bedaux Point Accelerating Premium

Sharing Plan Bonus Plan Premium Systems Plan

•

~ c<:> -

; '" .,

~ 0 l:< g: ~ 0" "2

~ :'": :i" s· OCI 00

() ::r

~

()

§

0

~

'E..

21.

0 -::r (;i.

3

0

@

§.

0 s.

e- o

3

0 e- o

Co '" .0.. .,

@

3c

0

0

~.

0

0

386 A Textbook of Financial Cost and Management Accounting

week, a fortnight or a month. The formula for calculation of payment of time rate of ordinary levels is as

follows:

Remuneration or Earnings = Hours Worked X Rate Per Hour

Time wage system is suitable under the following conditions:

(1) Where the units of output are difficult to measurable, e.g., watchman.

(2) Where the quality of work is more important, e.g., artistic furniture, fine jewellery, carving etc.

(3) Where machinery and materials used are very sophisticated and expensive.

(4) Where supervision is effective and close supervision is possible.

(5) Where the workers are new and learning the job.

(6) Where the work is of a highly varied nature and standard of performance cannot be established.

Advantages •

(1) It is simple and easy to calculate.

(2) Earning of workers are regular and fixed.

(3) Time rate system is accepted by trade unions.

(4) Quality of the work is not affected.

(5) This method also avoids inefficient handling of materials and tools.

Disadvantages

(1) No distinction between efficient and inefficient worker is made and hence they get the same

remuneration.

(2) Cost of supervision are high due to strict supervision used for high productivity of labour.

(3) Labour cost is difficult to control due to more payment may be made for the lesser amount of work.

(4) No incentive is given to efficient workers. It will depress the efficient workers.

(5) There is no specific standards for evaluating the merit of different employees for promotions.

(b) Time Rate at High Levels: Under this system, efficient workers are paid higher wages in order

to increase production. The main object of this method designed to remove the drawbacks of time rate at

ordinary levels. This system is simple and easily understandable. When higher rate of wages are paid, it

not only reduces labour turnover but also increases production and efficiency.

(c) Guaranteed Time Rates: Under this method, the wage rate is calculated by considering to

changes in cost of living index. Accordingly, the wage rate is varied for each worker according to the

change in cost of living index. This system is suitable during the period of raising prices.

(2) Piece Rate System

This is also known as "Piece Wage System" or "Payment By Result." Under this system, wages of a

worker are calculated on the basis of amount of work done or output of a worker. Accordingly, a worker is

paid in direct proportion to his output.

Labour Cost Accounting

Advantages

(I) It facilitates direct relation between efforts and reward.

(2) This system encourages the efficient workers to increase production.

(3) Under this system efficient workers are recognized and rewarded.

(4) It helps to reduce the cost of supervision and idle time.

(5) Tenders or quotations can be prepared confidently and accurately.

Disadvantages

(1) Where a concern is producing large quantities, it is difficult to fix a piece rate.

387

(2) In order to maximize their earnings, workers working with high speed may affect their health.

(3) The quality of output cannot be maintained.

(4) This system is not encouraging to the inefficient workers.

(5) Temporary delays or difficulties may affect the earnings of the workers.

Piece Rate System is Suitable Where

(l) Quality and workmanship are not important.

(2) Work can be measured accurately.

(3) Quantity of output directly depends upon the efforts of the worker.

(4) Production of standardized goods in a factory.

(5) Job is of a repetitive nature.

There are three important methods of paying labour remuneration falling under this type: (a) Straight

Piece Rate (2) Piece Rates with Guaranteed Time Rates and (c) Differential Piece Rates.

(a) Straight Piece Rate: Under this system, workers are paid according to the number of units

produced at a given rate per unit. Thus, total earnings of each worker is calculated on the basis of his

output irrespective of the time taken by him. The following formula is used for measuring piece work

earning:

Straight Piece Work Earnings = Units Produced x Rate Per Hour

(b) Piece Rates with Guaranteed Time Rates: Under this method, the worker earning from piece

work less than the guaranteed minimum wage, will get the fixed amount of guaranteed time rate. A

guaranteed rate would be paid per hour rate or day rate or week rate.

(c) Differential Piece Rates: This system is designed to provide for variation of piece rates at

different levels of output. Accordingly increase in wages is proportionate to increase in output. Under this

system, efficient workers get ample reward and at the same time inefficient workers are motivated to earn

more. The following are the three important types of differential piece rates :

(a) Taylor's Differential Piece Rates System.

(b) Merrick's Differential Piece Rates System.

(c) Gantt Task Bonus Plan.

•

388 A Textbook of Financial Cost and Management Accounting

(a) Taylor's Differential Piece Rates System

EW. Taylor, who is the father of scientific management introduced this plan. Under this system, two

piece rates are applicable on the basis of standard of performance established. Accordingly one is high rate

and the other one is lower rate. Thus high piece rate is applicable for standard and above the standard

performance. Lower piece rate for those workers with below the standard performance.

Illustration: 1

Calculate the earnings of workers A and B under Straight Piece Rate System and Taylor's

Differential Piece Rate System from the following particulars:

Standard time allowed 50 units per hour.

Normal time rate per hour Rs.100.

Differentials to be applied.

80% of Piece rate below standard.

120% of Piece rate at or above standard.

In a day of 8 hours A produced 300 units and B produced 450 units.

Solution:

Calculation of Piece Rates :

Standard production per hour = 50 units.

Standard production for 8 hours = 50 x 8 = 400 units.

Rate per hour = Rs. 100.

Piece Rate per unit =

100

50

= Rs. 2 per unit

Straight Piece Rate System

A for 200 units @ Rs. 2 = 200 x 2 = Rs. 400

B for 250 units @ Rs. 2 = 250 x 2 = Rs. 500

Differential Piece Rate System

Low Piece Rate at 80% differential

High Piece Rate at 120% differential

2 x 80

=----

100

2 x 120

=----

100

= Rs. 1.60

= Rs. 2.40

Standard production in 8 hours = 8 x 50 units per hour

= 400 units

Earnings

A produced 300 units (below standard)

Therefore low Piece rate of Rs. 1.60 applicable } = 300 x 1.60

Rs.480

LAbour Cost Accounting

B Produced 450 units (above standard)

Therefore high Piece rate of Rs. 240 applicable

(b) Merrick Differential Piece Rate System

} = 450 x 2.40

Rs.I080

389

This is also termed as Multiple Piece Rate system. This plan is 'designed to overcome the drawback

of Taylor's Differential Piece Rate System. Under this method, three piece rates are applied with different

levels of performance. Accordingly

Performance

(1) Less than 83%

(2) From 83% to 100%

(3) More than 100%

Illustration: 2

Differential Piece Rate

Normal Piece Rate (or) Basic Piece Rate

110% of Normal Piece Rate

120% of Normal Piece Rate

From the following particulars calculate the total earning of the three workers under Merrick

Differential Piece Rate System.

Normal rate per hour Rs. 5 per unit

Standard production per hour 10 units

In an 8 hours a day:

A produced 70 units.

B produced 90 units.

C produced 65 units.

D produced IlO units.

Solution:

Standard output per day = 10 units x 8 hours

= 80 units

Piece rate = Rs.5 per units

Level Performance:

A produced = 70 units

A's level of performance

Actual Output

= x 100 Standard Output

70 = x 100 = 87.5 %

80

90

B's level of performance = x 100 = 112.5 %

80

65

C's level of performance = x 100 = 81.25 %

80

IlO

D's level of performance = x 100 = 137.5 %

80

390

Piece Rate Applicable:

Up to 83 %

83 % to 100%

Above 100%

Earning of Workers:

Ns level of performance is 87.5 %

Earnings

B's level of performance is 112.5 %

Earnings

A Textbook of Financial Cost and Management Accounting

Normal Piece Rate

110 % of Normal Piece Rate

120% of Normal Piece Rate

110

= Units Produced x Normal Piece Rate x ---

100

= 70 x 5 x

= Rs.385

110

100

=

120

Units Produced x Normal Piece Rate x --

100

120

= 9Ox5x--

100

= Rs.540

C's level of performance is 81.25 %

Earnings =

=

=

Units Produced x Normal Piece Rate

65 x 5

Rs.325

D's level of performance is 137.5 %

Earnings

(c) Gantt's Task Bonus Plan

=

120

Units Produced x Normal Piece Rate x --

100

120

= 110 x5 x--

100

= Rs. 660

This system is designed by Henry L. Gantt. Under this system, standard time for every task is fixed

through time and motion study. The main feature of this system is a good combination of time rate,

differential piece rate and bonus. In this system day wages are guaranteed to all workers. Wages under this

system are calculated as follows :'

Performance

(Output)

(1) Output Below Standard

(2) Output at Standard

(3) Output at Above Standard

Earnings

Time Rate (Guaranteed)

Wages of Time Rate plus Bonus of 20% of the

Time Rate

High Piece Rate on worker's output

Labour Cost Accounting 39/

Illustration: 3

From the following particulars, calculate total earnings of each worker under Gantt's Task and Bonus

Scheme:

Standard production per week per worker is 2000 units, piece work rate Rs. 5 per unit

Actual production during the month :

A-WOO units

B - 2000 units

C - 2500 units

Solution:

Standard production per month = 2000 units

Piece work rate = Re. 0.50 per unit

. '. Guaranteed Time Rate =

Level of Efficiency:

2000

0.50

= Rs. 4000 per month

Standard output per month = 2000 units

(100% efficiency)

A's actual production = 1000 units

1000

A's level of efficiency = --- x 100 = 50 %

2000

B's actual production = 2000 units

2000

B's level of efficieQcy = x 100 = 100 %

2000

C's actual production = 2500 units

2500

A's level of efficiency = x 100 = 125 %

2000

Earnings:

Under Gantt's Task and Bonus Plan wages are computed as follows:

Output

Below Standard

At Standard

Above Standard

Rate

Guaranteed Time Wages

Given piece wages plus bonus of 20%

High piece rate on worker's whole output.

The earnings of the worker will be as follows :

A (50% below the standard)

B (100% efficiency)

C (125% efficiency above standard)

=

=

=

Rs. 4000 (Guaranteed monthly wages)

2000 units x Re. 0.50 per unit + Bonus of 20%

Rs. 1000 + 20% of Rs. 1000

= Rs. 1000 + 200 = Rs. 1200

= . 2500 units x Re. 0.50 + Bonus of 20%

Rs. 1250 + 20% of Rs. 1250

= Rs.1500

392 A Textbook of Financial Cost and Management Accounting

Bonus or Incentives Schemes

Incentive schemes of wage payment are also known as Premium Bonus Plans. introduced in order to

increase production with ensuring proper industrial climate. Wage incentive plans may be of two types :

(1) Individual Incentive Plans and (2) Group Incentive Plans. Under individual incentive plans, remuneration

can be measured on the performance of the individual worker. In the case of the group incentive scheme

earnings can be measured on the basis of the productivity of the group of workers or entire work force of

the organization. Various types of incentive schemes are combinations of time and piece rate systems. The

following are the important individual incentive plans discussed below:

(1) Halsey Premium Plan: This Plan was developed by F. A. Halsey. This system also termed as Split

Bonus Plan or Fifty-Fifty Plan. Under this plan, standard time is fixed for each job or operation on the basis

of past performance. If a worker completes his job within or more than the standard time then the worker is

paid a guaranteed time wage. If a worker completes his job within or less than the standard time, then he gets

a bonus of 50% of the time saved plus normal earnings. Under this method, the total earnings is calculated as

follows:

Total Earning

Total Earnings

Where

T - Time Taken

R - Hourly Rate

S - Standard Time

=

=

Guaranteed Time Wages + Bonus of 50% of Time Saved

(or)

1" x R + 50% (S - T) R

50

.'. Total Earnings = Time Taken x Hourly Rate + -- (Time Saved x Hourly Rate)

100

Illustration: 4

Calculate the total earnings of the worker under Halsey Premium Plans:

Standard Time 12 hours

Hourly Rate Rs. 3

Time Taken 8 hours

Solution:

Earnings under Halsey Premium Plan:

Standard Time

Time Taken

Time Saved

Rate per hour

Total Earnings

Total Earnings

::

=

=

=

=

=

=

=

=

12 hours

8 hours

Standard Time - Time Taken

12 - 8 = 4 hours

Rs.3

T x R + 50% (S - n R

50

8 x 3 + -- (4 x 3)

100

24 + 6 = Rs. 30

Rs. 30

Labour Cost Accounting

Merits

(1) It is simple to understand.

(2) Total earnings of each worker can be easy to calculate.

(3) Both employer and employee get equal benefit of time saved.

393

(4) This system not only benefits efficient worker but also provides average worker to get guaranteed

minimum wages.

(5) This system is based on time saved and it can reduce the labour cost.

Demerits

(1) Lack of co-operation among the employees.

(2) Under this system establishment of standard is very difficult.

(3) Earning are reduced at high level of efficiency.

(2) The Halsey~ Weir Scheme: Under this system, the worker gets the bonus of 30% of the time saved

instead of 50% of time saved under Halsey Plan. Except for this, Halsey Plan and Halsey-Weir Systems are

similar in all other respects.

Illustration: 5

From the following particulars calculate total earnings of a worker under Halsey-Weir Plan :

Solution:

Standard Time

Time Taken

Hourly Rate

=

::

::

10 hours

8 hours

Rs.2 per hour

Earnings Under Hals.ey-Weir Premium Plan :

Standard Time

Time Taken

Time Saved

Rate per hour

Total earnings

Total Earnings

=

=

::

=

=

=

=

:;:

10 hours

8 hours

Standard Time - Time Taken

10-8 = 2 hours

Rs. 2

TxR+30% (S - T) R

30

8 x 2 + -- (10 - 8) x 2

100

16 + 1.20

Rs.17.20

(3) Rowan Plan: This plan was introduced by James Rowan of England. It was similar to the Halsey

Plan in many respects except that it differs in calculation of bonus. Under this system. bonus is determined as

the proportion of the time taken which the time saved bears to the standard time allowed. Under this system

the following formula is applied to calculation of bonus:

Bonus

Total Earnings

=

Time Saved

x Time Wages

Standard Time

Time Hourly Time Saved

= x + x T x R

Taken Rate Standard Time

394

Time Saved

Time Wages

Illustration: 6

A Textbook of Financial Cost and Management Accounting

= Standard Time Time Taken

= Time Taken x Hourly Rate

From the following information, calculate total earnings of a worker under Rowan System :

Solution:

Standard Time

Time Taken

Rate per hour

= 10 hours

= 8 hours

= Rs.3

Calculation of total earnings under Rowan Plan :

Standard Time =

Time Taken =

Time Saved =

=

Rate per hour =

Total Earnings =

=

Illustration: 7

10 hours

8 hours

Standard Time - Time Taken

10 - 8 = 2 hours

Rs. 3 per hour

Time Saved

TxR+

Standard Time

2

8x3+--x8x3

10

24 + 4.8 = Rs. 28.8

x T x R

Calculate the earnings of a worker under (a) Halsey Premium Plan and (b) Rowan Premium Plan:

Time Allowed or Standard Time = 56 hours

Time Taken = 48 hours

Rate per hour = Rs.2

Solution:

(a) Earning under Halsey Premium Plan:

Standard Time = 56 hours

Time Taken = 48 hours

Hourly Rate = Rs.2

Time Saved = 56 -48

= 8 hours

50

Total Earnings = T x R +

100

(S - T) R

50

= 48 x ~+

100

(56 - 48) 2

50

= 96+ --

100

(8 x 2)

= 96 + 8 = Rs. 104

Labour Cost Accounting 395

S-T

Total Earnings = TxR+ x Tx R

S

56 -48

= 48 x 2 + x 48 x 2

56

8 = 96 + x 96

56

= 96 + 13.71

= Rs.109.7

[ADS: (a) Earning under Halsey plan = Rs. 104

(b) Earnings under Rowan Plan = Rs. 109.71J

Illustration: 8

The finished shop of a company employs 60 direct workers. Each worker is paid Rs. 400 as wages

per week of 40 hours. When necessary, overtime is worked upto a maximum of 15 hours per week per

worker at time rate plus one-half as premium. The current output on an average is 6 units per man hour

which may be regarded a standard output. If bonus scheme is introduced, it is expected that the output will

increase to 8 units per man hour. The workers will, if necessary, continue to work overtime upto the

specified limit although no premium on incentives will be paid.

The company is considering introduction of either Halsey Scheme or Rowan Scheme of wage

incentive system. The budgeted weekly output is 19200 units. The selling price is Rs. 11 per unit and the

direct material cost is Rs. 8 per unit. The variable overheads amount to Rs. 0.50 per direct labour hour and

the fixed overhead is Rs. 9000 per week.

Prepare a statement to show the effect on the company's weekly profit of the proposal to introduce

(a) Halsey Scheme, and (b) Rowan Scheme.

Solution:

BODUS

Total hours 60 workers x 40 = 2400 hours

Output = 8 units per hour

(2400 x 8)

Hours required = = 8 hours

19200 units

Standard hours allowed =

6 hours

Time Saved = 3200 - 2400 = 800 hours

Rs.400

19200 units

8 hours

= 3200 hours

Rate per hour = ----=Rs.1O

Halsey Scheme

Bonus

40 hours

= 50% of Time Saved

= 50% of Time Saved

800

::: 2400 hours

= ---= 400 hrs. x Rs. 10 = Rs. 4000

2

396 A Textbook of Financial Cost and Management Accounting

Rowan Scheme

Bonus ::;

::;

Particulars

Sales 19200 units x Rs. 11

Direct Materials

(19200 units x Rs. 8)

Time Saved

-----x Actual Hrs. x Hourly Rate

Std. Hrs

800 hrs.

3200 hrs.

x 2400 hrs. x 10 ::; Rs. 6000

Comparative Statement

Present

Rs.

Halsey

Rs.

2,11,200 2,11,200

1,53,600 1,53,600

{ 19200 units

::; 3200 hrs x Rs. 10 }

6 2400 hrs x Rs. 10 32,000 24,000

Overtime 800 hrs. x Rs. 5 4,000

Bonus - 4,000

Variable overheads 1,600 1,200

(3200 hrs x Rs. 0.50

2400 hrs x Rs. 0.50)

Fixed Overheads 9,000 9,000

2,00,200 1,91,800

Profit 11,000 19,400

Rowan

Rs.

2,11,200

1,53,600

24,000

6.000

1,200

9,000

1,93,800

17,400

(4) Emerson's Efficiency Sharing Plan: Under this plan, earning of a worker is by combining guaranteed

day wages with a differential piece rate. Accordingly the level of efficiency is determined on the basis of

establishment of standard task for a unit of time. If the level of worker's efficiency reaches 67% the bonus is

paid to him at a normal rate. The rate of bonus increases in a given rate as the output increases from 67% to

100% efficiency. Above 100% efficiency, the bonus increases to 20% of the wage earned plus additional

bonus of 1 % is added for each increase of 1 % in efficiency.

Illustration: 9

From the following particulars calculate total earnings of a worker under Emerson's Efficiency

Sharing Plan :

Standard output per day of 8 hours is 16 units

Actual output of a worker for 8 hours is 20 units

Rate per hour is Rs. 2.50

Solution:

Calculation of earnings under Emerson's Sharing Plan:

Levelofpenormance ::;

Actual Output

Standard Output

20 units

x 100

::; x 100::; 125%

16 units

Labour Cost Accounting

Bonus Payable

At 100% efficiency = 20% of time wages

Further increase of 1 % in the bonus is given for every 1 % increase in the efficiency.

Earning

each 1 % increase in efficiency } = 25% of Time Wages

. '. For next 25% efficiency @ 1 % for

Total Bonus payable = 45% of Time Wages.

Time Wages for 8 hours @ Rs. 2.50 per hour = Rs. 20.

45

Add: 45% bonus of time wages = -- x 20 = Rs. 9

100

Total Earning = Rs. 20 + Rs. 9 = Rs. 29

397

(5) Barth Variable Sharing Plan: This scheme introduced to attract newly recruited and skilled

employees who are motivated to learn woi'k. It provides sufficient incentives to inefficient workers who are

motivated to increase productivity. Earning under this method is calculated by applying the following formula:

Earnings = Rate per hour x -Y Standard Time x Time Taken

Illustration: 10

From the following particulars calculate earnings of a worker under Brath Variable sharing plan :

Solution:

Standard Time

Time Taken

Rate per hour

= 12 hours

8 hours

= Rs.5

Calculation of earnings under Barth Variable sharing plan:

Earnings = Rate per hour x -Y Standard Time x Time Taken

=5x~12x8

= Rs.48.98

(6) Bedaux Point Premium System: This plan was introduced by Charles E.Bedaux in 1911. Under

this plan, standard time fixed for each operation or job is expressed in terms of Bedaux point or'S.' For example,

a standard time of 360 B means the operation or job should be completed within 360 minutes. The chief

advantage of this plan is that it can be applied to any kind of a job. Under this system, worker is paid at the

time for actual hours worked, and 75% of the wages for the time saved are paid as bonus to the worker and

25% to the foremen, supervisors etc. The following is the formula for calculation of total wages of a worker:

Total earnings

Illustration: 11

= S x R + 75% of R (S - T)

From the following particulars, calculate total earnings of a worker under Bedaux Point Premium

System:

Standard Time

Time Taken

Rate per hour

= 360 B

= 240 B

= Re. 1

398

Solution:

Calculation of total earnings under Bedaux Point System:

Standard Time = 360 B's - =

360

60

= 6 hours

240

Time Taken = 240 B's =

60

= 4 hours

= Re.l

A Textbook of Financial Cost and Management Accounting

Rate per hour

Total earnings = S x R + 75% of R (S - T)

75

= 360 x 1 + -- x 1 (360 - 240)

100

75

= 360 + -- x 120

100

= Rs. 360 + Rs. 90 = Rs. 450

(7) Accelerating Premium Bonus Plan: Under this plan, bonus is determined on the basis of time saved

unlike a fixed percentage under Halsey Plan and as a decreasing percentage under Rowan Plan. The bonus is

paid to workers at an increased rate according to more and more time saved. This provides increasing incentives

to efficient workers.

Group or Collective Bonus Plan

The incentive schemes explained so far are applicable to individual performance depending directly

on production. However. it is not the individual worker who produce the goods or services (operation)

alone but group of several other workers are required to jointly perform a single operation. It is, therefore,

essential that a group incentive scheme be introduced. Bonus is calculated for a group incentive scheme.

The bonus is calculated for a group of workers and the total amount is distributed among the group of

workers on anyone of the following basis :

(a) Equally by all the workers of the group.

(b) Pro rata on the time rate basis.

(c) Pre determined percentage basis.

(d) Specified proportion basis.

Types of Group Incentive Plans

The following are the important types of group incentive bonus plans:

(1) Budgeted Expenses Bonus Plan

(2) Priest Man Bonus Plan

(3) Towne's Gain-sharing Plan

(4) Scanlon Plan

(1) Budgeted Expenses Bonus Plan: Under this method, bonus is determined on the basis of savings

in actual expenditure compared with total budgeted expenditure.

Labour Cost Accounting 399

(2) Priest Man Bonus Plan: Under this plan, standard performance is fixed by the management and

committee of workers. The group of workers get bonus when actual performance exceeds the standard

performance irrespective of individual's efficiency or inefficiency.

(3) Towne's Gain-sharing Plan: Under this plan, bonus is calculated on the basis of savings in

labour cost. The group of workers get bonus when actual costs is less than the standard costs, one-half of

the savings is distributed among workers including foremen in proportion with the wages earned.

(4) Scanlon Plan: Scanlon Plan is designed with the chief aim of reducing the cost of operations in

order to increase the production efficiency. This plan is generally applicable in industries where the

operation cost is high. Under this scheme, bonus is determined on the basis of standard costs or w~.stages

and percentage of the reduction in operation cost.

Indirect Monetary Incentives

Incentive schemes are regarded beneficial to both employers and workers. In this regard, under

indirect monetary incentives by giving them a share of profit and introducing co-partnership schemes or as

they have become partners in the business in order to make a very profitable enterprise.

Profit Sharing: Profit sharing and bonus is also known as Profit sharing bonus. Under this scheme,

there is an agreement between the employer and employee by which employee receives a share, fixed in advance

of the profits. Accordingly profit sharing bonus refers to the distribution of profit on the basis of a certain

percentage of one's monthly earnings. The amount to be distributed depends on the profits earned by an

enterprise. The proportion of the profits to be distributed among the employees is determined in advance.

Co-partnership: This system provides not only a worker to become partner in the business but also

to share in the profits of the concern. There are different degrees of partnership and share of responsibilities

allowed to the workers to take part in its control.

Non-Monetary Incentive Schemes: Under this system, employees are provided better facilities,

instead of additional monetary payments. Some of the examples of non-monetary incentives are free

education for children, rent free accommodation, medical facilities, canteen facilities, welfare facilities,

and entertainment facilities etc.

QUESTIONS

1. What are the important objectives of ideal wage system?

2. Describe the factors to be considered for an ideal wage system.

3. What are the different methods of wage payment?

4. Critically examine the advantages and disadvantages of time wage system.

5. What are the differences between time rate system and piece rate system?

6. What do you understand by piece rate system? Discuss the merit and demerits of piece rate system.

7. What do you understand by Taylor's Differential Piece Rate System? Explain its significance.

8. How are incentive wages calculated under Halsey and Rowan incentive schemes of wage payment?

9. Explain the different types of time rate system.

10. Differentiate between the Differential piece rate system of Taylor and Merrick.

11. What do you understand by Incentive scheme of wage payment?

12. Write short notes on :

(a) Halsey Plan. (b) Rowan Plan. (c) Emerson's Efficiency Plan. (d) Halsey-Weir Plan. (e) Gantt Task Bonus Plan.

(f) Barth's System.

13. What do you mean by collective bonus plan? Explain the types of group incentive plans.

14. From the following particulars, calculate the earnings of workers X and Y under Piece Rate System and Taylor's

Differential piece rate system :

Standard time allowed = 10 units per hour

Normal time rate per hour = Re.l

Differential to be applied:

80% of piece rate when below standard

4()() A Textbook of Financial Cost and Management Accounting

120% of piece rate at or above standard

In a day of 8 hours X produced 75 units and Y produced 100 units

[Ans : Earning of workers X Y

Rs. Rs.

Straight piece rate 7.5 10

Taylor's Differential Piece rate 6 12]

15. From the following particulars, calculate total earnings of the worker under Halsey Premium Plan :

Time allowed for job 20 hours

Time taken 15 hours

Rate per hour Rs. 1.50 per hour

[Ans: Total earning = Rs. 26.25]

16. From the following particulars, calculate total earnings of the worker under Rowan Plan:

Standard time 20 hours

Time taken 16 hours

Hourly rate Rs. 2 per hour

[Ans: Total earnings'" Rs. 38.40]

17. A worker takes 9 hours to complete a job on daily wages and 6 hours on a scheme of payment by result. His daily rate

is 75 paise an hour: the material cost of the product is Rs. 4 and the overheads are recovered at 150% of the total direct

wages. Calculate the factory cost of the product under:

(a) Piece work plan; (b) Rowan plan; and (c) Halsey plan.

[Ans: Piece work plan Rs. 20.88

Rowan plan Rs. 19

Halsey plan Rs. 18.07]

18. A workman's wage for a guaranteed 44 week is Rs. 0.19 per hour. The week time produce of one article is 30 minutes

and under incentive scheme the time allowed is increased by 20%. During one week the workman manufactured 100

articles. Calculate his gross wages under each of the following methods of remuneration :

(1) Time rate

(2) Piece work with a guaranteed weekly wage

(3) Rowan premium bonus

(4) Halsey premium bonus, 50% to workman

[Ans: (1) Rs. 8.36 (2) Rs. 11.40 (3) Rs. 10.59 (4) Rs. 9.88]

19. An employee working under a bonus scheme saves in a job for which the standard time is 60 hours. Calculate the rate

per hour worked and wages payable to a worker if incentive bonus of 10% on the hourly rate is payable when standard

time (namely, 100% efficiency) is achieved, and a further incentive bonus of 1 % on hourly rate for each 1% in excess of

that 100% efficiency is payable.

Assume that the normal rate payment is Rs. 5 per hour.

[Ans: Wages payable to workers = Rs. 325]

20. A worker takes hours to complete a job on daily wages and hours on a scheme of payment by results. His day rate is 75

paise an hour, the material cost on the product is Rs. 4 and the overheads are recorded at 150% of the total direct wages.

Calculate the factory cast of the product under:

(a) Piece work plan (b) Rowan plan (c) Halsey plan

[Ans : Piece work Rs. 15.25 ,Halsey Rs. 18.5, Rowan plan Rs. 19.00]

21. lobs are issued to operation X, to make 89 units to operation y, to make 204 units, for which a time allowance of 20

standard minutes and 15 standard minutes per units respectively, is credited for every hour saved bonus is paid at 50%

of the basic rate which is Rs. 2 per hour for both the employee. The basic working week is 42 hours. Hours in excess

are paid at double the normal rate.

X completes his units in 45 hours and Y completes his units in 39 hours (but works a full week). Due to defective

material 6 units of X and 4 units of Y are subsequently scrapped although all units produced are paid for.

You are required to calculate for each of X and Y:

(a) The amount of bonus payable

(b) Total gross wages payable and

(c) The wages cost per good unit made.

[Ans: Bonus payable: X Rs. 18; Y Rs. 12

Gross wages: X Rs. 114; Y Rs. 90

Wage cost per unit: Y Rs. 62; Rs. 42]

22. From the following informations you are required to calculate the earnings of X, Y, Z and W under Merrick Differential

piece rate system.

Standard production per hour 12 units

Normal rate per hour Rs 0.60

X Produced 64 Units

Labour Cost Accounting 401

Y Produced 96 Units

Z Produced 84 Units

W Produced 100 Units

[Ans: X - Rs. 38.40; Y - Rs. 13.36; z·- Rs. 5.44; W - Rs. 72]

23. Standard output per day of 8 hour is 16 units, actual output of a worker for 8 hours is 20 units, rate per hour is Rs. 2.50.

Calculate the wages payable to the worker according to the Emerson's Efficiency plan.

[Ans : Rs. 29]

24. The standard hours of job is 100 hours. The job has been completed by Gupta in 60 hours, Ram in 70 hours and Kumar

in 95 hours. The bonus system applicable to the job is as follows :

Percentage of time

Saved to time allowed Bonus

Saving up to 10% 10% of time saved

11% to 20% 15% of time saved

21 % to 40% 20% of time saved

41 % to 100% 25% of time saved

The rate of pay is Re. I per hour. Calculate the total earning of each worker and also rate of earning per hour.

[Ans : Total earning Guptha Rs. 68; Ram Rs. 76; Kumar Rs. 95.50. Earnings per hour Rs. 1.13; Rs. 1.08; Rs. 1.00]

25. (I) Calculate the earning of workers P & Q under:

(a) Straight piece rate system and

(b) Taylor's Differential piece rate system from the following details:

Standard time per unit = 12 units

Standard rate per hour = Rs. 60

Differential to be used 80% and 120%.

In a particular day if 8 hO\lrs, worker P produced 30 units and worker Q produced 50 units

[Ans : Earnings under straight piece rate system.

Worker P - Rs. 360; Q - Rs. 600.

Earnings under Taylor's Differential piece rate system

Worker P - Rs. 288; Y - Rs. 720]

(2) Calculate the earnings of a worker under:

(a) Halsey premium plan and

(b) Rowan plan

Time allowed - 48 hours

Time taken - 40 hours

Rate per hour - Rs. I

[Ans : Halsey premium plan Rs. 44; Rowan Scheme Rs. 46.67]

26. From the following data, you are required to calculate the total earnings of a worker under:

(a) Halsey premium plan

Hourly rate - Rs. 3

Standard time - 16 hours

Time taken - 12 hours

(b) Under Halsey-Weir premium plan

Time allowed - 48 hours

Time taken - 40 hours

Rate per hour - Rs. 3

[Ans : (a) Rs. 4.2 (36 + 6); (b) Rs. 127.2 (120 + 7.2)]

000

•

Meaning and Definition

CHAPTER 18

Overheads

Aggregate of all expenses relating to indirect material cost, indirect labour cost and indirect expenses

is known as Overhead. Accordingly, all expenses other than direct material cost, direct wages and direct

expenses are referred to as overhead.

According to Wheldon, Overhead may be defined as "the cost of indirect material, indirect labour

and such other expenses including services as cannot conveniently be charged to a specific unit."

Blocker and WeItmer define overhead as follows :

"Overhead costs are operating cost of a business enterprise which cannot be traced directly to a

particular unit of output. Further such costs are invisible or unaccountable."

Importance of Overhead Cost

Nowadays business is a dynamic organism. Advancement of technological development and

innovation, economic situations and social considerations are the important factors for modernization of

industries at mass production to meet its more demand. The overhead charges are heavily increased and

they represent major portion of total cost. Therefore, it assumes greater importance for cost control and

cost reduction.

Classification of Overheads

Classification of overheads is the process of grouping of costs based on the features and objectives of

the business organization. The following are the important methods on which the overheads are classified:

(a) On the basis of Nature.

(b) On the basis of Function.

(c) On the basis of Variability.

(d) On the basis of Normality.

(e) On the basis of Control.

Overheads

The following chart can explain the further classification of overhead :

Nature

t

(1) Indirect Material

(2) Indirect Labour

(3) Indirect Expenses

1

Function

1

(1) Manufacturing Overhead

(2) Administrative Overhead

(3) Selling Overhead

(4) Distribution Overhead

(1) On the Basis of Nature

Classification of Overhead

On the Basis of

Variability

t

(1) Fixed Overhead

(2) Variable Overhead

(3) Semi-Variable Overhead

1

Control

1

Normality

t

(1) Normal Overhead

(2) Abnormal Overhead

(1) Controllable Overhead

(2) Uncontrollable Overhead

403

One of the important classifications is on the basis of nature or elements. Based on nature the

aggregate of all indirect material cost, indirect labour cost and indirect other expenses are known as

overheads. Accordingly, overheads are grouped into (a) Indirect Material Cost (b) Indirect Labour Cost

and (c) Indirect Expenses.

(a) Indirect Material Cost: Indirect materials do not form part of the finished products. Indirect

materials are indirectly or generally used for production which cannot be identified directly. For example,

oil, lubricants, cotton waste, tools for repairs and maintenance etc. are indirect materials.

(b) Indirect Labour Cost: Indirect labour is for work in general. The importance of the distribution

lies in the fact that whereas direct labour can be identified with and charged to the job, indirect labour

cannot be so charged and has, therefore, to be treated as part of the factory overheads to be included in the

cost of production. Examples are salaries and wages of supervisors, storekeepers, maintenance labour etc.

(c) Indirect Expenses: Any expenses that are not specifically incurred for or can be readily charged

to or identified with a specific job. These are the expenses incurred in general for more than one cost

centre. Examples of indirect expenses are rent, insurance, lighting, telephone, stationery expenses ·etc.

(2) On the Basis of Function

The classification overheads on the basis of the various function of the business concern is known as

function wise overheads. Here there are four important functional overheads such as :

(a) Production Overhead

(c) Selling Overhead

(b) Administration Overhead

(d) Distribution Overhead

(a) Production Overhead: Production overhead is also termed as manufacturing overhead or works

overhead or factory overhead. It is the aggregate of all indirect expenses which are incurred for work in

404 A Textbook of Financial Cost and Management Accounting

operation or factory. These costs are normally incurred during the period when the production process is

carried on. For example, factory rent, factory light, power, factory employees' salary, oil, lubrication of

plant & machinery, etc.

(b) Administrative Overhead: Administrative expenses are incurred in general for management to

discharge its functions of planning organizing, controlling, co-ordination and directing. These expenses are

not specifically incurred and cannot be identified with the specific job. It is also termed as office cost. For

example, office rent, rates, printing, stationery, postage, telegram, legal expenses etc. are the office and

administrative costs.

(c) Selling Overheads: Selling expenses are overheads which are incurred for promoting sales,

securing orders, creating demand and retaining customers. For example, salesmen's salaries, advertisement,

rent and rates of show room, samples, commission etc.

(d) Distribution Overhead: Distribution overhead are incurred for distribution of products or output

from producers to the ultimate consumers. For example, warehouse staff salaries, expenses of delivery van,

storage expenses, packing etc.

(3) On the Basis of Variability

One of the important classifications is on the basis of variability. According to this, the expenses can

be grouped into (a) Fixed Overhead (b) Variable Overhead and (c) Semi-Variable Overhead.

(a) Fixed Overhead: Fixed cost or overhead incurred remain constant due to change in the volume

output or change in the volume of sales. For example, rent and rates of buildings, depreciation of plant,

salaries of supervisors etc.

(b) Variable Overhead: Variable overhead may be defined as "they tend to increase or decrease in

total amount with changes in the volume of output or volume of sales." Accordingly the change is in direct

proportion to output. Indirect materials, Indirect labour, repair and maintenance, power, fuel, lubricants etc.

are examples of variable overhead costs.

(c) Semi-Variable Overheads: Semi-variable overheads are incurred with a change in the volume of

output or turnover. They neither remain fixed nor do they tend to vary directly with the output. These costs

remain fixed upto a certain volume of output but they will vary at other part of activity. Semi-variable

overheads are mixed cost, i.e., partly fixed and partly variable. For example, power, repairs and

maintenance, depreciation of plant and machinery telephone etc.

(4) On the Basis of Normality

Overheads are classified into normal overheads and abnormal overheads on the basis of normality

features. According to this normal overheads are incurred in achieving the target output or fixed plan. On

the other hand, abnormal overhead costs are not expected to be incurred at a given level of output in the

conditions in which the level of output is normally produced. For example, abnormal idle time, abnormal

• wastage etc. Such expenses are transferred to Profit and Loss Account.

(5) On the Basis of Control

It is one of important classifications of overhead on the basis of control. Based on control it is

grouped into controllable overhead and uncontrollable overhead. Controllable overhead which can be

controlled by the action of a specified number of undertaking. For example, idle time, wastages etc. can be

controlled. Uncontrollable overheads cannot be controlled by the action of the executive heading the

responsibility centre. For example, rent and rates of building cannot be controlled.

Overheads

Usefulness of Overhead Classification

(1) It ensures effective cost control.

(2) It helps the management for effective decision making.

405

(3) The application of marginal costing is essentially for profit planning, cost control, decision

making etc. are based on the classification of overheads.

(4) On the basis of classification of fixed and variable cost, flexible budgets are prepared at

different levels of activity.

(5) It facilitates fixing of selling price.

(6) Cost classification is useful for break-even analysis. Break-even analysis mainly depends on

overall.cost and profi"t which can be useful for making or buying decision.

(7) It helps to find out the unit cost of production.

Codification of Overhead

Codification is a process of representing each item by a number, the digits of which indicate the

group, the subgroup, the type and the dimension of the item.

Advantages of Codification

(1) It enables systematic grouping of similar items and avoids confusion caused by long description

of the items.

(2) It serves as the starting point of implication and standardization.

(3) It helps in avoiding duplication of items and results in the minimisation of number of items,

leading to accurate records.

(4) It ~elps in allocation and apportionment of overheads to different cost centres.

(5) It assists the grouping of overheads for cost control.

(6) It helps in reducing clerical efforts to the minimum.

Methods of Codification

There are different methods used for codification. The following are the three important methods

used:

(1) Numerical Codes Method.

(2) Decimal Codes Method.

(3) Codes with a Combination of Numbers and Alphabets.

(1) Numerical Method: Under this method, numerical codes are assigned to each item of expenses.

For example,

100 Indirect labour.

400 Power.

500 Maintenance.

800 Fixed charges.

406 A Textbook of Financial Cost and Management Accounting

(2) Decimal Codes: Under this method, the whole numbers are allotted to indicate master group and

the decimals indicate the sub-group. For example,

Factory Overheads:

1.1.1 Indirect materials.

1.1.2 Consumable stores.

1.1.3 Lubricating oils.

(3) Codes with a Combination of Numbers and Alphabet : Under this method the alphabet

indicates the main group and the type of expenses is indicated by the numerical. For example,

Rl - Repairs to machinery.

R2 - Repairs to plant.

R3 - Repairs to furniture.

Procedure or Steps in Overhead

Overheads are incurred for work in general. Overhead is added tQ the prime cost in order to measure

the total cost of production or cost of goods sold. For allocation and apportionment of overhead in the cost

of production or cost of goods sold the following procedures are involved:

(1)

(2)

(3)

Classification of Overhead

Collection of Overhead

. Overhead Analysis:

:~; "i.;.:~:- '

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

.,,'

Apportionment of overhead to cost centre. ' .

(b) Re-distribution of overhead from service department to production department, i.e.,

Allocation and Apportionment of service centres to production centres or departments.

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

(1) Classification Overhead: We have already discussed the classification of overh~ad in the

preceding pages, and the discussion on other procedures would follow in this chapter and the subsequent one.

(2) Collection of Overhead: The production overheads or factory overheads are collected and

identified under separate overhead code numbers or standing order numbers. These overheads are

collected from different sources and documents. The following are the important sources and documents :

Overhead Expenses

(1) Indirect Materials

(2) Power and light

(3) Indirect wages

(4) Salaries

(5) Depreciation

(6) Rates

(7) Rates

(8) Office Stationery

(9) Postage

Sources and Documents Used

Materials Requisition

Meter Reading

Time Cards, Pay Rolls, Wage Analysis

Salaries Sheet

Plant Register, Machinery Register

Lease

Local Government Assessment

Supplier's Invoices

Postage Book

Overheads 407

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

The first step of overhead analysis is distribution of overhead to production department and service

department. Before analysing overhead, we should know the concept of Allocation, Absorption and

Apportionment.

Allocation: Cost allocation refers to the allotment of whole item of cost to cost centres. The technique

of charging the entire overhead expenses to a cost centre is known as cost allocation.

Absorption: Cost absorption refers to the process of absorbing all overhead costs allocated to

apportioned over particular cost centre or production department by the unit produced.

Apportionment: Apportionment is the process of distribution factory overheads to cost centres or

cost units on an equitable basis. The term apportionment refers to the allotment of expenses which cannot

be identified wholly with a particular department. Such expenses require division and apportionment over

two or more cost centres in proportion to estimated benefits received.

Allocation Vs Apportionment

(1) Allocation deals with whole amount of factory overheads while apportionment deals with

proportion of item of cost or proportion to cost centres.

(2) The item of factory overhead directly allocated and identified with specific cost centers.

Whereas apportionment requires suitable and equitable basis. For example, factory rent may be

allocated to the factory and has to be apportioned among the producing and service departments

on an equitable basis.

Basis of Apportionment

Overhead apportionment depends upon matching with principles. Accordingly the basis for

apportionment should be related to the basis on which the expenditure is incurred. The following are the

usual basis adopted for apportionment of overhead :

Basis of Apportionment

Overhead Cost

(1) Lighting

(2) Rent, Rates and Taxes

(3) Insurance of building }

Depreciation of building,

Heating

(4) Depreciation of plant }

and Machinery and

Equipments

(5) E S I, Canteen, Safety, }

compensation, supervision

welfare, fringe benefits

(6) Delivery Van, }

Internal Transport

(7) Audit fees

(8) Storekeeper's expenses

(9) Power

Basis of Distribution

- No. of light points, floor space or meter reading

- Floor Area

Area of floor

- Book value

- No. of employees

- Weight, volume ton

- Sales or Total Cost

- Weight, value of materials or Number of requisitions

- H. P. Hours or K. W. Hours

408

Illustration: 1

A Textbook of Financial Cost and Management Accounting

A departmental store has several departments. What bases would you recommend for apportioning

the following items of expenses to its departments :

(I) Fire Insurance of building

(2) Sales commission

(3) Advertisement

(4) Salesmen's salaries

(5) Commission paid to salesmen

(6) Show room expenses

(7) Depreciation on plant

(8) Rent of finished goods, warehouse

(9) Factory power

(10) Delivery Van expenses

Solution:

Items

(I) Fire Insurance Building

(2) Sales Commission

(3) Advertisement

(4) Salesmen's Salaries

(5) Commission paid to Salesmen

(6) Show room expenses

(7) Depreciation on plant

(8) Rent of finished goods warehouse

(9) Factory power

(10) Delivery Van expenses

Illustration: 2

Basis of Apportionment

Floor space or Value

Sales value

Sales value

Sales value

Sales value

Sales value or Total cost

Value of plant

Floor space or Area

H.P. Power (or) K.W. hours

Weight, Volume

A factory has three production departments and two service departments. The following figures have

been extracted from the financial books :

Supervision

Repairs of Plant and Machinery

Rent

Light

Power

Employer's contribution to ESI

Canteen Expenses

Rs.

6,000

3,000

8,000

2,000

3,000

600

1,000

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

Particulars A B C D E

Direct Wages (Rs.) 4,000 3,000 2,000 2,000 1,000

Area of Square feet 2,000 1,000 500 500 100

No. of Employees 50 40 20 20 10

Value of Machinery 10,000 5,000 3,000 3,000 1,000

Light Points 80 60 30 30 20

H.P. of Machines 200 100 50 50 20

Overheads 409

Solution:

Primary Overhead Distribution Summary

Basis of Total Production Department Sen'ice Dept.

Particulars Apportionment Rs. Departments Department

A B C D E

Supervision No. of Employees 6,000 2,142 1,715 857 857 429

5:4:2:2:1

Repairs of Plant } Value Machinery 3,000 1,364 681 409 409 137

and Machinery 10:5:3:3:1

Rent Area of square feet 8,000 3,902 1,951 976 976 195

20:10:5:5:1

Light Light points 2,000 727 545 273 273 182

8: 6: 3 : 3: 2

Power H.P. of Machines 3,000 1,429 714 357 357 143

20:10:5:5:2

Employers Direct Wages 600 200 150 100 100 50

Contribution to ESI 4: 3 : 2 : 2: 1

Canteen Expenses No. of Employees 1,000 357 286 143 143 71

5:4:2:2:1

Total 23,600 10,121 6,044 3,115 3,115 1,207

(b) Re-apportionment (Re-distribution): Re-distribution of overhead from various service departments

to production departments is known as Re-apportionment or Secondary distribution. Accordingly, allocation

and apportionment of overheads from service departments or centres to production centres or departments.

The following are the important bases adopted for apportionment of secondary distribution:

Service Department

(1) Purchase Department

(2) Maintenance and Repairs Department

(3) Stores Department

(4) Personnel Department

(Canteen, Welfare, Medical,

Employer's liability)

(5) Time Keeping Department

(6) Pay roll Department

(7) Accounts Department

(8) Tool Room

Service Department

(9) Transport Department

(10) Power House

(11) Fire Insurance

Methods or Re-apportionment or Re-distribution

Basis of Apportionment

Number of Purchase Orders or Number of

Purchase Requision or Value of Materials

Hours worked

No. of Requisition or Value of Materials

No. of Employees or Direct wages

No. of Employee or Labour Hours or Direct Wages

No. of Employees or Direct Wages

No. of Employees

Direct Labour Hours or Machine Hours or Direct Wages

Basis of Apportionment

Car hours, Truck hours, Tonnage handled

K.W. Hours

Stock Value

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

production department :

410 A Textbook of Financial Cost and Management Accounting

(1) Direct Re-distribution Method

(2) Step Distribution Method

(3) Reciprocal Service Method - this method further grouped into:

(a) Repeated Distribution Method

(b) Simultaneous Equiation Method

(c) Trial and Error Method

The following chart explains more about the method of re-apportionment of service department cost:

Direct Re-distribution

Method

Methods of Secondary Distribution

!

Step

Method

Repeated Distribution

Method

1

Reciprocal Service

Method

Simultaneous

Equation

Method

Trial and Error

Method

(1) Direct Re-distribution Method: Under this method, the cost of service department is directed to

re-distribution to the production departments without considering the services rendered by one service

department to another service department.

Illustration: 3

Ramesh Ltd. has three production departments A, Band C and six service departments. The

following figures are extracted from the records of the company :

Production Departmentss

A Rs.16,Ooo

B Rs.IO,OOO

C Rs.12,OOO

Rs.38,OOO

Service Departments

Stores

Timekeeping

Maintenance

Power

Walfare

Supervision

Total

Rs.2,OOO

Rs.3,OOO

Rs. 1,000

Rs.2,OOO

Rs. 1,000

Rs.2,OOO

Rs.49,OOO

Overheads 411

The other information available in respect of the production departments :

Particulars Production Departments ,

A B C I

No. of Employees 40 30 20

No. of Stores Requisition 30 20 10

Horse Power of Machines 500 500 600

Machine Hours 2500 1500 1000

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

Solution:

Departmental Overhead Re-distribution Summary

Expenses Basis Total Production Departments

Rs. A B C

Rs. Rs. Rs.

As per primary } - 38,000 16,000 10,000 12,000

Departmental summary

S!<rvik~ Del2artm!<!lt§ ;

Stores No. of Stores

Requisitioned 2,000 1,000 667 333

30: 20 : 10

Timekeeping No. of Employees

40:30:20 3,000 1,333 1,000 667

Maintenance Machine Hours 1,000 500 300 200

25: 15: 10

Power Horse Power 2,000 625 625 750

5:5:6

Welfare No. of Employees 1,000 445 333 222

40:30:20

Supervision No. of Employees 2,000 889 667 444

40: 30: 20

Total 49,000 20,792 13,592 14,616

(2) Step Method: Under this method the cost of most serviceable department is first distributed to

production departments and other service departments. Thereafter, the next service department is distributed

and later the last service department until the cost of all the service departments are redistributed to the

production department.

Illustration: 4

A manufacturing company has two production departments A and B and three Service Departments

- Timekeeping, Stores and Maintenance. The departmental summary showed the following expenses for

Dec. 2003.

Production Departments:

A

B

Service Departments:

Timekeeping

Stores

Maintenance

Total Overhead Expenses

Rs.

32,000

10,000

8,000

10,000

6,000

66,000

412 A Textbook of Financial Cost and Management Accounting

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

Particular Production Service Departments

Departments

A B Timekeeping Stores Maintenance

No. of Employees 20 '15 10

No. of Stores Requisitions 12 10 -

Machine Hours 1200 800 -

You are required to apportion these costs to production departments :

Solution:

Departments Primary

Distribution

Rs.

Timekeeping 8000 (-) 8,000

Stores 10,000 3,334

Maintenance 6,000 2,500

A 32,000 1,333

B 10,000 833

Total 66,000

Basis of Apportionment:

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

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

Maintenance: 12 : 8 (Machine Hours)

(-) 13,334

1,600

6,400

5,334

8 5

- 3

- -

(-) 10,100

6,060 45,793

4,040 20,207

66,000

(3) Reciprocal Service Method : This method recognizes the fact that if a service department

receives services from other department, the services should be charged in the receiving department. Thus,

the cost of inter departmental services is taken into account on reciprocal basis. The following are the three

important methods available for dealing with reciprocal distribution :

(a) Simultaneous Equation Method.

(b) Repeated Distribution Method.

(c) Trail and Error Method.

(a) Simultaneous Equation Method: Under this method, the true cost of total overhead of each

service department is ascertained with the help of Simultaneous or Algebraic Equation. The obtained

result reapportioned to production department on the basis of given percentage.

(b) Repeated Distribution Method: Under this method, the total overhead costs of the service

departments are distributed to service and production departments according to given percentage of the

service departments are exhausted, in tum repeatedly until the figures become too small to matter.

(c) Trail and Error Method: In this method, the cost of a service centre is apportioned to another

service centre. Then, the cost of another service centre along with the apportioned cost from the first centre

is again apportioned back to the first service centre. This process is repeated till the amount to be

apportioned becomes zero or negligible.

Overheads 413

Illustration: 5

The following particulars related to a manufacturing company has three production departments : P,

Q, : and R and two service departments X and Y :

Production Departments:

P Rs.2,ooO

Q Rs.l,5oo

R Rs.l,ooo

Service Departments:

S Rs. 500

T Rs.4oo

The service department expenses are charged on a percentage basis as folIows :

Productions Departments Service Departments

Service Depts. :

S

T

P

20%

30%

Q

30%

30%

R

40%

20%

S

20%

T

10%

Prepare a statement showing the distribution of the two service departments expenses to three production

departments under (1) Simultaneous Equation Method and (2) Repeated Distribution Method.

Solution:

(1) Simultaneous Equation Method:

Let X be the total expenses of Departments S

Let Y be the total expenses of Department T

X = 500 + 0.20 Y

Y = 400 + 0.10 X

X = 500 + 0.20 (400 + O.IOX)

X = 500 + 80 + 0.02X

X - 0.20X = 580

(or) 0.98 X = 580

580

.. X = -- = 59l.83

0.98

Y = 400 + 0.10 (592)

= 400 + 59

Y =459

Departmental Overhead Distribution Summary

Particulars Production Departments

P Q R

Rs. Rs. Rs.

Overhead as per Summary 2,000 1,500 1,000

Department S 118 178 237

Department T 138 137 92

Total 2,256 1,815 1,329

Service Departments

S T

Rs. Rs.

500 400

(-) 592 59

92 (-) 459

- -

414 A Textbook of Financial Cost and Management Accounting

Repeated Distribution Method

Particulars Production Departments Service Departments

P Q R S T

Rs. Rs. Rs. Rs. Rs.

Total Department overhead as per

Primary Distribution 2,000 1,500 1,000 500 400

Service Department S 100 150 200 (-) 500 50

Service Department T 135 135 90 90 (-) 450

Service Department S 18 27 36 (-) 90 9

Service Department T 3 3 3 - (-) 9

Total 2,256 1,815 1,329 - -

Illustration: 6

You are supplied with the following infonnation and required to work out the production hour rate of

recovery of overhead in Departments X, Y and Z.

Production Deplts.

Particulars Total X Y Z

Rs. Rs. Rs. Rs.

Rent 12,000 2,400 4,800 2,000

Electricity 4,000 800 2,000 500

Indirect Labour 6,000 1,200 2,000 1,000

Depreciation 5,000 2,500 1,600 200

Sundries 4,500 910 2,143 847

Estimated working

Hours 1,000 2,500 1,400

Expenses of Service Department P and Q are apportioned as under :

Solution:

P

Q

Particulars

Rent

Electricity

Indirect Labour

Depreciation

Sundries

Total

X

30%

10%

y

40%

20%

z

20%

50%

P Q

10%

20%

Departmental Overhead Distribution Summary

Production Deptts.

Total X Y Z

Rs. Rs. Rs. Rs.

12,000 2,400 4,800 2,000

4,000 800 2,000 500

6,000 1,200 2,000 1,000

5,000 2,500 1,600 200

4,500 910 2,143 847

31,500 7,810 12,543 4,547

Service Deptts.

P Q

Rs. Rs.

2,000 800

400 300

800 1,000

500 200

300 300

(C7A Inter, 2Ck71)

Service Deptts.

P' Q

Rs. Rs.

2,000 800

400 300

800 1,000

500 200

300 300

4,000 2,600

Overheads

Repeated Distribution Method

Particulars Total

Total Departmental

Overheads as per

Primary distribution

Exp. of P Dept

Total

Exp. of Q Dept.

Total

Exp. of P Dept.

Total

Exp. of Q Dept.

Total

Exp. of P Dept

Total 31.500

Working hours

Rate per hour

(ii) Simultaneous Equations Method

Let p be the expenses of Service Dept. P and

Let q be the expenses of Service Dept. Q

1

Production Depts.

X Y

7.810 12.543

1.200 1.600

9.010 14.143

300 600

9.310 14.743

180 240

9.490 14.983

6 12

9,496 14.995

4 5

9.500 15.000

1.000 2.500

Rs.9.53 Rs.6

Z

4.574

800

5,437

1.500

6.847

120

6.967

30

6.997

3

7.000

1,400

Rs.5.oo

Then p = 1,000 + - q (service 20% of q wi\1 be apportioned to dept. P) and

5

1

q=2,600+ - P

10

1 1

q = 2.600 + - (4,000 + - q) (putting the value of p)

10 5

1

q = 2,600 + 400 + - q

50

1

q= 3,000 + - q

50

50q = 1,50,000 + q

49q = 1,50.000

q = 3,061

1

P = 4.000 + - (3061) = 4612

5

415

Service Depts.

P Q

4.000 2.600

(-4.000) 400

- 3.000

600 (-3000)

600 -

(-600) 60

- 60

12 (-60)

12 -

(-12) -

- -

416 A Textbook of Financial Cost and Management Accounting

Departmental Overhead Distribution Summary

x y z P Q

Rs. Rs. Rs. Rs. Rs.

Total (given) 7,810 12,543 4,547 4,000 2,600

Exp. of P Dept. Rs. 4,612 1,384 1,845 922 (-4,612) 461

Exp. of Deptt Q Rs. 3,061 306 612 1,531 612 (-3,061)

9,500 15,000 7,000 -

Estimated Working Hours 1,000 2,500 1,400

Rate Per Hour Rs. 9.50 6.00 5.00

Illustration: 7

RST Ltd. produces machine parts on a job order basis. Most of the business is obtained through

bidding. Most of the firms competing. with RST Ltd. bid full cost plus a 20% markup. Recently, with the

expectation of gaining mbre sales, RST Ltd. reduced its markup from 25% to 20%. The company operates

two service departments and two producing departments. The budgeted costs and the normal levels of

activity for each department are given below:

Particulars Service Department Production Department

A B C D

Overhead Costs 5,00,000 10,00,000 5,00,000 2,50,000

Number of Employees 40 35 150 150

Maintenance Hours 10,000 1,000 32,000 8,000

Machine Hours - - 50,000 5,000

Labour Hours - - 5,000 50,000

The direct costs of Department A are allocated on the basis of employees; those of Department B are allocated

on the basis of maintenance hours. Departmental overhead rates are used to assign costs to products. Department C uses

machine hours, and Department D uses labour hours. The firm is preparing to on ajob Gob Z) that requires three machine

hours per unit produced in Department C and no time in Department D. The expected prime cost per unit is Rs. 85.

Required

(1) Allocate the service costs to the production departments using the direct method.

(2) What will be the bid for Job Z, if the direct method of allocation is used?

(3) Allocate the service costs to the production departments using the Sequential or Repeated Method.

(4) What will be the bid for Job Z, if the Sequential Method is used?

(5) Allocate the service costs to the production departments using the Reciprocal Method.

(6) What will be the bid for Job Z, if the Reciprocal Method is used?

(CA Inter., Nov. 2002)

Solution:

(1) Allocation of Service Costs to Production Department (Direct Method)

Particulars Service Department Production Department

A B C D

Direct Cost (Rs.) 5,00,000 10,00,000 5,00,000 2,50,000

Department A

(No. of Employees 1: 1) (5,00,000) - 2,50,000 2,50,000

Department B

(Maintenance hours4: 1) - (10,00,000) 8,00,000 2,00,000

Total Rs. 15,50,000 7,00,000

Overheads

Total Cost

Department C Overhead Rate = Machine Hours

15,50,000

= 50,000

(2) Product Cost and bid price for job Z

Rs.

Prime Cost

Overheads

(3 hours x Rs.31 per hour)

Total unit cost

85

93

Rs. 178

:. Bid Price [Rs. 178 x 1.2] @ 20% makeup = Rs. 213.60

417

= Rs. 31 Per machine hours

(3) Statement Showing allocation of Service Cost to Production Department (Sequential method)

Particulars Service Departments Production Departments

A '8 C D

Over heads 5,00,000 10,00,000 5,00,000 2,50,000

Dept. A Cost allocated

[ No. of Employees ] (5,00,000) 46,667 2,00,000 2,00,000

40 : 35 : 150 : 150 53,333

Dept. B Cost allocated (l0,46,667)

Maintance Hours 2,05,229 20,523 6,56,732 1,64,183

10 : 1 : 32 : 8

Dept. A Cost allocated (2,58,562)

27,580 24,132 1,03,425 1,03,425

8,756 (44,655) 28,019 7,005

Dept. B Cost allocated (36,336) 875

3,876 3,391 14,535 14,534

Dept. A Cost allocated (4,266)

836 84 2,677 669

Dept. B Cost allocated (4,172)

503 440 1,884 1,885

Dept. A Cost allocated (524)

103 10 329 82

Dept. B Cost allocated (606)

65 56 243 242

Dept. A Cost allocated (66)

13 - 41 12

Dept. B Cost allocated (78)

Dept A Cost allocated - 39 39

Total Costs 15,07,924 7,42,076

•

418 A Textbook of Fi1Ul1lciai Cost and Management Accounting

Department C Overhead Rate =

=

Total Cost of Dept. C

Machine Hours

15,07,924

50,000

= Rs. 30.16 per hour

(4) Product cost and bid price for job Z

Prime Cost = Rs.85.00

Overheads

(3 hours x Rs.30.16) = Rs.90.48

Total unit cost = Rs. 175.48

Profit @ 20% of 175.48 = Rs.35.10

Total = Rs.210.58

(5) Allocation of Service costs to production department (Reciprocal Method)

Working Notes:

Allocation of Ratios

Proportion of output used by

A

'A'

(based on number of

Employees) -

'B'

(based on maintenance hours) 20%

A = Rs.5,00,000 + 20% of B

B = Rs.IO,OO,OOO + 10.45% of A

A = Rs.5,00,000 + 20% [10,00,000 + 10.45% of A]

A = Rs.5,00,000 + Rs.2,00,000 + 2.09% of A

0.9791 A = Rs.7,OO~OOO

7,00,000

A = = Rs.7,14,942

0.9791

B

10.45%

-

B = Rs.IO,OO,OOO + 10.45% (7,14,942)

= 10,00,000 + 74,711

= Rs.IO,74,711

C

44.78%

64%

Statement of allocation of Service Department cost to Production Department

Particulars A B C

Direct Cost Rs.5.00,000 Rs.IO,OO,OOO Rs.5,00,000

Dept. B

(as per note above) - (10,74,711) 6,87,815

(64%)

Dept. A

(as per note above) (7,14,942) - 3,20,151

(44,78%)

Total Costs 15,07,966

D

44.78%

16%

D

Rs.2,50,000

1,71,954

(16%)

3,20,151

(44.78%)

7,42,105

Overheads

Total Cost

Department C Overhead Rate =------

=

(6) Product cost and Bid price for job Z

Prime cost Overheads

(3 hours x Rs.30.16 per machine hours)

Total unit cost

Bid Price (Rs.l75.48 x 1.20)

Illustration: 8

Machine Hours

15,07,966

50,000

= Rs. 30.16 per machine hour

= Rs.85

= Rs.90.48

= Rs.175.48

= Rs.210.58

419

e-books is an online book retailer. The Company has four departments. The two sales departments

are Corporate Sales and Consumer Sales. The two support-departments are Administrative (Human

resources, Accounting), and Information systems. Each of the sales departments conducts merchandising

and marketing operations independently.

The following data are available for October, 2003 :

Departments Revenues Number of Employees

Corporate Sales Rs. 16,67,750 42

Consumer Sales Rs. 8,33,875 28

Administrative - 14

Information Systems - 21

Cost incurred in each of four departments for October, 2003 are as follows:

Corporate Sales

Consumers Sales

Administrative

Information Systems

Rs. 12,97,751

Rs. 6,36,818

Rs. 94,510

Rs. 3,04,720

Processing TIme used

(in minutes)

2,400

2,000

400

1,400

The company uses number of employees as a basis to allocate Administrative costs and processing time as a

basis to allocate Information systems costs.

Required:

(I) Allocate the support department costs to the sales departments using the direct method.

(II) Rank the support departments based on percentage of their services rendered to other support

departments. Use this ranking to allocate support costs based on the step-down allocation method.

(III) How could you have ranked the support departments differently?

(IV) Allocate the support department costs to two sales departments using the reciprocal allocation

method.

(CA PE II, Nov., 2003)

420

Solution:

A Textbook of Financial Cost and Management Accounting

(i) Direct and step-down allocation

Costs incurred

Allocation of Admn.

( 42nO,28nO)

Allocation of

Information Systems

(24/44,20/44)

(i) Support Departments

Admn. Information Systems

Rs. Rs.

94,510 3,04,720

(94,510)

(3,04,720)

(ii) Operating Departments

Corporate Consumer

Rs. Rs.

12,97,750 6,36,818

56,706 37,804

1,66,211 1,38,509

15,20,667 8,13,131

(ii) Rank on percentage of services rendered to other support departments.

Administration provides 23.077% of its services to information systems

21 21

= = - ,= 23.077%

42+28+21 91

Information system provides 8.333% of its services to administrative departmen~.

400 400

= x 100 = -- x 100 = 8.33%

2,400+2,000+400 4800

Thus 23.07% of Rs. 94,510 Admn. Dept costs is = Rs. 21,810

Thus 8.33% of Rs. 3,04,720 Information systems dept. cost is Rs. 25,392

(i) Support Departments

Admn. Information Systems

(ii) Operating Departments

Corporate Consumer

Rs. Rs. Rs. Rs.

Costs incurred 94,510 3,04,720 12,97,750 6,36,818

Allocation of Admn. }

(42n0,28nO) (94,510) 21,810 43,620 29,080

Allocation of

Information Systems} 3,26,530

(24/44,20/44) (3,26,530) 1,78,107 1,48,423

Rs. 15,19,477 Rs. 8,14,321

(iii) An alternative + ranking is based on the Re-amount of services rendered to other service departments,

using the numbers from requirement 2, this approach would use the following sequence.

• Allocation of information systems overheads first (Rs. 25,383 provided to a4ministrative).

• Allocated administrative overheads second (Rs: 21,810 provided to information systems).

Overheads

(iv) Administrative (AD) = Rs.94,510 + 0.08333 IS

Information Services (IS) = Rs.3,04,720 + 0.23077 AD

AD = 94,510 + 0.08333 {3,04,720 + 0.23077 AD}

AD = 94,510 + 25,392.32 + 0.01923 AD

0.98077 AD = 1,19,902.32

AD = Rs. 1,22,253

IS = Rs. 3,04,720 + 0.23077 x 1,22,253

= Rs. 3,32,932

Costs incurred

Allocation of Admn. }

( 42170,28nO)

Allocation of

Information }

Systems

(24/44,20/44)

QUESTIONS

(i) Suppon Depanments

Admn. Information Systems

Rs. Rs.

94,510 3,04,720

(1,22,253) 28,212

27,744 (3,32,932)

1. What do you understand by overhead charges?

( it ) Operating Departments

Corporate Consumer

Rs. Rs.

12,97,750

56,424

1,66,466

15,20,640

6,36,818

37,616

1,38,722

8,13,156

421

2. "Overheads may be classified according to their nature and a number of other charactertics." Discuss this statement

while classifying cost.

3. Define overhead charges. Explain the different methods of classification of overhead.

4. Discuss the usefulness of overhead classification.

S. What do you understand by codification of overhead charges?

6. Discuss in brief the different methods used in codification of overhead.

7. What is meant by allocation and apportionment? Distinguish between a\1ocation and apportionment of overhead.

8. What basis you would adopt for apportionment of the fo\1owing items of overhead expenses to different departments?

(a) Power and light. (b) Depreciation on building. (c) Rent and Rates. (d) Postage. (e) Indirect Wages.

9. Explain the different methods of re-apportionment of overheads.

10. The following particulars were obtained from the books of a light Engineering Company for the half year ended 30th

September, 2003. Calculate the departmental overhead rate for each of the production departments assuming the

overheads are recovered as a percentage of direct wages.

Particulars Production Departments Service Departments

A B C X Y

Rs. Rs. Rs. Rs. Rs.

Direct wages 7,000 6,000 S,OOO 1,000 1,000

Direct materials 3,000 2,SOO 2,000 I,SOO 1,000

Employees 200 ISO ISO SO SO

Electricity 8,000 6,000 6,000 2,000 3,000

Light points 10 IS IS S S

Assets value SO,OOO 30,000 20,000 10,000 10,000

Area occupied 800 600 600 200 200

The expenses for 6 months were :

Stores overhead Rs. 400 Depreciation Rs. 6,000

Motive power Rs. IS00 Repairs & Maintenance Rs. 1,200

Electric lighting 200 General overheads Rs. 10,000

Labour welfare Rs. 3000 Rent and Taxes Rs. 600

422 A Textbook of Financial Cost and Management Accounting

Apportion the expenses of Department X in the ratio of 4 : 3 : 3 and that of department Y, in proportion of direct wages,

to departments A, B, and C respectively.

[ ADS: Total overheads cost: A - Rs.1l396, B - Rs.8663, C - Rs.7341

Dept. overhead rate: A - 162.8%, B - 144.4%, C - 146.8%]

11. A company has three departments A, B, and C and two service departments X and Y. The expenses incurred by them

during the month of may 2003 are incurred by them during the month of may 2003 are :

A- 8000

B -7000

C - 5000

X - 2340

Y - 3000

The expenses of service departments are apportioned to the production departments in the following basis :

Particulars ABC X Y

Expenses of X 20% 40% 30% 10%

Expenses of Y 40% 20% 20% 20%

Show clearly as to how the expenses of X and Y departments would be apportioned to A, Band C departments under

Simultaneous Equitation Method

[Ans : Total cost of service department X = Rs. 3000

Total cost of service department Y = Rs. 3300]

12. You are supplied with the following information and required to work out the production hour rate of recovery of

overheads A, B, and C under the Repeated Distribution Method.

Production Departments Service Departments

ABC P Q

Rs. Rs. Rs.

As per primary }

Distribution summary 7,810 12,543 4,547

Expenses of service departments P and Q are apportioned as under:

ABC P

P 30% 40% 20%

Q 10% 20% 50% 20%

Estimated working hours of production are as under:

Departments :

A-l,ooo hours

B - 2,500 hours

C - 1,400 hours

[Ans : Total Overhead cost of

Dept. A - Rs. 9,500

Dept. B - Rs. 1,5000

Dept. C - Rs. 7,000

Overhead Rate: A - Rs. 9.50; B - Rs. 6; C - Rs. 5]

Rs.

4,000

Q

10%

Rs.

2,600

13. A factory consists of three Production Departments, viz., Turning. Milling and Grinding. Though maintenance is done

by the departments, the factory keeps four service departments too, viz., Stores, Planning, Canteen and Time Office.

For the month of November 2003 the Direct Departmental Expenses were recorded as follows:

Turning Rs. 72,000 Stores Rs. 36,000

Milling Rs. 84,000 Planning Rs. 60,000

Grinding Rs. 1,08,000 Canteen Rs. 48,000

Time Office Rs. 12,000

The expenses of stores are to be distributed on a percentage basis, viz., 20%, 40% to Turning. Milling and Grinding

respectively. The expenses of Planning are to be apportioned on the basis of Machine Hours worked and those of

Canteen and Time Office according to number of men employed in Production Departments.

Men employed No. of hours worked

22 10,000 Turning

32 15,000 Milling

46 25,000 Grinding

Prepare a statement showing the distribution of the Service Department's Expenses to the Production Departments and

also determine the final absorption rate.

[Ans: Total of Turning Rs. 1,04,400; Milling Rs. 1,35,600; Grinding Rs. 1,80,000; Aborption rate per hour 10.44:9.04

and 7.20]

Overheads 423

14. The following particulars relate to a manufacturing company which has three production departments, A, B, C and two

service departments X and Y :

Depanments

A B C X Y

Total departmental

Overhead as primary distribution Rs.63,OOO 74,000 28,000 45,000 20,000

The company decided to charge the service departments cost on the basis of the following percentages:

Service Dept. Production Depts. Service Dept.

ABC X Y

X 40% 30% 20% 10%

Y 30% 30% 29% 20%

Find the total overheads of production departments charging service departmental costs to production on the repeated

distribution method.

[Ans : A Rs. 90,500; B Rs. 96,500; C Rs. 43,000]

15. In a factory, there are two service departments P and Q and three production departments A, Band C. In April 1988 the

departmental expenses were:

Depanments Rs.

A 6,50,000

B 6,00,000

C 5,00,000

P 1,20,000

Q 1,00,000

The service departments, expenses are allocated on a percentage basis as follows :

Service Dept. Production Depts. Service Dept.

ABC X Y

X 30% 40% 15% 15%

Y 40% 30% 25% 5%

Prepare a statement showing the distribution of the two service departments expenses to the tree departments under the

"Repeated Distribution Method."

[Ans : Rs. 7,35,340; Rs. 6,86,045; Rs. 5,48,615]

16. A manufacturing concern has three production departments and two service departments. In July 2003, the

departmental expenses were as follows :

Production Departments

X

Y

Z

Service Depanments

p

Q

Rs.

16,000

13,000

14,000

4,000

6,000

The service department expenses are charged out on a percentage basis, viz. :

Expenses of dept. P

Expenses of dept. Q

X " Z P

20% 25% 35%

25% 25% 40% 10%

Prepare a statement of secondary distribution under repeated distribution method.

Q

20%

[Ans: Total Cost of Dept. X Rs. 18,674; Dept. Y Rs. 15,908; Dept. Z Rs. 18,418]

17. A Company has three production departments and two service departments and distribution summary of overhead is as

follows:

Production Depanments

A

B

C

Service Depanment

X

Y

Rs.

30,000

20,000

10,000

Rs.

2,340

3,000

424 A Textbook of Financial Cost and Management Accounting

The expenses of service departments are charged on a percentage basis which is as follows :

ABC X Y

Service Dept. X 20% 40% 30% 10%

Service Dept. Y 40% 20% 20% 20%

[Ans: Dept. A Rs. 65,340; Dept. B Rs.31,920; Dept. C Rs. 11,560]

18. In a factory, there are two service departments, P and Q and three production departments A, Band C. In March 2003

the departmental expenses were.

A Rs .6,50,000 P Rs. 1,20,000

B Rs.6,oo,ooo Q Rs. 1,00,000

C Rs. 5,00,000

The service department expenses are allocated on a percentage basis as follows.

X Y Z P Q

Dept. P 3% 40 15% 15%

Dept. Q 40% 30% 25% 5%

Prepare Q statement showing the distribution of two service departments expenses to three departments under

simultaneous equation method.

[Ans: Dept. A Rs.7,35,342; Dept. B Rs.6,86,046 Dept. C Rs.5,48,612]

000

Meaning

CHAPTER 19

Absorption of Overhead

Absorption of overhead is also tenned as levy, recovery, or application of overhead. Cost absorption

refers to the process of absorbing all overhead costs allocated to apportioned over particular cost centre or

production department by the unit produced. Accordingly, the distribution of the overhead cost 10 the cost

centres or cost units is known as Overhead Absorption.

Overhead Rate

The apportionment of overhead expenses is done by adopting suitable basis such as output, materials,

prime cost, labour hours, machine hours etc. In order to detennine the absorption of overhead in costs of

jobs, products or process, a rate is calculated and it is called as "Overhead Absorption Rate" or "Overhead

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

Overhead Rate = Overhead Expenses

Total Quantity or Value

Different overhead rates are applied based on the features and objectives of the business organization.

The following are the important overhead absorption rates generally employed :

( 1) Actual Overhead Rate

(2) Predetennined Overhead Rate

(3) Blanket Overhead Rate

(4) Multiple Overhead Rate

(5) Nonnal Overhead Rate

(6) Supplementary Overhead Rate

Each of the above overhead absorption rates has been explained in the following pages :

426 A Textbook of Financial Cost and Management Accounting

(1) Actual Overhead Rate: Actual overhead rate as otherwise called the historical rate. This rate is

calculated by dividing the actual overhead absorbed by the actual quantity or value of the base selected for

a particular period. Assuming that overhead rate is calculated on monthly basis, the following formula is

expressed as :

Actual Overhead Rate = Actual Overhead during the month

x 100

Actual Quantity or Value of the base for the month

(2) Predetermined Overhead Rate: Predetermined Dverhead rate is determined in advance of actual

production and the rate is computed by dividing the budgeted overhead for the accounting period by the

budgeted base for the period. The formula is :

Budgeted Overheads for the Period

Pre-determined Overhead Rate = x 100

Budgeted Base for the Period

(3) Blanket Overhead Rate: Blanket overhead rate is also termed as Single Overhead Rate. A

single overhead rate when computed for the entire factory is known as Blanket Rate. It is calculated as :

Blanket Rate = Overhead of Entire Factory

Total Quantum of the Base Selected

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

manufactured.

(4) Multiple Overhead Rate: Multiple overhead rates involve computation of separate rates for each

production department, service department, cost centre, each product or line and for each production

factor. The following formula is used for calculating multiple overhead rate:

Overhead Cost Allocated and Apportioned to Each Cost Centre

Corresponding Base

Multiple Overhead Rate =

(5) Normal Overhead Rate: Normal Overhead Rate is a predetermined rate calculated with·

reference to normal capacity. It is calculated as :

Normal Overhead

Normal Overhead Rate =

Base at Normal Capacity

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

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

Actual Overhead Incurred - Absorbed Overhead

Supplementary Overhead Rate =

Base Unit or Hours

Methods of Absorption of Overhead

There are number of methods applicable for computing overhead absorption rate. The following are

the various methods of absorbing "Manufacturing Overhead" depending upon the suitable basis selected

for the purpose :

Absorption of Overhead 427

(1) Direct Material Cost Method

(2) Direct Labour Cost Method

(3) Direct Labour Hours Method

(4) Prime Cost Method

(5) Unit of Output Method

(6) Machine Hour Rate Method

(1) Direct Material Cost Method: Under this method, the rate of absorption is calculated on the basis

of direct material cost method. The rate of manufacturing overhead absorption is determined by dividing the

manufacturing overhead by the direct material cost. The result obtained the rate of absorption is expressed as

percentage. Thus, the overhead rate is calculated by the following formula:

Direct Material Percentage Rate =

Example: 1

Factory Overheads

-------- x 100

Direct Material Cost

Manufacturing overhead budgeted for 2003 Rs. 20,000

Cost of direct materials Rs. 80,000

Calculation:

20,000

Direct Material Percentage Rate = x 100

80,000

=25%

(2) Direct Labour Cost Method: Direct Labour Cost Method is also termed as Direct Wages Method.

Under this method direct wage rate can be determined by dividing the estimated factory overhead cost

apportioned by the predetermined direct wages, and the result obtained is expressed as a percentage. The

following formula for calculating the percentage rate is :

Percentage of Direct Labour Rate =

Example: 2

Factory Overhead

------- x 100

Direct Wages

Direct Wages paid in factory during the year 2003, Rs. 10,000

Factory overhead during that the period was Rs. 4,000

4,000

Direct Labour Percentage Rate = x 100 = 40%

10,000

(3) Direct Labour Hours Method: Under this method the rate is determined by dividing the production

overheads by direct labour hours of each department. This method is designed to overcome the objections of

direct labour cost method. This method is most suitable in such industries where the production is carried out

manually or by skilled labours. Thus, the direct labour hour rate will be calculated by applying the following

formula:

428 A Textbook of Financial Cost and Management Accounting

Direct Labour Hour Rate

Factory Overhead

=

Direct Labour Hours

(4) Prime Cost Method: Under this method, both direct material cost and direct labour cost are taken

into account for determination of recovery rate. The actual or predetermined rate of factory absorption is

computed by dividing actual or budgeted overhead expenses by the aggregate of direct material or direct labour

cost of the department. The following formula is used for calculation of overhead recovery rate:

Overhead Recovery Rate =

Illustration: 3

Factory Overhead

Prime Cost

x 100

You are required to find out (1) Direct Material Cost Rate (2) Direct Labour Cost Rate (3) Direct

Labour Hours and (4) Prime Cost Rate from the following particulars :

Total overhead for the period

Total direct labour cost (Direct wages)

Total materials used or Direct material cost

Total direct labour hours

Solution:

Rs. 25,000

Rs. 8,000

Rs. 10,000

Rs. 2,000

Factory Overhead

(I) Direct Material Cost Rate = ---------------- x 100

=

(2) Direct Labour Cost Rate =

=

(3) Direct Labour Hours Rate =

=

(4) Prime Cost Rate =

=

=

Direct Material Cost

25000

10000

x 100 = 250%

Factory Overhead

x 100

Direct Wages

25000

x 100 = 312.5%

8000

Factory Overhead

x 100

Direct Labour Hours

25000

x 100 = Rs.l2.5%

2000

Factory Overhead

x 100

Prime Cost

25000

x 100

10000 + 8000

25000

x 100 = 138.88%

18000

Absorption of Overhead

Illustration: 4

429

The following figures have been extracted from the books of a manufacturing concern. All jobs pass

through the company's two departments:

Direct materials used

Direct labour cost

Factory overheads

Direct labour hours

Machine hours

Prod. Dept.

Rs.

6,000

3,000

I,SOO

12,000

10,000

The following information pertains to work order No.555

Direct materials used

Direct labour cost

Direct labour hours

Machine hours

Prod. Dept.

Rs.

240

130

530

510

Finishing Dept.

Rs.

500

1,500

1,200

5,000

2,000

Finishing Dept.

Rs.

20

50

140

50

You are required to prepare a statement showing the different cost results for work order No. 555 under the three

commonly used method.

Solution:

1. Direct Labour Cost Rate =

Production Dept. =

Finishing Dept. =

2. Direct Labour Hour Rate =

Production Dept. =

Finishing Dept. =

3. Machine Hour Rate =

Production Dept. =

Finishing Dept. =

Factory Overheads

-------- x 100

Direct Material Cost

I,SOO

--x 100 = 60%

3,000

1,200

x 100 = SO%

1,500

Factory Overheads

Direct Labour Hours

I,SOO

x 100

--- = 15 paise per hour

12,000

1,200

5,000

= 24 paise per hour

Factory Overheads

Machine Hours

I,SOO

= IS paise per hour

10,000

1,200

2,000

= 60 paise per hour

430 A Textbook of Financial Cost and Management Accounting

Comparative Statement of Work Order No. 555

Particulars Labour Cost Labour Hour Method Machine Hour Method

Prod. Finish Prod. Finish Prod. Finish

Dept. Dept. Dept. Dept Dept. Dept.

Rs. Rs. Rs. Rs. Rs. Rs.

Materials used 240 20 240 20 240 20

Direct labour 130 50 130 50 130 50

Prime Cost 370 70 370 70 370 70

Factory Overheads 78 40

(i) Direct Labour Cost [130 x 1~ [50 x I:J

(ii) Labour Hours 530 x 15 140 x 24

paise paise

Rs.79.50 Rs.33.60

(iii) Mach.Hours 510 x 18 50 x 60

paise paise

Rs.91.80 Rs.30.00

Total 448 110 449.50 103.60 461.80 100

(5) Unit of Output Method: This method is also termed as Production Unit Method or Cost Unit Rate

Method. Under this method absorption rate is determined on the basis of number of units produced is known

as Cost Unit Rate. The recovery rate is calculated by dividing the actual or budgeted factory overheads by the

number of cost units produced. The formula is :

Cost Unit Rate = Factory Overhead

No. of Units Produced

This method is most suitable in such industries where the production of same grade is carried out.

(6) Machine Hour Rate: Machine hour rate means the cost or expenses incurred in running a machine

for one hour. It is one of the scientific methods of absorbing factory expenses where the process of

manufacturing are carried out by machines. Under this method overhead costs are allocated on the basis of

the number of hours a machine or machines are used for a particular job. According to the Institute of Cost

and Management Accountants, England a machine hour rate is "an actual or predetermined rate of cost

apportionment or overhead absorption, which is calculated by dividing the cost to be apportioned or absorbed

by the number of machine hours expended or to be expended."

The machine hour rate is determined by dividing the amount of overhead cost to be apportioned or

absorbed by the number of machine hours. Machine hour rate can be calculated as below :

rate:

Factory Overhead

Machine Hour Rate = -------Machine

Hours

Calculation Machine Hour Rate: The following steps are required for computing the machine hour

(1) Identify the overhead expenses relating to a specific machine or group of machine in order to

require for computing machine hour rate.

Absorption of Overhead

(2) Each machine or group of machine treated as a cost centre.

(3) Manufacturing overhead or machine expenses are grouped into two types:

(a) Fixed or Standing Charges (b) Variable Machine Expenses.

431

(a) Fixed or Standing Charges: Fixed or Standing Charges which remain constant irrespective

of the use of machine. For example, rent, insurance charges, rates, supervision etc.

(b) Variable Machine Expenses: These expenses are variable with use of the machine. For

example, power, depreciation, repairs etc.

(4) An hourly rate of fixed or standing charges will be calculated by totalling of fixed charges and

dividing by the number of normal hours worked by machine.

(5) Normal working hours are calculated by adding the cost relating to non-productive time, i.e.,

normal ideal time for maintenance and setting up etc.

(6) Separate hourly rate for each machine expenses will be calculated.

(7) The total of the standing charges rate and the machine expenses rates per hour will give the

machine hour rate.

Basis for Apportionment of Machine Expenses

The following bases of apportionment of different expenses are required to be considered for the

calculation of machine hour rate :

Expenses

Fixed or Standing Expenses :

(1) Rent and Rates

(2) Heating and Lighting

(3) Supervision

(4) Lubricating Oil and Consumable Stores

(5) Insurance

Machine Expenses:

1. Depreciation

2. Power

3. Repairs

Advantages

Basis

Floor area occupied by each machine

No. of points used or Floor area or

heating any machine

Time spent on each machine

Machine hours, Past experience or

Capital value.

Insurance value of each machine.

Value of Machine

Horse power of each machine

Cost of repairs spread over its working life

(1) It helps to measure the relative efficiency of different machines.

(2) It facilitates comparison of cost of operating different machines.

(3) It helps to ascertain idle time of machines relating to non-productive time.

(4) It is the most desirable scientific method, where the time factor is taken into account.

Disadvantages

(1) It involves more clerical labour in determining the number of machine hours worked.

(2) It does not consider where the expenses not proportional to the working hours of machines.

(3) It is very difficult to measure the machine hours where the works are completed without

operating any machinery.

432

Illustration: 5

A Textbook of Financial Cost and Management Accounting

Calculate machine hour rate of Machine X

Solution:

Consumable stores

Repairs

Heat and light

Rent

Insurance of building

Insurance of machines

Depreciation of machines

Room services

General charges

Normal working hours

Area of sq. fit.

Book value of machines

Rs.

600

800

360

1,200

4,800

800

700

60

90

10,000 hours

100

12,000

Computation of Machine Hour Rate for Machine X

Particulars Total per hour

Rs.

Standing Charges:

Consumable stores 600

Heat and light (360 x 100 1 600) 60

Rent (1200 x 100 1 6(0) 200

Insurance of building (4800 x 100 1 600) 800

Insurance of Machines (800 x 12000 1 32000) 300

Room service (60 x 100 1600) 10

General charge (90 x 100 1 600) 15

Total Standing Charges 1,985

1,985

Standing charges per hour =

10,000

Machine Expenses:

Repairs (800 1 10,000)

Depreciation of machines (135.481 10,000)

Machine Hour Rate

Working Notes

Rate per hour

Rs.

0.199

0.080

0.014

0.293

(1) Heat and light, rent, insurance of building, room service and general charges have been

distributed on the basis of floor area.

(2) Depreciation of machine has been calculated on the basis of book value of machines and

working hours, i.e., 10,000 x 12,000 (or) 120 : 500 = 6 : 25 .

. . 700 x 6/31 = Rs.135.48

(3) Insurance of machine has been apportioned on the basis of book value of machines.

Absorption of Overhead

Illustration: 6

Compute the machine hour rate from the following information :

Cost of Machine

Installation charges }

Estimated scrap value after the

expiry of its life (15 years)

Rent and Rates per month

General lighting per month

Insurance premium for the machine per annum

Repairs and maintenance per month

Power consumption - 10 units per hour

Rate per hour 100 units

Estimated working hours per annum

Supervisor's salary per month

Rs.

1,00,000

10,000

5,000

200

300

960

1,000

20

2,200

600

433

The machine occupies 1,4 th of the total area of the shop. The supervisor is expected to devote 1I5th of his time

for supervising the machine.

Solution:

Computation of Machine Hour Rate

Particulars

Standing Charges :

Rent and Rates (200 x 12 x 1,4)

General lighting (300 x 12 x 1,4)

Insurance premium

Repairs and Maintenance

Supervisor's salary (600 x 12 x 115)

Total Standing Charges

4,900

Standing charges per hour = --

2,000

Machine Expenses :

Depreciation (1,00,000+10,000-5,000)

15 x 2,000

Power

Machine Hour Rate

Illustration: 7

Cost of machine Rs. 1,80,000

Freight and installation Rs. 20,000

Working life 10 years

Working hours 4,000 per year

Repair charges 50% of depreciation

Power 10 units per hour @ 10 paise per unit

Lubricating oil @ Rs. 2 per day of 8 hours

Consumable stores @ Rs. 10 per day of 8 hours

Wages of operator @ Rs. 2 per day

Scrap value of machine Rs. 20,000

Per annum Rate Per hour

Rs. Rs.

600

900

960

1,000

1,440

4,900

2.45

3.50

2.00

7.95

434 A Textbook of Financial Cost and Management Accounting

Calculate machine hour rate from the above information :

Solution:

Computation of Machine Hour Rate

Particulars

Standing Charges:

Lubricating oil

Consumable stores (10 x Re.l)

Wages of Operator

Standing charges per day

14

Standing charges per hour --

8

Machine Expenses :

Depreciation =

=

=

Cost + Freight - Scrap value

Life in hours

1,80,000 + 20,000 - 20,000

4,000 x 10

1,80,000

40,000

50

Repairs 50% of depreciation 4.50 x --- =

100

Power 10 units @ Re. 0.10 each 10 x 0.10 =

Machine Hour Rate

Illustration: 8

=

Per day of 8 hours

Rs.

2

10

2

14

Rate Per hour

Rs.

1.30

4.50

2.25

1.00

9.05

In a factory, a machine is oonsidered to work for 208 hours in a month. It includes maintence time of

8 hours and setup time of 20 hours.

The expense data relating to the machine are as under :

Cost of the machine is Rs.5,00,OOO Life 10 years

Estimate scrap value at the end of life is Rs. 20,000

Repairs and maintenance per Annum Rs. 60,480

Consumable stores per annum Rs. 47,520

Rent of building per annum (The machine under

Reference occupies 1I6th of the area) Rs. 72,000

Supervisor's salary per month

(Common to three machines) Rs. 6,000

Wages of Operator per month per machine Rs. 2,500

General lighting charges per month allocated to the machine Rs. 1,000

Power 25 units per hour at Rs. 2 per unit

Power is required for productive purposes only. Setup time through productive does not require power. The supervisor

and operator are permanent. Repairs and maintenance and consumable stores vary with the running of the machine.

Absorption of Overhead

Required:

Calculate Machine Hour Rate for :

(a) Setup Time and

(b) Running Time ..

Solution:

Effective hours

For fixed costs 208 - 8 = 200 hours

For variable costs 208 - 28 = 180 hours

Computation of Machine Hour Rate

Particulars Per month Setup time

Per hour

Rs. Rs.

Standing Charges :

6000 2000

Supervision Rs. -- = 2,000 -- =10

3 200

1,000 1000

General lighting = -- =5

200

72,000 6,000 1000

Rent = = = 1,000 -- =5

12 6 200

Machine Expenses :

Depreciation = 5,00,000 - 20,000

4,80,000 48,000 4000

= = = 4,000 -- = 20

10 12 200

60,480

Repairs = = 5,040

12

Consumable Stores =

47,520

= 3,960

12

Power = 25 x 2 x 180

9,000

2500

Wages 2,500 --= 12.50

200

Machine Hour Rate 52.50

Illustration: 9

Calculate the machine hour rate from the following informations :

Cost of machine

Scrap value

Repairs and maintenance per month

Standing charges per month

Rs.20,000

Rs.2,000

Rs. 200

Rs. 100

435

Running time

Per hour

Rs.

10

5

5

20

5040

--=28

180

3960

--=22

180

9000

--=50

180

12.50

152.50

436 A Textbook of Financial Cost and Management Accounting

Effective working life

Running time per month

Power used 5 units at 20 paise a unit per hour.

Solution:

10,000 hours

200 hours

Computation of Machine Hour Rate

Particulars

Standing Charges :

Allocated Rs.l00 per month of 200 hours

100

For 200 hours Rs.l00 =

200

Variable Charges :

Cost of machine

Less: scrap

Rs.20,ooo

Rs. 2,000

Depreciation for 10,000 hours =

Hence, for one hour =

Repairs and maintenance

18,000

10,000

Rs.200 per month of 200 hOUrs} =

Power 5 units per hour @ 20 paise

Machine Hour Rate.

IUustration: 10

18,000

200

200

=

=

Rate Per hour

Rs.

0.50

1.80

1.00

1.00

4.30

A department is having 3 machines. The figures indicate the departmental expenses. Calculate the

machine hour rate in respect of these machines from the informations given below:

Depreciation of machinery

Depreciation of building

Repairs to machinery

Insurance of Machinery

Indirect wages

Power

Lighting

Miscellaneous expenditure

Rs.

12,000

2,880

4,000

800

6,000

6,000

800

4,200

36,680

Absorption of Overhead

Additional Information

Particulars Machine Machine

A B

Direct Wages Rs.l,200 2,400

Power units 30,000 10,000

No. of workers 4 8

Light points 8 24

Space 400 sq.fit 800 sq.fit

Cost of Machine Rs.3,OO,OOO Rs.l,20,OOO

Hours worked 200 300

Solution:

Computation of Machine Hours Rate

Expenses

Depreciation }

on Machinery

Depreciation }

on Building

MaChine}

Repairs

Insurance

Indirect Wages

Power

Lighting

MiscellaneOUS}

Expenses

Total

Hours worked

Machine hour rate

Working Notes :

Basis:

Basis

Machine

Value

Space

Machine

Value

- do-

No. of workers

Power units

Light points

Direct wages

Direct Wages = 12: 24 : 24 or 1 : 2 : 2

Power units = 3 : 1 : 2

Cost of machine = 30 : 12 : 18

Space = 1 : 2 : 2

Hours worked = 2 : 3 : 3

Light points = 1 : 3 : 6

No. of. workers = 1 : 2 : 2

Illustration: 11

Total

12,000

2,880

4,000

800

6,000

6,000

800

4,200

36,680

200

Rs.70.48

Machine

A

6,000

576

2,000

400

1,200

3,000

80

840

14,096

300

32.77

437

Machine

D

2,400

20,000

8

48

800 sq.fit

Rs. 1,80,000

Machine

B

2,400

1,152

800

160

2,400

1,000

240

1,680

9,832

300

42.51

300

Machine

C

3,600

1,152

1,200

240

2,400

2,000

480

1,680

12,752

From the undernoted data calculate the machine-hour rate of a Mailing Machine.

Cost of Machine

Scrap Value ~:: ;~:}Estimated life 12 years

438 A Textbook of Financial Cost and Management Accounting

Effective Work days

Maintenance & Repairs

Stores consumed

Power Consumption

Insurance Premium

Supervision Expenses

Idle time estimated

Solution:

Computation of Machine Hour Rate

Effective working days

Total

200 days of 8 hrs

100 days of 6 hrs

7.5% of capital cost

Rs. 1 ,000

Rs.2 per operating hour

1 % of capital cost

Rs.7,500

10%

200 x 8 hours

100 x 6 hours

=

=

1,600 hours

600

2,200 hours

Less : Idle Time estimated 10% = 220 hours

Net working hours = 1,980 hours

in a year

Items Basis of

Apportionment

(A) Standing Charges

Depreciation 30,500 - 2,500

12

Maintenance & Repairs 7.5 of capital cost

Stores consumed Actuals

Insurance premium I % of capital cost

Supervision expenses Actuals

Total Standing Charges

(B) Variable cost-power consumption

Machine hour rate (a + b)

Illustration: 12

Amount Rate

per annum per hour

Rs. Rs.

= 2,333.33

= 2,287.40

= 1,000.00

= 305.00

= 7,500.00

13,425.83 6.78

2.00

8.78

Particulars of three machines used in a factory are as under (six week period; 160 hours working) :

Machine X Machine Y Machine Z

Rs. Rs. Rs.

Cost of Machine 10,000 15,000 20,000

No. of workers 2 5 10

Direct wages Rs.3oo Rs. 800 Rs. 1,200

Power Rs.45 Rs.80 Rs. 150

Light points 2 4 6

Area Occupied 100 sq. ft. 250 sq. ft. 400 sq. ft.

Absorption of Overhead

The expenses incurred during the period were as follows :

Power

Lighting

Rent and Rates

Depreciation

Repairs

Indirect wages

Canteen expenses

Sundries

Total

Rs.

275

48

450

1,350

1,800

460

51

300

4,734

Compute the machine hour rate for each machine.

Solution:

Compntation of Machine Hour Rate - 160 working hours

Expenses Basis of Total

Apportionment X

Rs. Rs.

Power Actuals 275 45

Lighting Lighting Points 41 8

Rent & Rates Area 450 60

Depreciation Cost of Machine 1,350 300

Repairs Cost of Machine 1,800 400

Indirect wages Direct Wages 460 60

Canteen expo No. of workers 51 6

Sundries Area 300 40

Total (a) 4,734 919

Working hour (b) 160

Machine hours rate a

--= Rs.5,744

say b

Rs.5.74

Under Absorption and Over Absorption of Overheads

439

Machine

Y Z

Rs. Rs.

80 150

16 24

150 240

450 600

600 800

160 240

15 30

100 160

1,571 2,244

160 160

9.819 14.025

9.82 14.03

- Absorption of overhead may be based either on the actual rate or predetermined rate. If the actual

rates are used, the costs having been actually incurred and overhead absorbed are equal. But in the case of

predetermined rates, the costs have been determined in advance of incurrence of the overhead expenditure.

This may lead to difference of overhead incurred and overhead absorbed. Such a difference of Overhead

is said to be under absorption of overhead or over absorption of overhead.

According the term over absorption means that the amount of overhead absorption is more than the

actual overhead is said to be over absorption of overhead.

The term under absorption of overhead means that the amount of overhead absorption is less than the

actual overhead incurred is said to be under absorption of overhead.

Causes of Under or Overhead Absorption of Overhead

The following reasons for over and under absorption of overheads :

(1) Actual overhead cost incurred may be more or less than the budgeted overhead.

440 A Textbook of Financial Cost and Management Accounting

(2) Actual machine hours, labour hour and output may be lower or higher than the budgeted or

predetermined base.

(3) Seasonal fluctuations.

(4) Wrong computation of overhead absorption rate, output and machine hours:

(5) Under or Over utilization of production capacity.

Methods of Treatment

The following three important methods may be adopted for overhead adjustment and disposal of over

or under absorption of overheads :

(1) Carrying Over of Overheads

(2) Application or use of supplementary rates

(3) Write off to Costing Profit and Loss Account.

(1) Carrying Over of Overheads: Under this method, the amount of over or under absorption is

carry forward to the next year. This method may be adopted in situation where the normal business cycle

extends for more than one year.

(2) Application of Supplementary Rate: Under this method, the supplementary rate is adopted

when the amount of under or over absorbed overheads is quite large. Supplementary rate is calculated by

dividing the amount of under or over absorbed overheads by the actual base.

Amount of Under or Over Absorbed Overheads

Supplementary Rate =

Actual Base

The supplementary rate may be used as positive supplementary rate or negative supplementary rate.

In the case of positive supplementary rate it is intended to add under absorbed overhead to cost of

production. A negative rate, however, adjusted the cost by deducting the amount of over absorbed

overhead.

(3) Write otT to Costing Profit and Loss Account: Under this method, if the amount of under or over

absorbed overhead is small it may be written off to Costing Profit and Loss Account. If due to some abnormal

. factors, the amount of under or over absorbed is large it should be transferred to Profit and Loss Account.

Illustration: 13

In a factory, the overheads of a production department are absorbed on the basis of Rs. 18 per

machine hour. The details for the month of October 2002 are as under :

Factory overheads incurred Rs. 16,50,000.

Of the above Rs. 16,50,000

Amount became payable due to an award of labour hour

Prior period expenses booked in the month of October 2002

Actual Machine hours worked

Rs. 2,50,000

Rs. 1,50,000

Rs. 65,000

Actual production was 2,60,000 units, of which 1,95,000 units were sold. On analyzing the reasons it was found

that 40% of the under absorbed overheads was due to defective planning and the rest was attributed to normal cost increase.

How would you treat under absorbed overheads in Cost Accounts?

(C A Inter, Nov. 2002)

Absorption of Overhead

Solution:

Under absorbed overhead expenses for the month of Oct. 2002

Total expenses incurred

Less: Amount paid according to labour court award }

(assumed to be non-recurring)

Prior period expenses

Net overhead expenses incurred for the month

Factory overhead absorbed 6,500 hrs x Rs. 18

Under absorbed overheads

Treatment of under absorbed overheads in cost account:

2,50,000

1,50,000

(1) 40% due to defective planning. This being abnormal should be debited to P & L :

40

= 80,000 x -- = Rs. 32,000

100

(2) Balance 60% should be distributed over finished goods. Inventory and cost of

60

sales by supplementary rate = 80,000 x -- = Rs. 48,000

100

Under absorbed overheads in Cost Account = Rs. 32,000 + Rs. 48,000

= Rs. 80,000

Finished goods inventory = 48000 x = Rs. 12,000

4

3

Cost of Sales = 48000 x = Rs. 36,000

4

Illustration: 14

Rs.

16,50,000

4,00,000

12,50,COO

11,70,000

Rs.80,OOO

441

The total overhead expenses of a factory are Rs. 4,46,380. Taking into account the normal working of

the factory, overhead was recovered in production at Rs. 1.25 per hour. The actual hours worked were Rs.

2,93,104. How would you proceed to close the books of accounts, assuming that besides 7,800 units

produced of which 7,000 were sold, there were equivalent units in work in progress?

On investigation, it was found that 50% of the unabsorbed overhead was on account of increase in

the cost of indirect materials and indirect labour and the remaining 50% was due to factory inefficiency.

Also give the profit implication of the method suggested.

Solution:

Overhead Recovered from production

(Rs. 293104 x 1.25)

Actual overhead expenses incurred

Amount of under-recovered overhead

Rs.

= 3,66,380

= 4,46,380

= 80,000

(C A Inter, Nov. 2000)

50% of the above amount is due to increase in the cost of indirect material and indirect labour and should be

charged to units produced by means of a supplementary rate.

442 A Textbook of Financial Cost and Management Accounting

No. of total units produced = 7,800 + 200 = 8,000 units

Supplementary rate = 50% of Rs. 80,000 I 8,000 = Rs. 5 per unit

The amount of Rs. 40,000 should be apportioned among cost of sales, finished goods and work in progress at the

rate of Rs.5 per unit.

Cost of sales = 7,000 x Rs. 5

Finished goods = 800 x Rs. 5

Work in progress = 200 x Rs. 5

Rs.

= 35,000

= 4,000

= 1,000

40,000

By using this method, the profit for the period will be reduced by Rs.35,ooo and the value of stock will increase

by Rs.5,OOO.

The balance amount of RsAO,OOO due to factory inefficiency should be charged to Costing Profit and Loss

Account as this is abnormal cost for which the production should not be penalized.

Administration, Selling and Distribution Overheads

Administration Overhead: Administrative overhead are incurred in general for management to

discharge its functions of planning, organizing, controlling, co-ordination and directing. These expenses

are not specifically incurred which cannot be identified with the specific. Thus, the overheads are collected

under a standing order number, allocated and apportioned to various cost centres and units.

The administrative overhead is absorbed under anyone of the following methods:

(1) Transferring to Profit and Loss Account

(2) Apportioning to Works Overheads

(3) Apportioning to Selling Overheads.

Selling and Distribution Overhead : Selling and distribution expenses are incurred for promoting

sales, securing orders, creating demand and distribution of products or output from producers to the

ultimate consumers. The incidence of selling and distribution overheads depends on external factors such

as distance of market, nature of competition etc. which are beyond the control of management. They are

dependent upon customer's behaviour, liking etc. These expenses are the nature of policy costs and hence

not amenable to control. The overhead rate of selling and distribution overheads can be determined by

anyone of the following basis :

(a) A rate per article or unit of production

(b) A percentage on the selling price of each article or production unit

(c) A percentage on the factory cost.

. Treatment of Important Overhead Charges

Expenses on Removal and Reelection of Machine : Such expenses may be incurred due to factors

like change in method of production, an addition or alteration in the factory building, change in flow of

production. All such expenses are treated as production overheads, when amount of such expense is large,

it may be spread over a period of time. If such expenses are incurred due to faulty planning or other

abnormal factor, then they may be charged to Costing Profit and Loss Account.

Training Expenses: Training expenses are part of production, administration and selling &

distribution overheads based on particular employee posted in the department. If such expenses are huge

Absorption of Overhead 443

due to high labour turnover, such expenses should be excluded from costs and charged to Costing Profit

and Loss Account.

Packing Expenses: Cost of primary packing necessary for protecting the product or for convenient

handling should become part of prime cost. The cost of packing incurred to facilitate the transportation of

the product from the factory to the customer should become part of distribution cost. In case of special

packing done at the request of the customer the cost of the same should be charged to specific work order

or job. The cost of fancy packing to attract customers is an advertising expenditure. Hence it is to be

treated as selling overhead.

Idle Time Wages: Normal idle time wages is treated as a part of cost of production. Thus in case of

direct workers an allowance for normal idle time is built into labour cost rates. In the case of indirect

works, normal time wages is spread over all the products or jobs through the process of absorption of

factory overhead. Abnormal idle time cost is not included as a part of production cost and is shown as a

separate item in the Costing Profit and Loss Account. So that normal cost are not disturbed.

Overtime Wages: If overtime is resorted to at the desire of the customer, then overtime premium is

charged to concerned job directly. If overtime is required to cope with general production programe for

meeting urgent orders, the overtime premium should be treated as overhead cost of particular department

or cost center which works overtime. If overtime is worked on account of abnormal conditions such as

flood, earthquake etc that should be charged to Costing Profit and Loss Account.

Normal Loss and Abnormal Loss: Treatment of normal and abnormal loss of materials arising

during storage, which inflate the issue price. Normal loss can be charged to stores overheads and also can

be treated as a separate item of overheads to be recovered as a percentage of material consumed. On the

other hand, in the case of abnormal loss, it is charged to Costing Profit and Loss Account. If the loss is due

to error in documentation it should be corrected through adjustment entries.

Idle Capacity Cost: Idle capacity is that part of the capacity of a plant, machine or equipment which

cannot be effectively utilized in production. The idle capacity may arise due to lack of product demand,

non-availability of raw material, shortage of skilled labour, shortage of power etc. Cost associated with idle

capacity are mostly fixed in nature. These costs remain unabsorbed or unrecovered due to under utilization

of plant and service capacity. '

If the idle capacity cost is due to unavoidable reasons a supplementary overhead rate may be used to

recover the idle capacity cost. In this case, the costs are charged to the production capacity utilized.

If the idle capacity is due to avoidable reasons such as faulty planning, etc. the cost should be

charged to Costing Profit and Loss Account.

If the idle capacity cost is due to seasonal factors then the cost should be charged to the cost of

production by inflating overhead rates.

Pre-Production Costs: These are costs incurred during the period when a new factory is in the

process of being established a new project is undertaken or a new product line or product is taken up but

there is no established or formal production to which such costs may be charged. These costs are normally

treated as deferred revenue expenditure and are charged to future production.

Research and Development Cost: These are costs incurred in the discovery of new ideas or

processes by experiment or otherwise and for putting the results of such experiments on a commercial

basis. Research cost defined as the cost of searching for new or improved product, new application of

material or new improved methods, processes, systems or services.

444 A Textbook of Financial Cost and Management Accounting

Development cost is the cost of the process which begins with the implementation of the decision to

use scientific or technical knowledge to produce a new or improved product etc. and ends with the

commencement of formal production of that product by that method.

Cost of Small Tools: Tools purchased may be capitalized and depreciated over life if life is

ascertainable. Revaluation method of depreciation may be used in respect of very small tools of short

effective life. Depreciation may be charged to factory overheads, if tools use can be identified with the

departments. It may be charged to cost of department on the basis of actual issues.

QUESTIONS

1. Explain absorption of overhead

2. What do you understand by overhead rates?

3. Briefly explain the different kinds of overhead absorption rates.

4. Explain the different methods of absorption of overhead.

S. What do you understand by machine hour rate? How it is computed?

6. Briefly explain the methods of treatment of selling and distribution overheads.

7. What do you mean by under absorption and over absorption of overhead? Brief explain the methods of treatment of

under or over absorption of overheads.

8. Indicate the accounting treatment of overhead charges mentioned below :

(a) Idle time wages. (b) Packing expenses. (c) Research and development costs. (d) Cost of small tools.

(e) Overtime wages. "(1) Administrative overhead.

9. Briefly explain the importance of machine hour rate as a basis for the absorption of factory overheads

10. Compute main hour rate from the following data :

Cost of machine Rs. 1,10,000

Installation charges Rs. 10,000

Estimated scrap value (after IS years) Rs. S,OOO

Rent and rates for the shop Rs. 200 P.M.

General lighting for the shop Rs. 300 P.M.

Insurance premium for the machine Rs. 960 P.a.

Repairs and maintenance Rs. 1000 P.a.

Power consumption 10 units per hour

Rate of power per 100 units Rs. 20

Estimated working hours per annum 2200 which include setting up time of 200 hours.

Shop supervisor's salary per month Rs. 600

The machine occupies 114 of the total area of the shop. The shop supervisor is expected to devote lISth of his time for

supervising the machine.

[Ans : Machine hour rate: Rs.7.9S]

ll. Calculate the machine hour rate from the following information:

Cost of the machine Rs. 19,200

Estimated scrap value Rs. 1,200

Average repairs and maintenance Rs. ISO p.m.

Standing charges allocated Rs. SO p.m.

Effective working life of the machine 10,000 hours

Running time per month 166 hours

Power used by machine

S units per hour at the rate of 19 paise per unit

[Ans : Machine hour rate = Rs. 3.9S]

12. The machine shop of a manufacturing concern has 6 identical machines manned by 6 operators. The total cost of the

machines is Rs. 8,00,000. The following information relates to six monthly period ended 30th September 2003.

Normal available hours per month 208

Absenteeism (without pay) hours per month 18

Leave (with pay) hours per month 20

Normal idle time hours per month 10

Average rate of wages per hour per operator Rs. 2.S0

Production bonus IS% on wages

Power and fuel consumption Rs. 9,000

Supervision and indirect labour Rs. 3,300

Electricity and lighting Rs. 1,200

Repairs and maintenance (per annum) 3% of value of machine

Absorption of Overhead 445

Insurance per annum Rs. 42,000

Depreciation (per annum) 10% of original cost

Allocated factory overheads per annum Rs. 75,670

Calculate machine hour rate

[Ans : Machine hour rate Rs. 25]

13. Universal manufacturing Ltd. have 2 factories. Factory I employs 130 and Factory II employs 150 direct workers. Both

factories work 40 hours per week, and 50 weeks a year.

Overhead Rate are No. I - 25 paise per hour

II - 20 paise per hour

Current overhead expenses No. - I Rs.70,OOO; No. II - Rs.50,OOO. Analyse these figures and state probable causes of

any discrepancy.

[Ans : Factory I Under absorption of overhead expenses Rs. 5,000

Factory II Over absorption of overhead expenses Rs. 10,000]

14. During the year ended 31 st March 2003 the factory overhead costs of three production departments of an organization

are as under:

X Rs.48,950

Y Rs.89,200

Z Rs.64,500

The basis of apportionment of overhead is given below :

Department X - Rs.5 per machine hour for 10,000 hours

Y -75% of Direct Labour Cost of Rs.l,20,000

Z - Rs.4 per piece for 15,000 pieces.

Calculate department-wise under or over absorption of overheads and present the data in a tabular form.

[Ans: Over absorption X - Rs.1050 ; Y - Rs.800; Under absorption Z - Rs.4500]

15. A machine is purchased for cash at Rs.92,OOO. Its working life is estimated to be 18,000 hours after which its scrap

value is estimated at Rs.2,ooo. It is assumed from past experience that:

(1) The machine will work for 1,800 hours annually.

(2) The repair charges will be Rs. 10,800 during the whole period of life of the machine.

(3) The power consumption will be 5 units per hour at Rs. 2 per unit.

(4) Other annual standing charges are estimate to be :

(a) Rent of department (machine occupies 1I5th of the place) Rs. 7,800

(b) Light (12 points in the department; 2 points engaged in machine) Rs. 2,880

(c) Foreman's salary (1/4th of his time is occupied in the machine) Rs. 60,000

(d) Insurance premium (fire) for machine Rs. 360

(e) Cotton waste Rs. 600

Find out machine hour rate on the basis of the above data for allocation of the works expenses to all jobs for which the

machine is used. .

[Ans : Machine hour rate: Rs. 25.60]

16. Calculate the machine hour rate for machine Q from the following data:

Cost of the machine Rs. 51,000

Estimated life 20 years of 2400 hour each

Established repairs for life Rs. 12,000

Power consumption per hour 10 units

Rate for power 5 paise per unit

Insurance ~% per annum

Machine charges Rs. 30 per month

The machine is kept in a rented shed and there is one supervisor. The machine occupies 1I41h of his time for this

machine. Rent for the shed is Rs. 400 per month. Supervisor's salary is Rs. 500 per month. Electricity charges for the

Rent is Rs. 50 per month. Half the electricity charges are to be borne by this machine.

[Ans : Machiner hour rate Rs. 3.45; Standing charges per hour Rs. 1.51, Variable cost per hour Rs. 1.94]

17. From the following particulars, calculate the machine hour rate for a drilling machine:

Rs.

Cost of the drilling Machine 42,000

Estimated scrap value 2,000

Estimated working life 10 years of 2000 hours each

Running time for 4 weekly period 150 hours

Estimated repairs for life 10,000

Standing charges allocated to this machine for 4 weekly period 300

Power consumption per hour 5 units 10 paise per unit

[Ans : Machine hour rate per hour Rs. 5]

446 A Textbook of Financial Cost and Management Accounting

18. The following is the budget of superb engineering works for the year 2003 :

Rs.

Factory overheads 62,000

Direct labour cost 98,000

Direct labour hours 1,55,000

Machine hours 50,000

(a) From the above figures prepare the overhead application rate using the following methods :

(a) Direct Labour Hour (b) Direct Labour Cost (c) Machine hour

(b) Prepare a comparative statement of cost, showing the result of application of each of the above rates to Job

No. 555 from the undermentioned data.

Direct material cost Rs. 45

Direct labour: wages Rs. 40

Direct labour: hours 40

Machine hours 30

[Ans : Overhead application rate: (a) Rs. 40 per labour hour (b) 63.27% (c) Rs. 1.24 per machine hour]

Comparative Statement Cost:

Direct labour hour method Rs. III

Direct labour cost method Rs. 126.63

Machine hour method Rs. 132.20

19. Calculate the machine hour rate for machine X from the following information:

Cost of the machine Rs.16,OOO

Estimated scrap value Rs. 1,000

Effective working life 10000 hours

Running time per hour-weekly period 160 hours

Average cost of repairs and maintence charges per four-weekly period Rs.120

Standing charges allocated to machine X per four-weekly period Rs.4O

Power used by the machine 4 units per hour at a cost of 5 paise per hour

[Ans : Machine-hour rate Rs. 2.55]

20. From the following information, compute the machine-hour rate in respect of a machine

Cost of the machine Rs. 55,000

Estimated scrap value Rs. 3,400

Effective working life 10000 hours

Repairs estimated over usual life of machine Rs.7,500

Standing charges of shop for four week period Rs. 8,550

Hours worked in four weekly period Rs. 1,200

Number of machine in shop 30

Powers used each machine, per hour 5 units

Cost of power per unit 5 paise.

21. Compute machine hour rate from the information given below:

Cost of machine Q Rs. 1,35,000

Life of the machine 10 years

Estimated scrap value (after 10 years) Rs. 19,800

Working hours 1,800

Insurance per annum Rs. 450

Cotton wastes per annum Rs. 750

Rent per dept.\_per annum Rs. 9,750

Foreman's salary per annum Rs. 75,000

Lighting for dept. (per annum) Rs. 3,600

Repairs for entire life Rs. 1,440

Machine Q occupies 1/50h of the area and foreman devotes 1/40h of his time to the machine. The machine has two light

points out of the total 12 for lighting in the department.

[Ans : Machine hour rate Rs. 27.20]

22. A machine costing Rs. 20,000 is expected to run for 10 years at the end of which its scrap value is estimated to be Rs.

2000. Installation charges Rs. 200. Repairs for 10 years life is estimated to be Rs. 1800 and the machine is expected to

run for 2190 hours in a year. Its power consumption would be 15 units per hour at Rs. 5 for per 100 units. The machine

occupies 1I4oh of the area of the department and has two points out of total ten for lighting. The foreman has to devote

about 1/3"' of his time to this machine. The rent for this department is Rs. 300 p.m. and charges for lighting 80 p.m.

The foreman is paid a salary of Rs. 960 p.m. Find out the hourly rate, assuming insurance is @ 1 % p.a. and expenses

on oil etc. are Rs. 9 per month.

[Ans : Machine hour rate Rs. 4.059]

000

CHAPTER 20

Job, Batch and Process Costing

Meaning

Methods of Costing are broadly classified into (1) Specific Order Costing and (2) Operation Costing.

The tenn Specific Order Costing refers to the basic costing method which is applicable where the work

consists of separate contracts, jobs or batches. The specific order costing is further classified into Job

Costing, Batch Costing and Contract Cpsting. Job Costing is that fonn of specific order costing which

applies where industries which manufacture products or render services against specific orders such as

civil contracts, construction works, automobile repair shop, printing press, machine tool manufacturing,

ship building and furniture making etc.

1. DEFINITION OF JOB COSTING

The tenn Job Costing may be defines as "in job costing, costs are collected and accumulated

according to jobs, contracts, products or work orders. Each job is treated as a separat~ entity for the

purpose of costing. The material and labour costs are complied through the respective abstracts and

overheads are charged on predetennined basis to arrive at the total cost."

Features of Job Order Costing

Some of the important features of this method of costing are given below:

(1) Works or production are undertaken against the order of customers.

(2) Production is not as a continuous process because each job is accepted by work order basis not

for stock or future sales.

(3) Each job is treated as a separate entity for the purpose of costing.

(4) There is no unifonnity in the flow of production because of different production process.

(5) Costs are collected and accumulated after the completion of each job or products in order to

find out profit or loss on each job.

(6) The jobs differ from each other requiring separate work in progress maintained for each job.

448 A Textbook of Financial Cost and Management Accounting

Objectives of Job Order Costing

The following are the important objectives of Job Costing:

(1) Job costing provides accurate cost information for each job or product.

(2) It enables management to reduce the cost by making comparison of each elements of actual

costs with estimated ones.

(3) It helps management to measure the operational efficiency and inefficiency for each job or

works to take effective decision making.

(4) This method enables management to providing proper valuation of work in progress.

Advantages of Job Order Costing

The following are the various advantages of Job order costing:

(1) It helps management to identifying profitable and unprofitable jobs.

(2) It provides required information for preparation of estimates while submitting quotations for

similar jobs.

(3) It facilitates effective cost control by evaluating operational efficiency of each job or works.

(4) It helps management to fix selling price of each order or each job.

(5) Spoilage and defective works can be easily identified with each job or person.

(6) It facilitates the application cost-plus formula of pricing of large contracts.

(7) It facilitates the introduction of budgetary control of overheads, since the overheads are charged

on predetermined basis to arrive at the total costs.

Disadvantages

(1) This method is relatively involve more labour intensive. Thus, it is expensive.

(2) With increase in clerical work, there are chances for committing more errors and mistakes.

(3) Job Costing is essentially historical costing. It does not provide for the control of cost unless it

is combined with estimated or standard costing system.

(4) It is difficult to make cost comparison among different jobs because each job has its own

features.

Pre-requisites for Job Costing

In order to ensure the successful application of Job Costing method, it is essential to consider the

following pre-requisites :

(1) A sound production planning and controlling system.

(2) An appropriate time booking and time keeping system to avoid idle time.

(3) Maintenance of necessary records with regard to job tickets, work order, operation tickets, bills

of materials and tools requirements etc.

(4) Appropriate methods of overhead apportionment and absorption rate.

(5) Effective designing and scheduling of production.

Job, Batch and Process Costing 449

Job Costing Procedure

The procedure of job costing may be adopted for costing purposes is briefly given below :

(1) Customer's Enquiry: Production or job order is executed on the basis of enquiries received from

the customers. The routine enquiries may be related to expected estimated costs to be incurred, quality to

be maintained and duration for production planning etc.

(2) Quotation for the Job: As per the customer's enquiry and specifications of work or job, a

responsible person is preparing the estimates or quotation and price is fixed for a specific job. And the

same conveyed to the customer appropriately.

(3) Customer's Order: If the quotation is satisfactory to the customer, he may place an order.

(4) Production Order: As soon as an order is received, the Production Planning and Controlling

Department will make out a production order. It is in the form of instructions issued to the foremen to execute

the order and to control its physical progress. It contains all the information regarding the production.

Accordingly production control department assign a production order number for each order or job.

(5) Cost Accumulation: The Cost Accountant is responsible to prepare a Job Cost Card on the basis

of production order. It is also termed as "Job Cost Sheet." For each job the costs are collected and recorded

under separate production order number. The sources of collection of costs are :

(a) Direct material can be identified or obtained either from Bill of Materials or Requisition

Slips or Invoices in the case of direct purchases.

(b) Wages paid to direct labour is associated with a job and can be identified or recorded with

the help of Time Sheet, Job Cards and Wage Analysis Sheet.

(c) Direct expenses are identified on the basis of direct expenses vouchers.

(d) Overheads are apportioned on some predetermined basis. It can be accumulated with the

use of standing order numbers or cost account numbers.

(6) Completion of Jobs: After completion of a job, the final report is sent to the costing department

with regard to charging of material, labour, and overheads are recorded on the job cost sheet. The actual

cost recorded under each element of cost is ascertained to find out the total cost. Any deviations from the

estimated costs are also noted to take the corrective actions.

(7) Profit or Loss on Job: It is determined by comparing the actual cost with the price obtained.

Illustration: 1

From the following details, you are required to calculate the cost of Job No.215 and find out the price

to give a profit of 25% on total cost

Wages

Materials

Dept. A

B

C

Rs.

2000

30 hours @ Rs.3 per hour

20 hours @ Rs.2 per hour

10 hours @ Rs.5 per hour

Overhead expenses for these three departments were estimated as follows :

450

Variable Overheads

Dept.

Fixed Overheads

A

B

C

A Textbook of Financial Cost and Management Accounting

Rs. 1,000 for 1,000 labour hours

Rs. 6,000 for 3,000 labour hours

Rs. 2,000 for 400 labour hours

Estimated at Rs.l0000 for 5000 normal working hours.

Solution:

Job Cost Sheet (Job. No.2IS)

Direct Materials

Wages

Dept. A =30hrs x

B =20hrs x

C = 10 hrs x

Variable Overheads

Dept. A = 30 x

Dept. B = 20 x

Dept. A = lOx

Fixed Overheads

60 hrs x

Total Cost

Profit 25% on total cost

Selling Price

Illustration: 2

Amounts Amounts

Rs. Rs.

2000

Rs.3 = 90

Rs.2 = 40

Rs.5 = 50 180

Rs. 1,000

= 30

1,000 hrs

Rs.6,OOO

= 40

3,000 hrs

Rs.2,OOO = 50 120

400 hrs

Rs.lO,OOO 120

=

5,000 hrs 2,420

[~ x 2.420 ] = 605

100

Rs.3,025

The information given below has been taken from the records of an engineering works in respect

of Job. No. 111 and Job. No. 222.

Job, Batch and Process Costing

Materials Supplied

Wages Paid

Direct Expenses

Material transfer from 222 to III

Materials return to stores

Job. No.ll]

Rs.

5,000

1,100

400

300

Job. No.222

Rs.

3,000

800

200

300

200

451

You are required to find out the cost of each of Job and calculate profit or loss if any assuming that Job No. 222

is completed and invoiced to the customer at Rs. 4000/-.

Solution:

Job. No. 111

Particulars Amount Particulars Amount

Rs. Rs.

To Materials 5,000 By Balance c/d 6,800

To Wages 1,100

To Direct Expenses 400

To Material transferred

From Job. No. 222 300

6,800 6,800

To Balance bid 6,800

Job. No. 222

Particulars Amount Particulars Amount

Rs. Rs.

~

To Materials 3,000 By Materials transferred

To Wages 800 to Job. No. III 300

To Direct Expenses 200 By Materials return to stores 200

To P & L Alc By Sales 4,000

(Profit transferred) 500

4,500 4,500

Illustration: 3

The accounts of the RR Engineering Company Ltd. show the following cost figures for 2003 :

Materials consumed

Direct manual and machine labour wages

Works overhead expenses

General overhead expenses

Rs.

3,50,000

2,70,000

8,10,000

56,000

Show the work cost and the total cost of manufacture, the percentages that the works overheads bear to the direct

manual and machine labour cost and the percentage that the general overheads bear to the works cost.

What price should the company quote to manufacture a refrigerator which is estimated to require on expenditure

of Rs. 7,200 in materials and Rs. 6,000 in wages so that it will yield a profit of 20~ on the selling price?

452

Solution:

A Textbook of Financial Cost and Management Accounting

Job Cost Sheet

Expenses

Materials consumed

Direct labour cost

Direct expenses

Prime cost (1)

Add : Factory or work overhead

Works cost (2)

Add : General overhead expenses

Total cost of production (3)

Percentage of works overhead on Direct Manual & Machine

Labour Cost

81,000

2,70,000

x 100 = 30%

Percentage of general overhead on works cost

=

56,080

7,01,000

x 100 = 8%

Statement showing the quotation price for the refrigerator.

Expenses

Materials

Wages

Direct Expenses

Prime Cost (1)

Add : Works overheads

30% on wages [6,000 x ~ ]

100

Factory or works Cost (2)

Add : General overheads

8% on works cost [t5,OOO x ~ ]

100

Total cost of production

Profit 20% on selling price i.e.,

25% on total cost

Sales or quotation price

Amount Amount

Rs. Rs.

3,50,000

2,70,000

Nil

6,20,000

81,000

7,01,000

56,080

7,57,080

Amounts Amounts

Rs. Rs.

7,200

6,000

-

13,200

1,800

15,000

1,200

16,200

4,050

20,250

Job, Batch and Process Costing 453

IUustration: 4

The following information for the year ended 31 sl December, 2003 is obtained from the cost books of

a factory:

Raw materials supplied from stores

Chargeable expenses

Wages

Materials transferred to work-in-progress

Materials returned to stores

Completed Job

Rs.

90,000

10,000

1,00,000

2,000

1,000

Factory overhead is 90% of wages and administration overhead 25% of factory cost.

The value of the executed contract during 2003 was Rs. 4,10,000.

Work in Progress

Rs.

30,000

4,000

40,000

2,000

You are required to prepare consolidated completed job account showing the profit and loss and consolidated

work-in-progress account.

Solution:

Consolidated Completed Job Account

Expenses Amount Amount

Rs. Rs.

Raw materials supplied from stores 90,000

Less: Materials transferred to WIP 2,000

Less: Materials returned to stores 1,000 87,000

Wages 1,00,000

Chargeable Expenses 10,000

Prime Cost (1) 1,97,000

Add: Factory Overhead 90% of wages

[ 1,00,000 x ;~ ] 90,000

Works or Factory Cost (2) 2,87,000

Add: Administrative overhead 25% of factory cost 71,750

[ 2,87,000 x 12~ ]

Total cost of production (3) 3,58,750

Profit 51,250

Sales 4,10,000

Consolidated work-in-p~ogress Account

Expenses Amount Amount:

Rs. Rs.

Raw materials supplied 30,000

! Add: Material transferred from completed jobs 2,000 32,000

Wages 40,000 .

Chargeable expenses 4,000

Prime cost 76,000

Factory overhead 90% of wages 36,000

Works or factory cost 1,12,000

A Textbook of Fihancial Cost and Management Accounting

BATCH COSTING

Meanina

In Batch Costing, a lot of similar units which comprise the batch may be used as a cost unit for

ascertainment of cost. Separate Cost Sheet is maintained for each batch by assigning a batch number. Cost

per unit of product is determined by dividing the total cost of a batch by the number of units of that batch.

Batch costing is used in number drug industries, ready made garment industries, electronic components

manufacture, TV sets, radio etc.

Determination of Economic Batch Quantity (EBQ)

Determination of economic batch lot is the important work in batch costing. The two types of costs

involved in batch costing are (1) Set up cost and (2) Carrying cost.

If the batch size is increased. set up cost per unit will come down and the carrying cost will increase. It

the batch size is reduced. set up cost per unit will increase and the carrying cost will come down. Economic

Batch Quantity will balance these two opposing costs. EBQ is calculated by using the following formula:

Economic Batch Quantity (EBQ) = ~ 2~S

Where :

D

S

C

=

=

Annual Production or Demand in Units

Setup Cost per batch

= Annual Holding or Carrying Cost per unit

DifTerence between Job Costing and Batch Costing

Job Costing

(I) Costs are collected and accumulated

according to Jobs, Contracts or Work Order.

(2) Each job is treated as a separate entity for

the purpose of costing.

(3) The materials and labour costs are complied

through the respective abstracts and

overheads are charged on predetermined

basis.

(4) Costs are found out at the stage of

completion of the job.

(5) Job costing is used in Printing, Furniture

making, Ship Building etc.

IlIustJIation: 5

Balch Costing

(I) Lot of similar units which comprise the batch may

be used as a cost unit for ascertainment of cost.

(2) Separate cost sheet is maintained for each batch

by assigning a batch number.

(3) Separate cost sheet is maintained for each batch

by assigning a batch manner.

(4) Cost per unit of product is determined by dividing

the total cost of a batch by the number of units

of that batch. ~

(5) Batch costing is used in drug industries, readymade

garments, T.V. sets, Radio's and Electronic

Components Manufacture.

Following information relates to the manufacturing of a component X - III in a cost centre :

Cost of materials 6 paise per component

Operator's wages 72 paise an hour

Machine hour Rs. 1.50

Job, Batch and Process Costing 455

Setting. up time of the machine 2 hours and 20 minutes

Manufacturing time 10 minutes per component

Prepare cost sheets showing both production and setting up costs-total and per unit when a batch consists of

1,000 components.

Solution:

Cost Sheet for a Batch of 1000 Components

Particulars Amount Amount

Rs. Rs.

, Setting up Costs :

Operator's wages for 2 hrs and 20 mts @ 75 }

Paise an hour 1.68

Machine overheads for 2 hrs and 20 mts @ Rs.I.50 }

an hour 3.50

Total Setting up costs

0.005 5.18

Add: Production Costs :

Material cost for 1,000 units @ 6 paise per unit 0.060 60.00

Operator's wages for 10,000 Mts (100 x 10) @ 72 }

Paise an hour 0.120 120

Machine Overheads for 10,000 mts @ Rs.1.50 }

an hour 0.250 250

Total Production Costs 0.430 430

Total Costs 0.435 435.18

(Setting up Costs + Production Costs)

Illustration: 6

From the following information, you are required to calculate Economic Batch Quantity :

Annual demand for the product

Setup cost per batch

Carrying cost per unit annum

Solution:

Calculation Economic Batch Quantity :

Economic Batch Quantity =

Where:

D = Annual Demand in Units

S = Set up Cost per batch

=

=

=

C = Carrying Cost per unit per annum

40,000 units

Rs. 750

R~. 15

Economic Batch Quantity = I 2 x 40,000 x 750

'.J 15

= 2,000 units

456

Illustration: 7

A Textbook of Financial Cost and Management Accounting

A Ltd. is committed to supply 24,000 bearings per annum to B Ltd. on a steady basis. It is estimated that it costs

10 paise as inventory holding cost per bearing per month and that the set up cost per run of bearing manufacture is

Rs.324.

(1) What should be the optimum run size for bearing manufacture?

(2) What would be the interval between two consecutive optimum runs?

(3) Find out the minimum inventory cost per annum.

Solution:

(i) Economic Batch or run size :

EBQ= ~ 2~S

Where

D = Annual Demand or production in units

S = Setup cost per batch

C = Annual carrying or holding cost per unit

E B Q = -. I 2 x 24,000 x 324

V 12

= 3,600 units

Alternative Solution:

The Economic batch size figure can also be obtained by taking monthly figure as under:

= ~ 2 x 2000 units x Rs. 324

0.10

= 3,600 units

(ii) Number of set up per annum:

Annual production

=

Economic Batch Quantity

24,000 2

= = 6 or

3,600 3

20

3

12

Interval between two consecutive optimum runs --- =

20

12

20

(iii) Minimum Inventory Cost Per Year :

= [ 24,000

3,600

3,600

2

3

= 1.8 months.

x 12] = Rs. 2,160 + Rs. 2,160

= Rs. 4,320

x3

Job, Batch and Process Costing 457

PROCESS COSTING

Meaning

Process Costing is a method of costing. It is employed where each similar units of production

involved in different series of process from conversion of raw materials into finished output. Thus, .unit

cost is determined on the basis of accumulated costs of each operation or at each stage of manufacturing a

product. Charles T. Horngren defines process costing as "a method of costing deals with the mass

production of the like units that usually pass the continuous fashion through a number of operations called

process costing."

The application of process costing where industries adopting costing procedure for continuous or

mass production. Textiles, chemical works, cement industries, food processing industries etc. are the few

examples of industries where process costing is applied.

Charactertics of Process Costing

(1) Continuous or mass production where products which passes through distinct process or

operations.

(2) Each process is deemed as a separate operations or production centres.

(3) Products produced are completely homogenous and standardized.

(4) Output and cost of one process are transferred to the next process till the finished product

completed.

(5) Cost of raw materials, labour and overheads are collected for each process.

(6) The cost of a finished unit is determined by accumulated of all costs incurred in all the process

divid~d by the number of units produced.

(7) The cost of normal and abnormal losses usually incurred at different stages of production is

added to finished goods.

(8) The interconnected processes make the final output of by-product or joint products possible.

Difference between Job Costing and Process Costing

Job Costing Process Costing

(1) Production is against specific order from the (1) Production is a continuous process based on

customers. future demand.

(2) Variety of products are produced according (2) Homogenous products are produced in large

to specifications. scale.

(3) Output and costs are not involved in any (3) Output and costs are transferred from one process

transactions from one job to another. to another process.

(4) Cost control is more difficult because each (4) Effective cost control is possible because

job is different from other. production is standardized.

(5) Cost ascertainment and determination of unit (5) Costs are collected and accumulated at the end

cost can be possible only when job is of the accounting period.

completed.

(6) There is no question of work in progress at (6) Work in progress is always there because

the beginning or end of the period. production is continuous.

458

Advantages

A Textbook of Financial Cost and Management Accounting

The main advantages of process costing ar~ :

(1) Determination of the cost of process and unit cost is possible at short intervals.

(2) Effective cost control is possible.

(3) Computation of average cost is easier because the products produced are homogenous.

(4) It ensures correct valuation of opening and closing stock of work in progres~ in each process.

(5) It is simple to operate and involve less expenditure.

Disadvantages

(1) Computation of average cost does not give the true picture because costs are obtained on

historical basis.

(2) Operational weakness and inefficiencies on processes can be concealed.

(3) It becomes more difficult to apportionment of joint costs, when more than one type of products

manufactured.

(4) Valuation of work in progresscis done on estimated basis, it leads to inaccuracies in total costs.

(5) It is difficult to measure the performance of individual workers and supervisors.

Illustration: 8

Following figures show the cost of A product passes through three processes. In March 1000 units

were produced. Prepare the process accounts and find out per unit of each process.

Process I Process II Process III

Rs. Rs. Rs.

Raw materials 50,000 30,000 20,000

Wages 30,000 25,000 25,000

Direct Expenses 7,000 3,000 5,000

Overhead expenses were Rs. 12,000 and it should be apportioned on the basis of wages.

Solution:

Process I Account

Particulars Units Amounts Particulars Units Amounts

Rs. Rs.

To Raw Materials 1,000 50,000 By Process II Nc 1,000 91,500

To Wages 30,000 (Output transferred

To Direct Expenses 7,000 @ Rs.91.50 per unit)

To Q,e,h""', }

[ 1:

x 12,000] 4,500

1,000 91,500 1,000 91,500

. Job. Batch and Process Costing 459

Process II Account

Particulars Units Amounts Particulars Units Amounts

Rs. Rs.

To Process II" Ale 1,000 91,500 By Process III Ale 1,000 1,5.3,250

(Transferred from (Output transferred

Process I) . @ Rs.153.25 per unit)

To Raw Materials 30,000

To Wages 25,000

To Direct Expenses 3,000

Too.e~ }

[:6 x 12'~ 3,750 ..-

1,000 . 1,53,250 1,000 1,53,250

Process III Account

Particulars Units . Amounts Particulars Units Amounts

Rs. Rs.

To Process ill Ale 1,000 1,53.250 By Finished Stock 1,000 2,07,000

(Transferred from (Output transferred

Process II) @ Rs.207 per unit)

To Raw Materials 20,000

To Wages 25,000

To Direct Expenses 5,000

To <>verno"" }

[:6 x 12'~ 3,750

1.000 2,07.000 1,000 2,07,000

Process Losses

Process Losses may be defined as the loss of material occur at different stages of manufacturing

process. The following are the types of losses unavoidable during the course Qf processing operations such

as:

(1) Normal Process Loss

(2) Abnormal Process Loss

(3) Abnormal Process Gain

(4) Spoilage

(5) Defectives

(1) Normal Process Loss: The cost of normal process loss in practice is absorbed by good units

produced under the process. This is known as Normal Process Loss or Normal Wastage. For exaJll1'le,

evaporation, scrap, stamping process etc. The amount realized by the sale of normal process loss units

should be credited to process account.

(2) Abnormal Process Loss: The cost of an abnormal process loss unit is equal tQ the cost of goOd

unit. . The total cost of abnormal process loss is credited to process account from which it arises. This is

460 A Textbook of Financial Cost and Management Accounting

known as Abnormal Process Loss. Such loss may be caused by breakdown of machinery, false production

planning, lack of effective supervision, substandard materials etc., Cost of abnormal process loss is not

treated as cost of the product. In fact, the total cost of abnormal process loss is debited to Costing Profit

and Loss Account.

Computation of Abnormal Loss:

Value of Abnormal Loss =

Normal Cost of Normal Output

Normal Output

x Units of Abnormal Loss

Where:

Quantity of Abnormal Loss = Normal Output - Actual Output

Normal Output = Input - Normal Loss

If actual output is less than normal output to balance represents Units of Abnormal Loss.

(3) Abnormal Process Gain: Abnormal Process Gain may be defined as unexpected gain in

production under normal conditions. The process account under which abnormal gain arises is debited with

abnormal gain. The cost of abnormal gain is computed on the basis of normal production.

(4) Spoilage: Normal Spoilage (Le., which is inherent in the operation) costs are included in costs

either by charging the loss due to spoilage to the production order or by charging it to production overhead

so that it is spread over all the products. Any value realized from the sale of spoilage is credited to

production order or production overhead account as the case may be. The cost of abnormal spoilage is

charged to Costing Profit and Loss Account. When spoiled work is the result of rigid specification, the cost

of spoiled work is absorbed by good production while the cost of disposal is charged to production

overhead.

(5) Defectives: Defectives that are considered inherent in the process and are identified as normal

can be recovered by using the following method.

Charged to goods products

Charged to general overheads

Charged to departmental overheads

If defectives are abnormal, they are to be debited to Costing Profit and Loss Account.

Illustration: 9

A product passes through three processes X, Y and Z to its manufacture. From the following details,

ascertain the cost of the product at the end of each stages of production.

Process X Process Y Process Z

Rs. Rs. 'Rs.

Raw Materials 25,000 30,000 20,000

Wages 15,000 20,000 10,000

Manufacturing Expenses 5,000 8,000 7,000

Output in Units 10,000 11,200 13,000

Opening Stock (units in } Previous Process) - 7,000 5,000

Closing Stock (Units in } Previous Process) - 5,000 3,000

Job, Batch and Process Costing 461

Solution:

Process X Account

Particulars Units Amounts Particulars Units Amounts

Rs. Rs.

To Raw Materials 10,000 25,000 By Process Y 10,000 45,000

To Wages 15,000 (@ Rs.4.5 per unit

To Manufacturing } transferred to Process Y)

Expenses 5,000

10,000 45,000 10.000 45,000

Process Y Account

Particulars Units Amounts Particulars Units Amounts

Rs. Rs.

To Opening Stock } 7,000 31,500 By Wastage 800 -

(@ Rs.4.5 per unit) By Process Z Production

To Process X 10,000 45,000 [ 1,34,500 - 22,500 ]

To Raw Materials 30,000 11,200 11,200 1,12,000

To Wages 20,000 = Rs. 10 per unit

To Manufacturing } By Closing Stock } 5,000 22,500

Expenses 8,000 (@ Rs. 4.5 per unit)

17,000 1,34,500 17,000 1,34,500

Process Z Account

Particulars Units Amounts Particulars Units Amounts

" Rs. Rs.

To Opening Stock } 5,000 50,000 By Wastage 200 -

(@ Rs. 10 per unit) By Closing Stock } 3,000 30,000

To Process Y 11,200 1,12,000 (@ Rs. 10 per unit)

To Raw Materials 20,000 By production @ Rs. ~} 13,000 1,69,000

To Wages 10,000 per UnIt

To Manufacturing}

Expenses 7,000

16,200 1,99,000 16,200 1,99,000

Illustration: 10

In Process A, 1,000 units were introduced at a cost of Rs. 20,000, the other expenditure incurred in

the process were materials Rs. 10,000 and wages Rs. 5,000. 10% is the normal loss during production and

possess a scrap value of Rs. 3 each. The output of process A was only 800 units. Find out the value of

Abnormal Loss.

462

Solution:

A Textbook of Financial Cost and Management Accounting

Process X Account

Paniculars Units Amounts

Rs.

To Units Introduced 1,000 20,000

To Materials 10,000

To Wages 5,000

1,000 35,000

Working Notes:

. (1) Calculation of Cost per Unit

Cost' of inputs introduced

Less,' Normal unit wastage sold @ Rs. 3 per unit

Total Cost of 900 units

34,700

Cost per unit = --- = Rs. 38.55

900

Value of 800 units = 800 x Rs. 38.55 = Rs. 30,840

(2) Calculation of Abnormal Loss

Paniculars

By Normal loss 10%

By Abnormal loss

By Next Process (or) }

Cost of Output

Units Amounts

i,ooo

100

900

35,000

300

34,700

Normal Cost of Normal Production

Units Amounts

Rs.

100 '300

100 3,855.55

800 30,844.45

1,000 35,000

Value of Abnomial Loss = ------------- x Abnormal Loss (units)

=

Illustration: 11

34,700

900

Normal Outpttt

x 100 = Rs. 3,855.55

A batch of 1,000 units was pr~uced in a process at a cost of Rs. 1,850. The normal process loss of

10% of,production. It is ascertained that the actual process loss was of 150 units. The scrap is normally

sold to a·contractor at Re. 0.50 per unit. You are required to prepare (1) Process Account and (2) Abnormal

Loss Account.

Solution:

Process Account

Paniculars Units Amounts Paniculars Units Amounts

Rs. Rs.

. To Production 1,000 1,850 By Normal Loss (10%) 100 50

By Abnormal Loss 50 100

By Finished Goods 850 1,700

(@ Rs.2 per unit)

1,000 1,850 1,000 1,850

Job, Batch and Process Costing

Abnormal Process Loss Account

Particulars Units Amounts Particulars

To Process Ale

Working Notes

Calculation of Abnormal Loss

Value of Abnormal Loss

Abnormal Process Loss

Illustration: 12

50

50

=

=

=

Rs.

100 By Scrap Value

(@ Re.O.50 per unit)

By Cost Profit and

Loss Ale

100

Normal Cost of Normal Production

Nonna! Output

1,850 - 50

900

1,800

·900

x 50

x 50 = Rs. 100

= Rs. 100

463

Units Amounts

Rs.

50 25

75

50 100

x Abnormal Loss in Units

In process Y, 75 units of a commodity were transferred from process X at a cost of Rs. 1,310. The

labour and overhead expenses incurred by the process were Rs.190. 20% of the units entered are normally

lost and sold @ Rs. 4 per unit. The output of the process was 70 units. Prepare process Y Account and

Abnormal Gain Account.

Solution:

Process Y Account

Particulars Units Amounts Particulars Units Amounts

Rs. Rs.

To Process X Ale } 75 1,310 By Normal Loss Ale}

To Labour and (20%, 15 units sold 15 60

Overhead Expenses 190 @ Rs. per unit

To Abnormal Gain Ale 10 240 By Finished Output 70 l,68(}

85 1,740 85 1,740

Abnormal Gain Account

Particulars Units Amounts Particulars Units Amounts

. Rs. Rs .

To Normal Loss Ale 10 40 By Process Y Ale 10 240

(Loss of Income)

To Costing P & L Ale - 200

10 240 10 240

464

Working Notes

(1) Normal Output:

Units Introduced =

Less: Normal loss in units =

Normal Output =

Less : Actual Output =

Abnormal Gain =

(2) Value of Abnormal Gain:

=

Normal Cost of Normal Output

Normal Output

=

Illustration: 13

Rs.I,440

60

x 10 = Rs. 240

A Textbook of Financial Cost and Management Accounting

75

15

60 units

70 units

10 units

x Units of Abnormal Gains

Product A is obtained after it passes through three distinct processes. You are required to prepare

Process accounts from the following information:

Process

Total X Y Z

Rs. Rs. Rs. Rs.

Material 15,084 5,200 3,960 5,924

Direct Wages 18,000 4,000 6,000 8,000

Production Overheads 18,000

1,000 Units @ Rs. 6 Per Unit were introduced in Process X. Production overhead to be distributed as 100% on

Direct Wages.

Actual Output Normal Loss Value of

Unit Scrap per unit

Rs.

Process X 950 5% 4

Process Y 840 10% 8

Process Z 750 15% to

Solution:

Process X Account

Units Amount Units Amount

Rs. Rs.

Material Introduced Normal Loss 50 200

@ Rs. 6 per unit 1,000 6,000 Transfered

Material 5,200 Process Y @

Rs. 20 per unit 950 19,000

Direct Wages 4,000

Production Overheads 4,000

1,000 19,200 1,000 19,200

Job, Batch and Process Costing

Process Y Account

Units Amount Units

Rs.

Transferred from Normal Loss 95

Process X 950 19,000 Abnormal Loss 15

Material 3,960 Transferred to

Direct Wages 6,000 next Process@

Production Overheads 6,000 Rs. 40 pre unit 840

950 34,960 950

Process Z Account

Units Amount Units

Rs.

Transferred from

Process Y 840 33,600 Normal Loss 126

Material 5,924 Transferred to

Direct Wages 8,000 next Process@

Production Overheads 8,000 Rs. 40 pre unit 750

Abnormal Gain }

@ Rs.76 per unit 36 2,736

876 58,260 876

Abnormal Loss Account

Rs.

To Process Y 600 By Cash (sale of Scrap of Abnormal

Loss units)

By Costing Profit And Loss Nc

600

Abnormal Gain Account

Rs.

To Process Z Nc 360 By Process Z Nc

To Costing Profit & Loss Account 2,376

Working Note

Process Y:

(a) Normal Loss

Scrap Value

2,736

10

950 x --= 95 Units

100

95 x 8 = Rs. 760

465

Amount

Rs.

760

600

19,000

34,960

Amount

Rs.

1,260

57,000

58,260

Rs.

120

480

600

Rs.

2,736

2,736

466

(b) Abnormal Loss Units

Normal Production 950 - 95

Actual Production

Abnormal Loss

A Textbook of Financial Cost and Management Accounting

855

840

15

(c) Cost of Normal Production. 34,960 - 760 = 34,200

Cost of Normal Production per unit

Cost of Abnormal Loss

34,200

845

= Rs. 40 per unit

40 x 15 = 600

Abnormal Loss has been credited with Rs.120 being the amount realised from the sale of scrap and Abnormal

Loss.

Process Z:

(a) Normal Process. 15% of 840 units.

840 x 15

100

= 126 units

Sale of scrap

(b) Abnormal Gain.

= 126 x Rs. 10 = Rs. 1,260.

Units

Actual Production

Estimated Production

The Cost of Abnormal Gain has been calculated in the usual way.

750

714

36

Abnormal Gain Alc has been debited with Rs.360 being less amount, recovered on the sale of loss of units which

were 90 units instead of normal 126 units.

i.e., 36 x 10 = Rs. 360.

QUESTIONS

1. Define lob Costing.

2. What are the important features of Job Order Costing?

3. What are the advantages and disadvantages of lob Costing?

4. Explain briefly the objectives of Job Order Costing.

5. Describe the procedure for ascertaining Job Order Cost.

6. What are the main objectives of Job Costing? .

7. What do you understand by Batch Costing?

8. What are the difference between Job Costing and Batch Costing?

9. Describe the determination of Economic Batch Quantity.

10. What is Process Costing? What are its Characteristics.

11. What are the merits and demerits of process costing?

12. Write Short notes on :

(a) Normal Process Loss. (b) Abnormal Process Loss. (c) Abnormal Gain.

13. What do you understand by Process Losses?

14. Discuss the accounting treatment of the following in cost accounts:

(a) Spoilage and Defectives. (b) Abnormal Process Loss and Abnormal Process Gain.

PRACTICAL PROBLEMS

1. From the following information relating to the manufacturing of a product, you are required to calculate annual cost of

each batch and state the optimum number of batches to minimize the total cost. The demand per annum of a product is 48,000 units.

It is produced in batches and the largest size of a single batch is 8,000 units. The setup cost per batch is Rs. 1,500. The annual

inventory carrying cost is Rs. 2.25 per unit. Assume average inventory as 50% of the number of units made in each batch Selecting 4,

6,8, 12 and 24 batches per annum.

[Ans : Economic Batch Quantity 8,000 units; Optimum number is 6 batches of 8,000 units each per annum]

Job, Batch and Process Costing 467

2. 200 Tonnes of raw material are used for producing a commodity which passes through two processes. The costs are as

follows:

Process I Process II

Rs. Rs.

Materials 2,000

Labour 1,000 500

Work Expenses 500 300

10% of the material is wasted in the process. The wastage has been normal. The scrap realizes Rs. 50. Show process

No. I Account.

[Ans: Output 180 units @ Rs. 19.17 per unit for Rs. 3,450)

3. Compute the Economic Batch Quantity for a Company using batch costing with the following information:

Annual demand for the components 400 units

Setting up and order processing costs Rs. 50

Cost of manufacturing one unit Rs. 100

Rate of interest per annum 10%

[Ans : EBQ : 200 units)

4. 100 units are introduced into a process at a cost of Rs. 4,800 and an expenditure of Rs. 2,400 is incurred. From past

experience, it is ascertained that wastage normally arises to the extent of 15% of the units introduced, the waste product having a scrap

value of Rs. 10 per unit. The actual output is 80 units. Calculate the value of abnormal loss.

[Ans: Abnormal loss 5 units of Rs. 414.70)

S. In a factory the product passes through two process, A and B. A loss of 5% is allowed in process A and 2 % in process

B, nothing being realized by disposal of wastage.

During April 2003. 10,000 units of material costing Rs. 6 per unit were introduced in process A. The other costs are as

follows:

Materials

Labour

Overheads

Process A

Rs.

Rs.I0,OOO

Rs. 6,000

Process B

Rs.6,14O

Rs.6,OOO

Rs.4,600

The output was 9.300 units from process A, 9,200 units were produced by process B, which were transferred to the

warehouse.

8,000 units of the finished product were sold @ Rs. 15 per unit, the selling and distribution expenses were Rs. 2 per

unit.

Prepare necessary Process Account:

[Ans: (1) Process A Account:

Abnormal Loss 200 units of Rs. 1,600

Normal Output 9,300 units of Rs. 74,400

(2) Process B Account:

Abnormal Gain 86 units of Rs. 860

Finished Output 9,200 units of Rs. 92.000.)

6. A Product passes through three processes A, B and C. The normal wastage of each process is as follows:

Process A - 3% ; B - 5 %; C - 8 %

Wastage of each process is realized for Rs. 75,238 and Rs. 728 respectively. 10,000 units were introduced to process A

at Re. 1 per unit. The other expenses were as follows :

Process Process Process

A B C

Sundry Materials 1,000 1,500 500

Labour 5,000 8,000 6,500

Direct Expenses 1,050 1,188 2,009

Actual output 9,500 units 9,100 units 8,100 units

468 A Textbook of Financial Cost and Management Accounting

Prepare process accounts, assuming that there were no opening or closing stock

[Ans : (1) Process A Account : Abnormal wastage 200 units of Rs. 350

Normal production 9,500 units of Rs. 16,625

(2) Process B Account: Production 9,100 units of Rs. 27,300

(3) Process C Account: Abnormal loss 272 units of Rs. 1,156

Finished output 8,100 units of Rs. 34,425)

7. The Karnataka Products Ltd., Mysore, manufacture and sell their chemical produced by consecutive process. The

product of the three processes are dealt with as under:

Process I

Raw materials used } 2,800 @ Rs. 40

(Units in tons) Per ton

Manufacturing wages & Expenses } Rs.20,608

2

Transferred to next process 66 -%

3

Transferred to warehouse for sale 33 %

3

Process /I

320 @ Rs. 64

Per ton

Rs.12,56O

60%

41%

Process /II

2,520 @ Rs. 28

Per ton

Rs. II,580

100%

In each process, 4 % of the total weight put in is lost and 10% is scrap, which from process I realises Rs. 6 per ton,

from process II, Rs. 10 per ton and from process III Rs. 12 per ton. Prepare Process Accounts showing the cost per ton

of each product.

[Ans : Cost per ton: Rs. 52.23; Rs. 66.43; Rs. 46.08)

8. The estimated material cost of a job is Rs. 5,000 and direct labour cost is likely to be Rs. 1,000. In machine shop it will

require by machine No.9 for 20 hours and machine No.7 for 6 hours. Machine hour rate for machine No.9 and machine No.7 are

respectively Rs. 10 and Rs. 15. Considering only machine shop cost the direct wages in all other shops last year amounted to Rs.

80,000 as against Rs. 48,000 factory overhead. Last year factory cost of all jobs amounted to Rs. 2,50,000 as 19ainst Rs. 37,500 office

expenses. Prepare a quotation which gurantees 20% profit on selling price.

9. A batch of 800 units was introduced in process at Rs. 30 per unit. 700 units were completed and transferred to the

finished goods stores. The normal process loss was 20% of input and the scrap is normally sold at the market rate of Rs. 10 per unit.

The labour and overhead expenditure amounted to Rs. 41,600. You are required to show the process account.

[Ans: Abnormal gain - 60 units, value of Rs. 6,000; Cost of output -700 units at Rs. 100 per unit = Rs. 7,000.)

10.' A product passes through 3 distinct processes to completion during march 2003. 500 Units were produced. The Cost of

books show the following information

Particulars X Y Z

Rs. Rs. Rs.

Materials 3,000 \,500 1,000

Labour 2,500 2,000 1,500

Direct Expenses 500 2,160 950

The Indirect Expenses for the period were Rs. 1,400/-. The by-product of process Y were sold for Rs. 1451-. Residue of

process Z was sold for Rs. 166. Prepare the account in respect of the process showing its cost and cost of production of

finished product per unit.

[Ans: Transfers to Process B Nc Rs. 6,000; Transfer to Process C Nc Rs. II,515; Finished Stock Nc Rs. 16,(54)

11. Product X is obtained after it passes through three distinct processes. You are required to prepare process Accounts from

the following information :

Total Process

Rs. I /I 11/

Rs. Rs. Rs.

Materials 15,084 5,200 3,960 5,924

Direct Wages 18,000 4,000 6,000 8,000

Production Overhead 18,000

Job, Batch and Process Costing 469

1,000 Units @ Rs. 6 per unit were introduced in process I production overhead are to be distributed at 100% on direct

wages.

Actual Out Normal Loss

Units Scrap per unit

Process I 950 5%

Process II 840 10%

Process III 750 15%

[Ans: Transfer to ProCess II Alc 19,000; Transfer to Process III Alc Rs. 33,600;

Process III Alc - Normal Loss Rs. 1,260; Finished Stock Rs. 5,700]

12. From the following details, for the last process are given:

Transfer to the last process at cost from the first process

Transfer to finished stock from the last process

Direct Wages

Direct Materials used

Unifs

4,000

3,240

2,000

3,000

Value of

Rs.4

Rs.8

Rs.I0

Rs.

9,000

The factory overhead in process is absorbed @ 400% of direct materials. Allowance for Normal Loss is 20% of Units

worked. The Scrap Value is Rs. 5 per Unit.

You are required to prepare :

(a) Last Process Account

(b) Normal Wastage Account

(c) Abnormal Effectives Account.

[Ans: Last ProcessAlc - Normal Loss 800 Units Rs. 4,000;

Finished Stock 3,240 Units Rs. 22,275; Normal Wastage 760 Units Rs. 3,800;

Abnormal Effectives 40 Units Rs. 200]

13. Make out the necessary Accounts from the following details:

Materials

Labour

Overheads

Inputs (Units)

Normal Loss

Scrap Value of Wastage Per Unit

Process A

Rs.

30,000

10,000

7,000

20,000

10%

1

Process B

Rs.

3,000

12,000

8,600

17,500

4%

2

There was no Opening or Closing Stock or Work in Progress. Final output from process B was 17,000 Units.

[Ans: Process A - Abnormal Loss 500 Units Rs.l,250 transferred to

Process B - Abnormal Gain 200 Units Rs. 785; Finished Goods Cost Rs.66,735]

14. A Product passes through three Process to Completion. In January 2003, the cost of production was as given below:

Direct Material

Wages

Production Overhead

J

Rs.

2,000

3,000

1,500

1.000 Units were issued to Process I @ Rs.5 each

Normal Loss

Wastage realised

Actual Production

Prepare necessary accounts.

I

10%

Rs. 3 per Unit

920

II

5%

Process

II

Rs.

3,020

4,226

2,000

III

10%

Rs. 5 per Unit

870

IJJ

Rs.

3.462

5.000

2,500

Rs. 6 per Unit

800

[Ans: Process I Abnormal Effective Units 20 Valued Rs. 260; Process II Abnormal Wastage Units 4 Valued Rs. 96;

Process III Abnormal Effective Units 17 Valued Rs. 680]

470 A Textbook of Financial Cost and Management Accounting

IS. Kumar & Co. Ltd. Used Job Costing. The following data is obtained from its books for the year ended 31" Dec, 2003.

Rs.

Direct Materials 1,80,000

Direct Wages 1,50,000

Profit 1,21,800

Selling and Distribution Overheads 1,05,000

Administrative Overheads 84,000

Factory Overheads 90,000

(a) Prepare a Job Cost Sheet indicating Prime Cost, Works Cost, Production Cost, Cost of Sales and Sales Value.

(b) In 2004 the Company receives an order for a number of jobs. Estimated Direct Material Cost is Rs.2,40,OOO and

Direct Labour Cost Rs.l,50,OOO. What should be the price for these jobs if the Company intends to earn the same

rate of Profit on Sales assuming that Selling and distribution overheads have gone up by 15%1 The factory

recovers factory overheads as a percentage of Direct Wages and Administration and Selling Overheads as a

percentage of works costs.

[Aos: Estimated Cost of Sales Rs. 7,14,000; Profit Rs. 1,42,800]

16. Component A is made entirely in Cost Centre X, materials Cost 16 Paise per component takes 10 minutes to produce.

The machine operator is paid Rs. 4 pet hour and the machine hour rate is Rs. 1.50. The selling of the machine to produce A takes 2

hours 30 minutes.

On the basis of this information. Prepare Cost Sheets showing the production and setting up Cost. both in total and per

component. assuming that a batch of (a) 100 Components and (b) 1,000 Components is produced.

[Aos: Cost per batch of 100 Components of A - Cost Per Unit Rs. 1.214; Cost of batch Rs. 121.41; Cost per batch of

1,000 Components of A - Cost Per Unit Rs. 1.091; Cost of batch - Rs. 1,076.67]

000

CHAPTER 21

Joint Product and By-Product

Introduction

Generally in many industries two or more products are produced from a common feature of

production process. These products may be grouped into joint products or by-products, based on the value

of product, profitability of the product, objectives and policies of the concern. Joint products and byproducts

are equally important because of major difficulty to identify the cost of inputs separately and

specifically. When cost incurred after the point of separation are known as "post split off" or "subsequent

costs." It is therefore, equal importance should be given to further processing after the point of separation.

1. JOINT PRODUCTS

When two or more products are produced simultaneously from the use of a single raw material which

is equally important. Such a product can be a joint product which is more important if produced from the

same raw material. This product is also called as Main Product. On the other hand, if the products are not

of the same importance called as "By-Products." For example, crude oil is the main product which can be

processed in to petrol, kerosene, oil tar etc. as by-produc~s.

Features of Joint Products

The following are the important features of joint products:

(1) Joint products are produced from the sample raw materials.

(2) They are produced from the common features of manufacturing process.

(3) Joint products are of equal importance and value.

(4) They may require further processing after their split off or point of separation.

Objectives of Joint Product Costing

The following are the important objectives of joint product costing:

(1) To facilitate product costing of inventory valuation and income determination.

(2) To ascertain the profitability of each product.

472 A Textbook of Financial Cost and Management Accounting

(3) To facilitate to make or buy decisions.

(4) To provide information to fix the prices of product.

(5) To evaluate the change of product mix and output variations.

(6) To determine cost per unit, cost allocation and cost ascertainment.

(7) To ensure effective cost control.

Methods of Apportionment of Joint Products

The following are the important methods commonly used for apportionment of joint costs upto the

point of separation.

(1) Average Unit Cost Method

(2) Physical Unit Method

(3) Survey Method

(4) Contribution Margin Method

(5) Standard Cost Method

(6) Market Value Method

(a) Market Value at Point of Separation

(b) Market Value After Further Processing

(c) Net realizable Value or Reserve Cost Method

(1) Average Unit Cost Method: Under this method, average cost per unit of the finished product is

calculated by the total joint costs up to the point of separation is divided by the total production of all the

products or outputs. This method is very simple and conveniently applicable where the resultant products can

be expressed in common units.

(2) Physical Unit Method: Under this method, the joint costs are allocated or apportioned to joint products

on the basis of relative physical units of output of each joint product till split-off occurs. These physical units

refer to weight or measure such as pounds, tonnes, gallons, bales, volume etc. This method is suitable where

the joint products will be measurable in the same units. This method cannot be applied when joint products

consist of different types of units like liquids and solids.

(3) Survey Method: Survey Method is also termed as "Points Value Method." In this method, joint

costs are allocated on the basis of percentage or points value is assigned to each products according to their

relative importance. This method is also taken into various relevant factors such as volume, mixtures, selling

price, technical engineering and marketing processes. The ratio of joint costs can be calculated by physical

quantities of each products ue multiplied with the weightage points.

(4) Contribution Margin Method: This method is also called as "Gross Margin Method." According

to this method joint costs are allocated or apportioned as fixed cost and variable cost incurred at the point of

separation. Joint fixed costs are apportioned on the basis of contribution of each product whereas variable

portion of joint costs are apportioned according to the volume of units produced.

(5) Standard Cost Method: Under this method, joint costs are apportioned on the basis of standard

costs. For this, standard costs are determined in advance for aU joint products based on past experience, technical

aspects, operational efficiency and cost factors of each products etc.

Joint Product and By·Product 473

(6) Market Value Method: This method is also termed as "Relative Sales Value Method." According

to this method, the number of units of each product manufactured is multiplied by the product's selling price

to obtain the sales value of producti0r:t. The portion of total joint costs allocated to each product is equal to the

ratio of the sales value of each product's total market value. Here, there are various kinds of market value

methods:

(a) Market Value at the Separation Point

(b) Market Value After Further Processing

(c) Net Realizable Value

(a) Market Value at Separation Point: Under this method, the market value of the joint products at the

split off point is ascertained on the basis of dividing joint cost. Weightage is also given to the quantities of

each product:

(b) Market Value After Further Processing: In this method, joint cost are apportioned according to the

ratio of final selling price of each product.

(c) Net Realizable Value: This method is also called as "Reverse Cost Method." Under this method, the

estimated profit, selling and distribution expenses and post separation costs are reduced from the sales value

of each joint products. A ratio is established on the basis of which the total costs before separation point is

apportioned. Subsequent costs are added to arrive at product costs.

2. BY -PRODUCTS

The term by-product is also known as "Minor Product." It refers to any product of comparatively less

value that is incidentally manufactured along with the main products. In other words, if the products

produced are not as of equal importance, then the products of significantly low value are known as "byproducts."

Accordingly, they are jointly produced with other main products and remain inseparable up to

the point of split off or point of separation.

Accounting Treatment or Method of Valuation of By-products

The object of valuation of by-products cost accounting is to assign a portion of the total costs to each

by-products. This is important to calculate the unit product cost and prepare the profit and loss account and

balance sheet. Following are the important methods employed in this connection :

(1) Non-Cost Methods or Sales Value Methods:

(a) Other Income Method.

(b) Adding Sales Value to Total Cost Method.

(c) Crediting to Sales Value Less Selling and Distribution Expenses Method.

(d) Expenses Cost Method.

(2) Cost Methods:

(a) Replacement Cost Method or Opportunity Cost Method

(b) Standard Cost Method

(c) Apportionment on Suitable Basis

(1) Non-Cost Method

This method is also known as "Sales Value Method." While in valuation of the by-products only

sales value of by-products is taken in to account in accounting treatment of by-products they use anyone

of the following non-cost methods :

474 A Textbook of Financial Cost and Management Accounting

(a) Other Income Method: Under this method, when the sales value of the by-products is very low

or negligible, it is treated as other income and same is credited to the profit and loss account.

(b) Adding Sales Value to Total Cost Method: Under this method all the cost of joint products

deducted from the combined sales proceeds of both joint products and main products.

(c) Crediting to Sales Value Loss Selling and Distribution Expenses: Under this method, costs

incurred relating to selling and distribution expenses of by-products are deducted from the sales value of

by-product and the net sales value credited to the process account.

(d) Reverse Cost Method: In this method. cost of by-product is determined by sales of the by-product

deducted from the estimated profit and all costs incurred on by-products after split off point. This method

also known as "crediting sales value less profit."

(2) Cost Methods

Cost methods are useful to determine the cost of by-products when the apportion of the portion of

joint costs incurred to by-products. The following are the important methods included under this

categories.

(a) Replacement Cost Method: This method is also called as "Opportunity Cost Method." In this

method, by-products are determined where by-products are used as raw material in some other process.

Here the by-products are value at the opportunity lost of purchasing or replacing them. The opportunity

cost of by-product refers to the cost which could have been incurred had the by-product being used as

material could have been purchased from the market. The process account is credited with the value of byproduct

so ascertained.

(b) Standard Cost Method: In this method, a standard cost is fixed for each by-product and the

process account is credited with this standard cost.

(c) Apportionment on Suitable Basis: Under this method, if the value of by products is considerably

significant, the actual cost of by-product is ascertained by apportioning the joint costs up to the point of

physical separation by way of suitable basis used for costing of joint products.

Inter-Process Profits

In usual practice of certain firms. the output of one process is transferred to the subsequent process at

current market price or cost plus agreed percentage of profit. The object is to show a margin of profit or

loss on each process to performing the relative efficiency of each process. The difference between the cost

and the transfer price is known as Inter-Process Profit. On accounting complication of this technique is the

fact that work in progress and stock figures at the end of the period will include a profit element. For

balance sheet purposes, inter process profits cannot be included in stocks because a firm cannot make a

profit by trading with itself. Financial accounting requires stock to be valued at the lower cost or realizably

valued. The unrealized profit, therefore, must be calculated and written back.

The cost of closing stock and realized profit can be ascertained by applying the following formula:

Cost of Closing Stock

Realized Profit

Cost of Process

= x Closing Stock

Total Cost of Process

Profits shown in process and finished stock Alc + Unrealized profit in

opening stock - unrealized profit in closing stock

Joint Product and By·Product

Equivalent Units

475

When opening and closing stocks of WIP exist, unit costs cannot be computed by simply dividing the

total cost by total number of units still in process. We must convert the work in progress in to finished

elements called "equivalent unit" so that the unit cost can be obtained. For example, 300 units 60%

complete are equal to 180 equivalent units. It consists of balance of work done on opening work in

progress, current production done fully and part of work done on closing work in progress. Once credit

side entries are valued the equivalent units are ignored.

Steps Involved for Calculation of Equivalent Units

The following procedure to be followed for calculation of equivalent units :

(1) Calculate the number of equivalent units after taking the percentage of degree of completion in

respect of opening stock of work in progress.

(2) To (1) add the units introduced deducting the closing work in progress.

(3) Convert the equivalent units of closing work in progress and add to the above.

(4) Find out net process costs element wise ie materials, labour and overheads.

(5) Calculate the cost per unit of equivalent production of each element of cost separately.

(6) Find out the cost of finished goods transferred to the next process and stock of work in progress,

The above procedures are to be considered for preparation of the following three statements :

(i) Statement of Equivalent Production.

(ii) Statement of Cost.

(iii) Statement of Evaluation (i.e., Apportionment of Process Costs).

Illustration: 1

From the following informations, find the profit made by each product, apportioning joint costs on a

sales value basis :

Sales

Selling Expenses

Joint Costs:

Solution:

Materials

Process Costs

Joint cost to be apportioned

Sales

Selling Expenses

Effective sales value

A

Rs.

7,60,000

1,00,000

B

Rs.

8,40,000

4,00,000

Rs. 6,24,000

Rs. 2,76,000

Rs. 6,24,000 + Rs. 2,76,000 = Rs.9,OO,000

Product A Product B

7,60,000

1,00,000

6,60,000

8,40,000

4,00,000

4,40,000 •

476

Joint cost apportioned:

(ratio of 3 : 2)

Profit

}

A Textbook of Financial Cost and Managem~nt Accounting

5,40,000 3,60,000

1,20,000 80,000

Illustration: 2

A canning merchant supplies you the following production data during the year 2002 :

Grades

A

B

C

Units Produced

5,000

8,000

10,000

The Pre-separation cost incurred was Rs. 2,07,000. The joint cost is apportioned on technical evaluation based

on the proportion of 5 : 3 : 2 to three grades respectively. Apportion the joint cost.

Solution:

Apportion of Joint Cost On Survey Method

Items Units Points Equivalent Cost Per Apportioned Cost Per Unit

(1) (2) Attached Units Equivalent Cost 6/2 = 7

(3) 2 x3 = 4 4/2 = 5 4x5 = 6

Grade A 5,000 5 25,000 3 75,000 15

Grade B 8,000 3 24,000 3 72,000 9

Grade C 10,000 2 20,000 3 60,000 6

23,000 69,000 2,07,000

Illustration: 3

A Pharmaceutical company purchases a raw material, which is then processed to yield three

chemicals Anarol, Estyl and Betryl. In October, 2003 the Pharmaceutical Company purchased 10,000

gallons of the raw materials at a cost of Rs.12,50,OOO and company incurred additional joint conversion

costs of Rs.7,50,OOO. October, 2003 sales and production information are as follows:

- Gallons Price at Further Eventual

Produced Split off Processing cost Sales

(Per Gallon) Per Gallon Price

Anarol 2,000 Rs. 350 - -

Estyl 3,000 Rs. 240 - -

Betryl 5,000 Rs. 200 Rs.30 Rs.360

Anarol and Estyl are sold to other phannaceutical companies at the split off point. Betryl can be sold at the

split-off point or processed further and packaged fOl sale as an asthma medication.

Required:

(i) Allocate the joint cost to three products using the Physical Units Method, the Sales Value at Split-off

Method and the Net Realizable Value Method.

(ii) Suppose that half of October, 2003 production of Estyl could be purified and mixed with all off the

Anarol to produce a veterinary grade anesthetic. All further processing costs amount to Rs.2,25,000.

The selling price of the veterinary grade anarol is Rs.650 per gallon. Should the phannaceutical

company further process the anarol into anesthetic? Assume, the resultant quantity of veterinary

grade anarol produced is Rs.2000 gallons only.

rCA Inter. 2001)

Joint Product and By-Product

Solution:

(i) Total Joint Cost to be allocated = Rs. 12,50,000 + Rs. 7,50,000

= Rs. 20,00,000

Physical Unit Method

Product Gallons Proportion X

Produced Joint Cost = Joint Cost Allocation

2000

Anarol 2000 = 0.20 x Rs. 20,00,000 = Rs. 4,00,000

10000

3000

Estyl 3000 = 0.30 x Rs. 20,00,000 = Rs. 6,00,000

10000

5000

Betry) 5000 = 0.50 x Rs. 20,00,000 = Rs. 10,00,000

10000

10000 Rs. 20,00,000

Sales Value at Split-otT Method

Product Gallons Price at Revenue at %of Joint Joint cost

x = Allocation

Produced Split off Split off Revenue Cost Rs.

Anarol 2,000 Rs.350 7,00,000 0.2893 x 20,00,000 = 5,78,600

Estyl 3,000 Rs.240 7,20,000 0.2975 x 20,00,000 = 5,95,000

Betry) 5,000 Rs. 200 10,00,000 0,4132 x 20,00,000 = 8,26,4()\)

10,000 24,20,000 20,00,000

Net Realizable Value Method (Sales less further processing)

Product Qty NRV % of Revenue x Joint cost = Joint cost allocation

Anarol 2,000 7,00,000 0.228 x 20,00,000 = Rs. 4,56,026

Estyl 3,000 7,20,000 0.2345 x 20,00,000 = Rs. 4,69,055

Betryl 5,000 16,50,000 0.5375 x 20,00,000 = Rs. 10,74,919

30,70,000 Rs. 20,00,000

(U) Joint costs are irrelevant to this decision

477

Instead, further processing costs and the opportunity cost of the lost contribution margin on the Estyl diverted to

Anarol purification must be considered.

Added Revenues

(Rs.650 - Rs.350) x 2000 Gallons = Rs. 6,00,000

Less : Further processing of Anarol Mixture = (Rs. 2,25,000)

Less: Lost contribution margin on Estyl }

(1500 Gallons & Rs. 240) = (Rs. 3,60,000)

Increased Net Income Rs. 15,000

478

Alternatively

Existing Income

Estyl = 1500 gallon x Rs.240

Anarol = 2000 gallon x Rs.350

Proposed Income

Veterinary Grade = 2000 gallon x Rs.650

Less: Processing Cost

Increased Income

Alternative

=

=

=

=

=

A Textbook of Financial Cost and Management Accounting

Rs.

3,60,000

7,00,000

13,00,000

2,25,000

Rs.

10,60,000

10,75,000

15,000

Joint cost of 2,000 gallons of Anarol and 1.500 gallons of Estyle at the point of split off comes out to be :

= (Rs. 5,78,600 + Rs. 2,97,500) = Rs. 8,76.100.

After adding Rs. 2,25,000 of further processing cost we get 2,000 gallons of output of veterinary grade Anarol.

Total revenue earned on 2,000 gallons of veterinary grade Anarol is Rs. 13,00,000. Hence the profit come to

Rs. 1,98,900.

Total profit earned if 2,000 gallons of Anarol and 1,500 gallons of Estyle were sold at the point of split off

(Rs. 10,60,000 - Rs. 8.76,100) = Rs. 1.83,900. Since the profit on making veterinary grade of Anarol increases by

Rs.15,000, therefore this preposition should be accepted.

Illustration: 4

In a chemical manufacturing company, three products A, Band C emerges at a single split off stage

in department P, product A is further processed in department Q, product B in department R and product C

in department S. There is no loss in further processing of any of the three products. The cost data for a

month are as follows :

Cost of raw materials introduced in department P

Direct Wages Department

P

Q

R

S

Rs.

3,84,000

96,000

64,000

36,000

Rs.

12,68,800

Factory overheads of Rs. 4,64.000 are to be apportioned to the departments on direct wages basis.

During the month under reference, the company sold all three products after processing them further as under:

Products

Output sold Kgs

Selling price per Kg. Rs.

A

44,000

32

B

40,000

24

C

20,000

16

There are no opening or closing stocks. If these products were sold at the split off stage, that is, without further

processing, the selling prices would have been Rs.20, Rs.22 and Rs.1O each per Kg respectively for A, Band C.

Required:

(i) Prepare a statement showing the apportionment of joint costs to joint products.

(ii) Present a statement showing product wise and total profit for the month under reference as per the

company's current processing policy.

alia By-Product

(iii) What processing decision should have been taken to improve the profitability of the company.

(iv) Calculate the product wise and total profit arising from your recommendation in (iii) above.

479

ICA Inter, 2002J

Solution:

Department Wise Costs

Raw materials (Rs.)

Wages (Rs.)

Overheads (Rs.)

(i) Products

Output (Units)

Selling price at split off (Rs.)

Sales value at split off (Rs.)

Joint Cost Apportioned

(ii) Present Profit

Output (Units)

Selling price (Rs.)

Sales (Rs.)

Joint Costs (Rs.)

Further Costs (Rs.)

Total (Rs.)

Profit I Loss (Rs.)

Incremental Sales (Rs.)

Further Costs (Rs.)

Increment Net Profit (Rs.)

p

12,68,800

- 3,84,000

3,07,200

19,60,000

A

44,000

20

8,80,000

8,80,000

A

44,000

32

14,08,000

8,80,000

1,72,800

10,52,800

3,55,200

5,28,000

1,72,800

3,55,200

Q R

96,000 64,000

76,800 51,200

1,72,800 1,15,200

B

40,000

22

8,80,000

8,80,000

B

40,000

24

9,60,000

8,80,000

1,15,200

9,95,200

(35,2oo)

80,000

1,15,200

(35,200)

(iii) Decision Process Sell at split off Process

Profit 3,55,200 No change in 55,200

Profitability

Working Notes:

3,84,000

(1) Factory Overheads P = x 4,64,000

5,80,000

96,000

Q =

5,80,000

x 4,64,000

64,000

R = x 4,64,000

5,80,000

36,000

R = x 4,64,000

5,80,000

S

36,000

28,800

64,800

C Total

20,000

10

2,00,000 19,60,000

2,00,000 19,60,000

C

20,000

16

3,20,000

2,00,000

64,800

2,64,800

55,200 3,75,200

1,20,000

64,800

55,200

Total (Rs.)

4,10,400

= Rs. 3,07,200

= Rs.76,8oo

= Rs.51,2oo

= Rs.28,8oo

480 A Textbook of Financial Cost and Management Accounting

(2) Incremental Sales = Sales -Joint Costs

Illustration: 5

A

B

C

= 14,08,000 - 8,80,000

= 9,60,000 - 8,80,000

= 3,20,000 - 2,00,000

= Rs. 5,28,000

= Rs.80,000

= Rs. 1,20,000

The following information is given in respect of process No.3 for the month of Jan. 2003

Opening Stock - 2000 units made-up of

Direct Materials - I

Direct Materials - II

Direct Labour

Overheads

Rs. 12,350

Rs.13,2oo

Rs. 17,500

Rs. Il,OOO

Transferred from process No.2: 20,000 units @ Rs. 6 per unit

Transferred to process No.4 : 17,000 units

Expenditure Incurred in process No.3:

Direct Materials

Direct Labour

Overheads

Additional Information

Rs.30,OOO

Rs. 60,000

Rs.6O,OOO

(1) Scrap: 1,000 units - Direct Materials 100%, Direct Labour 60%, Overheads 40%

(2) Normal Loss 10% of production

(3) Closing stock: 4,000 Units - Degree of completion:

Direct Materials

Direct Labour

Overheads

80%

60%

40%

Prepare process No.3 Account using Average Price Method, along with necessary supporting statements.

ICA Inter, 2003J

Solution:

Process 3 :

Opening WIP = 2,000 units

Received from Process 2 = 20,000 units

Total = 22,000 units

Less : Closing WIP = 4,000 units

Production = 18,000 units

· Joint Product and By-Product 481

(1) Statement of Equivalent Units

Details Units Mat. I Mat. II Labour Overheads

To Process 4 : 17,000 100% 17,000 100% 17000 100 % 17000 100% 17000

Closing WIP 4,000 100% 4000 80% 3200 60% 2400 40% 1600

Nonnal Loss 1,800 - - - -

Total 22,800 21,000 20,200 19,400 18,600

Abnonnal gain 800 800 800 800 800

Total 22,000 20,200 19,400 18,600 17,800

(2) Statement of Cost per Equivalent Unit

Details Mat.l Mat. II Labour Overheads

Rs. Rs. Rs. Rs.

Opening Balance 12,350 13,200 17,500 11,000

Current Costs 1,20,000 30,000 60,000 60,000

Total Costs 1,32,350 43,200 77,500 71,000

Scrap Credit 1800 @ 4 = 7,200 - - -

./ Net Costs 1,25,150 43,200 77,500 71,000

Cn<>t per equivalent units 6.1955 2.2268 4.1667 3.9888

(3) Statement of Cost of Credit Side Entries

Details Element Equivalent Cost / Equt. Cost

Units Units Rs. Rs.

Material I 17,000 6.1955 1,05,322

To Process 4 Material II 17,000 2.2268 37,855

Labour 17,000 4.1667 70,834

Overheads 17,000 3.9888 67,810

2,81,821

Abnonnal Gain Material I 800 6.1955 4,956

Material II 800 2.2268 1,781

eabour 800 4.1667 3,333

Overheads 800 3.9888 3,191

13,261

Closing WIP Material I 4,000 6.1955 24,782

Material II 3,300 2.2268 7,126

Labour 2,400 4.1667 10,000

Overheads 1,600 3.9888 6,382

48,290

(4) Process 3 Account

Details Units Amount Details Units Amount

To Opening WIP 2,000 54,050 By Nonnal Loss 1,800 7,200

To Process 2 20,000 1,20,000 By Process 4 17,000 2,81,821

To Material II 30,000 By Closing WIP 4,000 48,290

To Labour 60,000

To Overheads 60,000

To Abnonnal Gain 800 13,261

22,800 3,37,311 22,800 3,37,311

482

Note:

A Textbook of Financial Cost and Management Accounting

Normal loss is 10% of production. Production may be the units that come up to the inspection 1itage. In that case

opening stock plus receipts minus closing stock of WIP will represent production. It works out to 18,000 units and

hence normal loss has been taken as 1,800 units.

Illustration: 6

In manufacturing the main product A company processes the incidental waste into two by products A

and B. From the following data relating to the product you are required to prepare a comparative profit and

loss statement showing the individual cost and other details. The total cost up to separation period was

Rs. 3,10,4()().

Sales

Cost after separation

Estimated net profit }

Percentage to sales value

Estimated seIling expenses }

as percentage to sales value

Main Product

8,00,000

80,000

20%

By-Product

64,000

12,800

20%

10%

Reverse Cost Method to be followed for separation of joint costs.

Solution:

Comparative Profit and Loss Account

Particulars Main Product By-Product

Rs. Rs.

Joint cost upto separation point 3.10,400 -

Less,' Cost allocated to by-products 80,000 32,000

2,30,400

Cost after separation 80,000 12,800

SeIling Expenses 1,60,000 6,400

4,70,400 51.200

Net Profit 3,29,600 12,800

Sales 8,00,000 64,000

Cost allocated to by-product is calculated as under

Particulars By-Product By-Product

A B

Sales (Rs.) 64,000

Less,' Estimated Net Profit 12,800 19,200

Estimated Selling Expenses 6,400 14,400

Cost After Separation 12,800 32,000 14,400

32,000

By-Product

96,000

14,400

20%

15%

rCA Inter, 2000J

By-Product

Rs.

-

48,000

14,400

14,400

76,800

19,200

96,000

Total

R$,.

96,000

48,000

48,000 80,000

Joint Product and By-Product

Illustration: 7

Input 7,600 units, output 6,000 units; Closing work in progress 1,600 units

Materials

Labour

Overhead

Degree of Completion

80%

70%

70%

Process costs

14,560

21,360

14,240

Find out equivalent production assuming that there is opening work in progress and process loss.

Solution:

Statement of Equivalent Production

Particulars Total Units Equivalent Units

Materials Labour Overhead

Completed 6,000 6,000 6,000 6,000

Work in progress 1,600 1,280 1,120 1,120

7,600 7.280 7,120 7.120

Illustration: 8

483

ABC Ltd. Operates a simple chemical process to convert a single material into 4 + 4 + 2 three separate items,

referred to here as X, Y and Z. All three products are separated simultaneously at a single split off point.

Product X and Yare ready for sale immediately upon split off without further processing or any other additional

costs. Product Z, however, is processed further before being sold. There is no available market price for Z at the split

off point.

The selling prices quoted here are expected to remain the same in the coming year. During 2002-03 the selling

prices of the items and the total amounts sold were :

X

Y

Z

=

=

=

186 tons sold for Rs. 1,500 per ton

527 tons sold for Rs. 1,125 per ton

736 tons sold for Rs. 750 per ton

The total joint manufacturing costs for the year were Rs. 6.25,000. An additional Rs. 3,10,000 was spent to

finish product Z.

There were no opening inventories of X, Y, or Z. At the end of the year, the following inventories of complete

units were on hand:

X

Y

Z

=

=

180 tons

60 tons

25 tons

There was no opening or closing work in progress.

Required

(i) Compute the cost of inventories of X, Y and Z for Balance Sheet purposes and cost of goods sold for

income statement purpose as of March 31, 2003, using:

(a) Net Realizable Value (NRV) method of joint cost allocation.

(b) Constant Gross - Margin Percentage NRV Method of joint cost allocation.

(ii) Compare the gross margin percentages for X, Y and Z using two methods given in requirement(i).

rCA Inter. 2002}

484

Solution:

x

y

z

Sold

186

527

736

+

+

+

+

A Textbook of Financial Cost and Management Accounting

Closing Inventories

180

60

25

=

=

=

=

Total Production

366

587

761

Joint Costs ----.• •4 ----Separable Costs -----..

Joint Costs

Rs.6,25,00

Details

Final Sales Value

Less : Separable Cost

NVR at split off point

Weighting =

Joint Cost Allocated:

X = 6,25,000

Y = 6,25,000

Z = 6,25,000

Ending Inventory (%) :

x

x

x

Ending Inventory (tons)

Total Production

Closing Inventory (%)

Split off

Point

Product X

366 tons Rs. 1500 I ton

Product Y

587 tons Rs. 1125 I ton

Processing

Rs. 3,10,000

(i) (a) Net Realizable Value Method

X y-

Rs. Rs.

5,49,000 6,60,375

(366 x 1,5(0) (578 x 1,125)

- -

5,49,000 6,60,375

5,49,000 6,60,375

14,70,125 14,70,125

= 37.34% = 44.92%

37.34

= Rs. 2,33,375

100

44.92

= Rs. 2,80,750

100

17.74

= Rs. 1,10,875

100

X y

180 60

366 587

49.18% 10.22%

{ 180 } { 5:

-- x 100 x 100 }

366

Z Total

Rs. Rs.

5,70,750 17.80,125

(761 x 750)

3,10,000 3,10,000

2,60,750 14,70,125

2,60,750

14,70,125

= 17.74%

Z

25

761

3.29%

{ 25

761

x 100 }

Joint Product and By-Product

Income Statement:

x y Z

Total Revenues

Rs.

2,79,000

(186 x 1,500)

Less : Cost of Goods

Sold Joint Cost Allocated 2,33,375

Add : Separable Cost .

Cost of goods available for sale 2,33,375

Less : Closing Inventory 1,14,774

[X = 49.18% ]

Y =3.29%

Z = 10.22%

Cost of Goods Sold 1,18,601

Gross Margin 1,60,399

Gross Margin (%) 57.49%

2 (a) (i) (b)

Constant Gross Margin (%) NRV Method

Final Sales Value of Product

(5,49,000 + 6,60,375 + 5,70,750)

Less : Joint & Separable Costs

(Rs. 6,25,000 + Rs. 3,10,000)

Gross Margin

Gross Margin (%)

Details

8,45,125

17,80,125

Final Sales Value of total product

Less : Gross Margin using overall

Gross Margin of Sales (50%)

Less : Separable cost

Joint Cost Allocated

x 100

X

Rs.

5,49,000

2,60,641

2,88,359

.

2,88,359

=

=

=

=

485

Rs. Rs. Rs.

5,92,875 5,52,000 14,23,875

(527 x 1,125) (736 x 750)

2,80,750 1,10,875 6,25,000

· 3,10,000 3,10,000

2,80,750 4,20,875 9,35,000

28,693 13,847 1,57,314

2,52,057 4,07,028 77,686

3,40,818 1,44,972 6,46,189

57.49% 26.26% 45.38%

Rs.

17,80,125

9,35,000

8,45,125

47.4756 %

Y Z Total

Rs. Rs. Rs.

6,60,375 5,70,750 17,80,125

3,13,517 2,70,967 8,45,125

3,46,858 2,99,783 9,35,000

· 3,10,000 3,10,000

3,46,858 (10217) 6,25,000

The negative joint cost allocation to product Z illustrates one 'unusual' feature of the constant gross margin %

NRV method.

Income Statement

Details X Y Z Total

Rs. Rs. Rs. Rs.

Revenues 2,79,000 5,92,875 5,52,000 14,23,875

Cost of Goods Sold :

Joint Cost Allocated 2,88,359 3,46,858 (10217) 6,25,000

Separable Cost . · 3,10,000 3,10,000

Cost of Goods Available for sale 2,88,359 3,46,858 2,99,783 9,35,000

486 A Textbook of Financial Cost and Management Accounting

Less : Closing Inventory 1,41,815 35,449 9,863 1,87,127

(49.18%) (10.22%) (3.29%)

Gross Margin 1,32,456 2,81,466 2,62,080 6,76,002

[Revenues - Cost of goods sold]

Gross Margin (%) 47.4753 % 47.48% 47.48% 47.48%

2 (a) (ii)

The negative joint cost allocation to product Z illustrate one 'unusual' feature of the Constant Gross Margin %

NRV method.

Method

NRV Method

Constant Gross Margin (%) NRV Method

QUESTIONS

1. What do you understand by Joint Product?

2. Explain the important features of Joint Product.

3. What are the objectives of Joint Product Costing?

x

57.49%

47.48%

4. Explain the different methods of apportionment of Joint Product.

S. What is mean by By-Products?

6. What are the important methods of valuation of By-Products?

7. What do you understand by Inter-Process Profits?

8. Explain Equivalent Units.

9. Write short notes on :

(a) Joint Products

(b) By-Products

(c) Net Realizable Value

(d) Physical Unit Method

(e) Inter-Process Profits

(0 Equivalent Units.

10. Choose the Correct Answer:

Product

y

Gross Margin (%)

57.49%

47.48%

(1) The main product is usually produced in greater quantities than the ----

(a) Joint Product (b) By-Products

(c) Work in Progress (d) Finished Products

(2) Joint Cost are allocated according to sales value of individual products under --

(a) Market Value Method (b) Average Unit Cost Method

(c) Survey Method (d) Physical Unit Method

z

26.26%

47.48%

(3) Under the Market Value Method, Joint Costs are allocated according to of individual products

(a) Cost Price (b) Market price or cost price whichever is less

(c) Sales Value (d) Cost and Demand Price

(4) Under the Other Income Method of accounting of by-products, the sales value of the by-products is ----(

a) Credited to Profit and Loss Account (b) Credited to Process Account

(c) Credited to Process Account (d) Credited to By-Product Account

(S) On accounting treatment of by-products, the sales value of the by-products is credited to profit and loss account

under----

(a) Other Income Method (b) Replacement Cost Method

(c) Standard Price Method (d) Cost Method

(6) Under the Average Unit Cost Method of apportionment of joint costs, the cost per unit of each product is the --

(a) Constant (b) Different

(c) Same (d) Semi-Variable

(7) are-of limited sales value produced simultaneously with the products of a greater value

(a) Joint Products (b) By-Products

(c) Semi-Finished Products (d) Finished Products

Joinl Product and By-Product 487

(8) The stage of production at which separate products are identified is known as ----

(a) Split Off Point (b) Break-Even Point

(c) Point of Separation (d) A and C

(9) relate to process and incurred after split off point

(a) Subsequent Costs (b) Joint Costs

(c) By-Product Costs (d) Marginal Costs

(10) The concept of equivalent production is used in case of processes which have at the end of a period

(a) Completed Units (b) Incompleted Units

(c) Joint Products (d) By-Products

(11) If a company obtains two salable products from the refining of one ore. the refining process must be accounted for

as a (am)

(a) Mixed Cost Process (b) Joint Process

(c) Extractive Process (d) Reduction Process

(12) Which of the following components of production are allocable as Joint Costs when a single manufacturing

process produces several salable products?

(a) Material. Labour and Overheads (b) Materials and Labour only

(c) Labour and Overhead only (d) Overheads and Materials only

(13) Joint Products costs generally are allocated using

(a) Relative Sales Value at Split-off (b) Additional Costs after Split-off

(c) Relative Profitability (d) Direct Labour Hours

[Aos: (1) b- By-Products (2) a - Market Value Method (3) c - Sales value (4) a - Credited to Profit and Loss Nc

(5) a - Other Income Method (6) c - Same (7) b - By-Products (8) d - a and c (9) a - Subsequent Costs

(10) b - In completed Units (11) b - Joint Process (12) a - Materials. Labour and Overhead. (13) a - Relative Sales

Value at Split-off]

PRACTICAL PROBLEMS

(1) A by-product A is derived from the manufacture of the main product AB. The by-product is further processed for sale.

From the following data prepare an account showing the cost per kilogram of products AB and A. .

Particulars Joint Expenses Separate Expenses

Rs. AB Rs. A Rs.

Materials 40.000 24.000 2.000

Labour 28.000 20.000 8.000

Overheads 10.000 6.000 2,400

The quantities produced during the period under consideration were :

AB 800Kg and A 2ooKg. The selling price of A is Rs. 480 per Kg on which the profit earned is estimated at 30% of the

selling price.

(2) Hindustan Company producing article X also produces a By-Product Y which is processed into finished product. The

joint cost of manufacture is given below :

Rs.

Materials 10.000

Labour 6.000

Overheads 4,000

20,000

Subsequent Costs

X y

Rs. Rs.

Materials 6.000 3,000

Labour 2.800 2.000

Overheads 1.200 1.000

10.000 6.000

Selling Price Rs.32.ooo Rs.16.ooo

Estimated Profits on Selling Prices are 25% of X and 20% for Y.

Assume that selling and distribution cost are in proportion of sales prices. Show how would you apportion joint cost of

manufacturing and prepare a statement showing cost of production of X and Y.

[ADS: X Rs.23,466; Y Rs.l2.534J

488 A Textbook of Financial Cost and Management Accounting

(3) In a manufacturing concern, production 'A' yields by-products 'B' and 'C.' The joint expenses of manufacturing are :

Materials Rs.l7,OOO, Labour Rs.l8,OOO, Overheads Rs.15,OOO. Subsequent expenses are as follows:

Materials Labour Overhead

Rs. Rs. Rs.

A 5,000 3,800 3,000

B 2,400 3,200 1,800

C 2,800 4,000 2,100

Selling Price: A - Rs.60,OOO ; B - Rs.40,OOO ; C - Rs.30,OOO ; Profit on Selling Price A - 40%; B - 30%; C - 25%.

Show how you would apportion the joint expenses and ascertain profit of each product.

[Ans : Joint Cost: A - Rs. 20,324; B - Rs. 18,014; C - Rs. 11,662

Profit: A - Rs. 24,000; B - Rs. 12,000; C - Rs. 7500]

[MBA Madras, 2001J

(4) In a chemical factory as a result of a certain process two products, X and Y, are produced in the ratio of 3 : 1.

The total cost per 1,000 gallons of product is Rs. 2,000. Product X is marketed at Rs.5 per gallon while product Y sells

at Rs.lO per gallon after going through a refining process. The details of this process are as follows for each gallon of

unrefined product Y :

Output of refined Y 200 gallons

Processing Cost Rs. 600

By-Product Z 20 gallons

Selling Price of Z Rs. 5 per gallons

Apportion the joint cost on a suitable basis

[Ans: Product X - Rs.I430 ; Y - Rs.570]

[MBA Bharathiar. 2002J

(5) In the course of manufacture of the main product P, by-product A and B also emerge. The joint expenses of

manufacturing amount to Rs. 1,19,550. All the three products are processed further after separation and sold as per details given

below:

Sales (Rs.)

Cost incurred after separation (Rs.)

Profit as % on sales

Main Product

P

90,000

6,000

25

By-Product

A

60,000

5,000

20

B

40,000

4,000

15

Total fixed selling expenses are 10% of total cost of sales which are apportioned to the three products in the ratio of

20: 40: 40.

(i) Prepare a statement showing the apportionment of joint costs to the main product and the two by-products.

(ii) If the by-product A is not subjected to further processing and is sold at the point of separation for which there is a

market at Rs. 58,500 without incurring any selling expenses, would you advise its disposal at this stage? Show the

workings.

[Ans: Expenses P - Rs. 58,510 ; A - Rs. 37,200 ; B - Rs. 24,020 ; Total Profit Rs. 44,000]

(6) Two Products P and Q are obtained in a crude form and require further processing at a cost of Rs. 5 for P and Rs. 4 for

Q per unit before sale. Assuming a net margin of 25% on cost, their sale prices are fixed at Rs. 13.75 and Rs. 8.75 per unit

respectively. During the period, the joint cost was Rs. 88,000 and the output were P - 8,000 units and Q - 6,000 units. Ascertain the

joint cost per unit.

[Ans : Joint Cost per unit P - Rs. 8; Q - Rs. 4]

(7) A factory produces three products, P, Q and R which originate from a joint process. The Ioint processing costs amount

to Rs. 1,20,000. The output P, Q and R is 25,000, 15.000 and 10,000 units respectively. The market value of the split-off point is P

Rs. 10; Q Rs. 12 and R Rs.20. Apportion the joint costs amongst the products on (a) Sales price basis and (b) Sales value basis.

[Ans: Ioint cost of sales price basis P Rs. 28,571; Q Rs. 34,286 and R Rs. 57,143.

Joint Cost of Sales value basis P Rs. 2,50,000; Q Rs. 1,80,000 and Q Rs. 2,00,000]

Joint Product and By-Product 489

(8) A factory producing articles A yields P and Q as its by-products. The joint costs of manufacture are-Materials Rs.

40,000; labour Rs. 4,000; overheads Rs. 16,000.

Subsequent costs are as under

Particulars A P Q

Rs. Rs. Rs.

Materials 3,000 2,600 2,000

Labour 400 300 200

Overheads 1,600 1,100 800

5,000 4,000 3,000

Selling prices are } 60,000 48,000 40,000

estimated profit on

Selling price 30% 25% 25%

Show how you would apportion the joint costs of manufacture and prepare accounts showing cost of production in

respect of A, P and Q.

[Aos: Cost of production A Rs. 28,125; P Rs. 24,000 and Q Rs. 19,975)

(9) loint products X,Y,Z,W are produced at a total manufacturing cost of Rs. 1,20,000. Quantities produced are:

x

Y

Z

W

20,000 units

15,000 units

10,000 units

15,000 units

Product X sell for Rs. 50; Y for Rs. 54, Z for Rs. 54 and W for Rs. 56. You are required to prepare the joint cost in the

best possible manner.

[Aos: Total sales value Rs. 31,90,000; Apportionment of loint Cost X Rs. 3,76,176; Y Rs. 3,04,702; Z Rs. 2,03,135

and W Rs. 3,15,987)

(10) From the following information, find the profit made by each product apportionment joint costs on sales-value basis:

loint Cost:

Direct material

Power

Petrol, Oil, Lubricants

Labour

Other charges

Selling Cost

Sales

Product

X

Rs. 20,000

1.52,000

Rs.

1,26,000

25,000

5,000

7,500

4,100

Product

y

Rs. 80,000

1,68,000

[Aos : Apportionment of joint cost and profit cost of product X Rs. 99,610; Y Rs. 1,67,990 Profit X Rs. 52,390;

Y Rs. 10)

(11) Calculate the estimated cost of production of by product X and Y at the point of separation from the main products.

Selling price per unit

Cost per unit after

separation from the main

product

Units produced

By-product

X

Rs. 12

Rs. 3

500

By-product

y

Rs. 24

Rs. 5

200

Selling expenses amount to 25% of total works cost i.e., including both pre-separation and post separation work cost.

490 A Textbook of Financial Cost and Management Accounting

Selling prices are arrived at by adding 20% total cost i.e., the sum of work cost and selling expenses.

[Ans : Estimated cost at the point of separation By-product X Rs. 2,500; By-product Y Rs. 2,2(0)

(12) A factory is engaged in the production of a chemical A and in the course of its manufacture a by-product B, is produced,

which after a separate process has a commercial value. For the month of January 2003 the following are the summarised cost data.

Joint expenses Separate expenses

Rs. A B

Materials 19,200 7,360 780

Labour 11,700 7,680 2,642

Overheads 3,450 1,500 544

The output for the month was 142 tonnes of A and 49 tonnes of B and the selling price of B averaged Rs. 280 per tonne.

Assuming that the profit of B is estimated at 50% of the selling price, prepare account showing the cost of A per tonne.

[Ans: Cost of A chemical Alc Rs. 50,980; By product Y Rs. 6,860; 49 tonnes at Rs. 140 per ton)

000

Meaning

CHAPTER 22

Contract Costing

Contract Costing is a special type of job c.osting where the unit of cost is a single contract. Contract

itself is a cost centre and is executed under the customer's specifications. Contract Costing is defined by

the I C M A Terminology as "that form of specific order costing which applies where work is undertaken

to customer's special requirements and each order is of long duration. The work is usually of constructional

nature."

Contract Costing is also termed as ''Terminal Costing." The principles of job costing are applicable to

contract costing and is used by such concerns of builders, public works contractors, constructional and

mechanical engineering firms and ship builders etc. who undertake work on a contract basis.

SPECIAL FEATURES OF CONTRACT COSTING

The following are the special features of Contract Costing:

(1) The cost unit is a specific contract.

(2) Each contract takes a long time to complete.

(3) The work being of a constructional nature, the same is executed at customer's site, as per his

specifications.

(4) Bulk of the materials purchased and delivered direct to the contract site or obtained from the

central stores through the requisition slips.

(5) Generally specific portions of the contract are given to sub-contractors.

(6) Most of costs which are normally treated as indirect can be identified specifically with a

particular contract and are charged to it as direct costs.

(7) Overheads constitute only a very small proportion of the cost of the contract. However, indirect

costs consist mainly of administrative cost of the central office.

492 A Textbook of Financial Cost and Management Accounting

(8) Scale of operations and cost control becomes difficult due to theft of materials, labour time

utilization, pilferages etc.

(9) The pay roll is prepared either at the site or at a central administrative office.

Recording Cost o~ Contract or Costing Procedure

In contract costing, costs are allocated, collected and accumulated according to the contract works.

Each contract is treated as a separate entity in which each contract account may be maintained separately

or in general ledger itself for the purpose of costing and cost control. The following are the costing

procedure for different costs relating to the important expenses :

(1) Materials:

(A) Contract Account is debited with the following transactions relating to materials :

(I) Bulk of materials are purchased for a specific contract from suppliers.

(2) Materials obtained from contractor's central stores through the requisition slips.

(3) Materials transferred from one contract to another contract.

(4) Value of materials remaining unutilized on site during the accounting year.

(B) Contract Account is credited with the following transactions relating to materials:

(1) Materials returned under Materials Return Note.

(2) Sale of materials at site on account of some extraneous reasons.

(3) Materials transferred to other contracts.

(4) Materials stolen or destroyed by fire.

(5) On completion, if a part of materials received from the stores are returned.

(C) Any profit or loss on materials account is transferred to the Profu and Loss Account:

(I) Sale price is different from the cost price.

(2) Resulting from the sale of materials at site.

(3) Resulting from the materials stolen or destroyed by fire.

(2) Labour: In the case of contract costing, all labours engaged at site and the salaries and wages paid

to the labour and workers are treated as direct labour cost is debited to Contract Account.

(3) Direct Expenses: Most of the expenses like electricity, insurance telephone, postage, sub-contracts,

Architect's fees etc. can also be treated as direct cost is debited to Contract Account.

(4) Overhead Cost: In the case of contract costing overheads incurred only an insignificant part of the

total cost of contract account. The nature office and administrative expenses of a particular contract may be

apportioned on suitable basis.

(5) Plant and Machinery: For use of plant and machinery in a particular contract, the treatment of

plant costs in any of the two ways:

(a) Where a plant has been specially purchased for a particular contract and will be exhausted

at site Contract Account should be debited with the cost of the plant. On completion of the

contract the residual or written down value as shown by the Plant Ledger will be credited "to

the Contract Account.

Contract Costing 493

(b) When the plant and machinery are required to the contract site only for a shorter period, the

contract account should be debited with the notional amount of depreciation based on some

estimates be charged to Contract Account.

(6) Sub-Contracts: Sub-Contracts refer to some portions of the specified work connected with the

main contract, to be done by the sub-contractor. For example, the work of painting, special flooring, steel

work etc. may be given to the sub-contractors. Usually sub-contract has been undertaken on cost-plus basis

and the cost of such sub-contract should be treated as a direct charge and is debited to Contract Account.

(7) Work Certified: In the case of the small contracts which are completed within the shorter period,

the contractor pays the contract price on the completion of the contract. In the case of contracts of long duration.

the contract agreement provides interim payment to the contractor. It is done on the basis of certificates issued

by the contractee's Surveyor, Architect or Engineer. At the same time Contractee usually does not pay to the

full value of the work certified. A portion of amount say 20% or 30% thereof shall be retained by the Contractee.

The money so retained is called as "Retention Money." This retention money is intented to ensure that the

contractor to complete the work as scheduled and according to specifications. Money retained could also be

used for imposing penalties for faulty or delayed work. This amount will be settled on completion of the

contract.

(8) Work Uncertified : If the progress of a work is unsatisfactory or the work has not reached the

stipulated stage, though certain work is completed, such work does not qualify for a certificate by the

Contractee's Architect or Surveyor is termed as "Work Uncertified." It is valued at cost and credited to Contract

Account and debited to Work in Progress Account.

(9) Work in Progress: Work in progress includes the amount of work .certified and the amount of work

uncertified. The work in progress account will appear on the asset side of the balance sheet. The amount of

cash received from the contractee and reserve for contingencies will be deducted out of this amount.

Treatment of Profits or Loss on Contracts Alc.

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

(A) Profit or Loss on incomplete contracts

(B) Profits or Loss on completed contracts

(A) Profit or Loss on Incomplete Contracts

To determine the profits to be taken to Profit and Loss Account. in the case of incomplete contracts,

the following situations may arise :

(i) Completion of Contract is Less than 25% : In this case no profit should be taken to Profit and

Loss Account.

(ii) Completion of Contract is upto 25% or more but Less than 50% : In this case one-third of

the notional profit, reduced in the ratio of cash received to work certified, should be transferred to Profit

and Loss Account. It can be expressed as :

1 Cash Received

-- x Notional Profit x ------

3 Work Certified

(iii) Completion of Contract is upto 50% or more but Less than 90% : In this case two-third of

the notional profit reduced by proportion of cash received to work certified is transferred to Profit and Loss

Account. The equation is

494 A Textbook of Financial Cost and Management Accounting

2

3

x Notional Profit x

Cash Received

Work Certified

(iv) Completion of Contract is upto 90% or more than 90%, i.e., it is nearing completion: In

this case the profit to be taken to Profit and Loss Account is determined by determining the estimated

profit and using anyone of the following formula :

Work Certified

(a) Estimated Profit x

Contract Price

Work Certified Cash Received

(b) Estimated Profit x x

Contract Price Work Certified

(or)

Cash Received

Estimated Profit x

Contract Price

Cost of Work to Date

(c) Estimated Profit x

Estimated Total Cost

Cost of Work to Date Cash Received

(d) Estimated Profit = x

Estimated Total Cost Work Certified

Work Certified

(e) Normal Profit =

Contract Price

Escalation Clause: This clause is often provided in contracts as safeguard against any likely changes

in price or utilization of material and labour. Such a clause in a contract would provide that in the event of a

specified contingency happening, the contract price would be suitably enhanced by an agreed formula or factor.

This clause is particularly necessary where the prices of a certain raw material are likely to rise. where labour

rates are anticipated to increase, or where the quantity of material and labour hours cannot be assessed properly

or estimated unless the job has progressed sufficiently.

Cost-Plus Contract: These contracts provide for the payment by the contractee of the actual cost of

manufacturing plus a stipulated profit. The profit to be added to the cost may be a fixed amount or it may be

a stipulated percentage of cost. These contracts are generally entered into when at the time of undertaking of

a work, it is not possible to estimate it's cost with reasonable accuracy due to unstable condition of material.

labour etc. or when the work is spread over a long period of time and prices of materials. rates of labour etc.

are liable to fluctuate.

(B) Profits or Loss on Completed Contracts

When a contract is completed, the overall profit or loss on the contract is transferred to the Profit and

Loss Account.

Contract Costing

Illustration: 1

The following are the expenses on a contract which commences on 1st Jan. 2003

Materials purchased

Materials on hand

Direct wages

Plant issued

Direct expenses

1.00.000

5.000

1.50.000

50.000

80.000

495

The contract price was Rs. 15.00.000 and the same was duly received when the contract was completed in

August 2003. Charge indirect expenses at 15% on wages. provide Rs. 10.000 for depreciation on plant and prepare the

contract account and the contractee's account.

Solution:

Contract Account

Particulars Amount Particulars Amount

Rs. Rs.

To Materials Purchased 1.00.000 By Materials on hand 5.000

To Direct Wages 1.50.000 By Plant on hand

To Direct Expenses 80.000 (Rs.50.000 - 10.(00) 40.000

To Indirect Expenses } By Contractor's Alc

(15% on wages) 22.500 (Contract Price) 15.00.000

To Depreciation on Plant 10.000

To Profit & Loss Alc 11.82.500

15,45.000 15,45.000

Contractee's Account

Particulars Amount Particulars Amount

Rs. Rs.

To Contract Alc 15.00.000 By Bank 15.00.000

15.00.000 15.00.000

Illustration: 2

How much profit. if any, you would allow to be considered in the following case?

Contract cost

Contract value

Cash received

Uncertified work

Rs. 2.80.000

Rs. 5.00.000

Rs. 2.70.000

Rs. 30,000

Deduction from bills by way of security deposit is 10%.

Solution:

Cash Received =

Work Certified =

100 - 10% = 90% of work certified

100

Cash Received x

90

{MBA: Madras, 2001 J

496

Value of work certified

Notional Profit

=

=

=

=

=

A Textbook of Financial Cost and Management Accounting

100

2,70,000 x -- = Rs. 3,00,000

90

Rs.3,OO,OOO

Work in progress - Contract cost

(3,00,000 + 30,000) - 2,80,000

Rs.50,OOO

Calculation of % of Work Certified

=

3,00,000

5,00,000

x 100 = 60%

60% of work certified is more than 50% of the contract value .

. '. Profit to be considered for crediting to P & L Alc

2 Cash Received = Notional Profit x-- x

3 Work Certified

2 90

= 50,000 x -- x -- = Rs. 30,000

3 100

Alternatively

2 Cash Received

Profit to be taken = Notional Profit x- x-------

3 Work Certified

2 2,70,000

= Rs.50,000 x- x

3 3,00,000

= Rs.30,OOO

Illustration: 3

The following is the ledger balance of Himalayan Construction Company engaged on the execution

of ABC Apartments for the year ending 31st March 2003.

Direct Wages

Bank Balances

Rates and Taxes

Direct Expenses incurred

General overhead allocated

Fuel and power expenses

Materials issued to contract

Furniture

Plant and Machinery (60% at site)

Land and Building

1,25,000

66,500

7,500

2,500

6,000

62,500

7,00,000

30,000

12,50,000

11,50,000

The ABC Apartments was commenced on 1 st April 2002. Himalayan paid up capital of

Rs. 25,00,000. The contract price was Rs. 30,00,000. Cash received on account of contract up to 31 st March 2003 was

Rs. 9,00,000 (being 90% of the work certified). Work completed but not ctlrtified was estimated at Rs. 50,000. As on

31st March 2003 materials at site was estimated at Rs. 15,000. Machinery at site costing Rs. 1,00,000 was returned to

stores and wages outstanding were Rs. 2.500. Plant and machinery at site is to be depreciated at 5%.

Prepare the Contract Account and Balance sheet.

Contract Costing 497

Solution:

Himalayan Construction Ltd.

Contract Account

(for the year ended 31st March 2003)

Paniculars Amount Particulars Amount

Rs. Rs.

To Materials 7,00,000 By Materials at site 15,000

To Direct wages 1,25,000 By Machine returned }

To Wages outstanding 2,500 (Rs.I,OO,OOO - 5 % of 95,000

To Plant & Machinery } 1,00,000)

as site (60%) 7,50,000 By PI,", ,tKI M",hi""'l' }

To Fuel and Power 62,500 at site (Rs. 6,50,000 - 5% 6,17,500

To Direct expenses 2,500 of Rs. 6,50,000)

To General overhead 6.000 By Work in Progress:

To Rates & Taxes 7.500 100

To Notional profit cld 1.21.500 Rs. 9,00.000 x --

90

= IO,OO.OOO

Uncertified 50,000 10,50.000

17,77,500 17.77.500

To Profit and Loss Nc By National Profit bid 1.21.500

[1,21,500 x \_1\_ x ~ ] 36,450

3 100

To Work in Progress (Reserve) 85,050

1,21.500 1,21,500

Balance Sheet

Liabilities Amount Assets Amount

Rs. Rs.

Share Capital 25,00,000 Land and Building 11.50.000

Profit and Loss Nc 36,450 Plant and Machinery at site 6,17.500

Wages Outstanding 2,500 Plant and Machinery (store) 5.95,000

Furniture 30.000

Bank Balances 66,500

Work in Progress:

Work Certified 10.00.000

Work Uncertified 50,000

10.50.000

Less: Cash Received 9.00.000

1,50.000

Less : Reserve 85,050 64,950

Materials at site 15,000

25,38,950 25,38.950

498

Illustration: 4

A Textbook of Financial Cost and Management Accounting

MIs. Sidhu Associates commenced the work on a particular contract on 1st April 2003. They close

their books of accounts for the year on 31st December of each year. The following information is

available from their costing records on 31st Dec. 2003 ..

Materials sent to site

Foremen's Salary

Wages paid

Rs.

43,000

12,620

1,00,220

A machine costing Rs. 30,000 remained in use on site for 1/5th of year. Its working life was estimated at 5 years

and scrap value at Rs. 2,000.

A supervisor is paid Rs. 2,000 per month and had devoted one-half of his time on the contract.

All other expenses were Rs. 14,000. The materials on site were Rs. 2,500. The contract price was Rs. 4,00,000.

On 31st December 2003, 2/3rd of the contract was completed; however, the Architect gave certificate only for

Rs. 2,00,000, on which 80% was paid. Prepare Contract Account.

Solution:

Paniculars

To Materials

To Direct

To Foremen's Salary

To Plant

To Supervisor

To Other Expenses

To Profit & Loss Nc

Working Notes :

(1) Plant Ale

Plant

Less : Scrap Value

Contract Account

Amount

Rs.

43,000.00

1,00,220.00

12,620.00

30,000.00

9,000.00

14,000.00

35,683.20

2,44,523.20

Rs.

30,000

2,000

28,000

Particulars

By Plant

By Material in hand

By Work in progress

(Balance figure)

Depreciation =

28,000

5

x -- = Rs. 1,120

5

Net Plant Value = 30,000 - 1,120 = Rs. 28,800

(2) CalCulation of Profit : Rs.

Expenditure till 31. 12.2003 2,08,840

Less : Materials and Plant 31,380

1,77,460

Less : Cost of uncertified work 44,365

1,33,095

Less : Work Certified 2,00,000

Profit up to date 66,905

Amount

Rs.

28,880.00

2,500.00

2,13.143.20

2,44,523.20

Contract Costing 499

Profit on 80%

66,905 2 80

= x -- x = Rs. 35,683.20

3 100

Cost of Uncertified Work: As the 213rd of the work was completed for a cost of Rs. 1,77,460

therefore the estimate for the total cost would be Rs. 2,66,190. Architect's certificate represents ~ of the

contract price and therefore cover expenditure of ~ of Rs. 2,66,190, i.e., Rs. 1,33,095. Hence, the cost of

work uncertified Rs. 1,77,460 - Rs. 1,33,095 = Rs. 44,365.

Illustration: 5

William Construction Company Ltd. obtained a contract for the erection of a multi-story building.

Building operations started in July 2002. The contract price was Rs. 9,00,000. On 30th June 2003, the end

of the financial year, the cash received on account was Rs. 3,60,000 being 80% of the amount on the

surveyor's certificate.

The following additional information is given below:

Materials issued to contract

Materials on hand 30. 6. 2003

Wages

Plant purchased specially for contract

and to be depreciated at 10% per annum }

Direct expenses incurred

General overhead allocated to contract

Work finished but not yet certified: cost

Rs.

1,80,000

7,500

2,46,600

30,000

12,900

7,600

15,000

You are required to prepare the contract account and statement showing the profit on the contract to 30th June

2003, indicating what proportion of the profit the company would be justified in taking to the credit of the profit and

loss account, and to show what entries in respect of the contact would appear in the balance sheet.

Solution:

Paniculars

To Materials

To Plant

To Wages

To Direct Wages

To Overheads

To Cost of Contract bId

To Profit & Loss Nc

To Work in Progress

(Reserve)

William Construction Co Ltd.,

Contract Alc for the year ended 30th June 2003

Amount Paniculars

Rs.

1,80,000 By Plant at site

30,000 By Material in hand

2,46,600 By Cost of Contract c/d

12,900

7,600

4,77,100

4,42,600 By Work in Progress:

11,946 Work Certified

10,454 Work Uncertified

4,65,000

Amount

Rs.

27,000

7,500

4,42,600

4,77.100

4,50,000

15,000

4,65,000

500 A Textbook of Financial Cost and Management Accounting

Statement showing computation of Profit taken to Profit and Loss Ale :

Profit made to date } Rs. 22,400

Profit taken to P & L Alc

[

22,400X 2 x ~J 3 100

Since half the contact is complete

213rd profit as reduced on cash basis

may safely be taken to P & L Alc

Profit taken back to WIP being }

Reserved carried forward

Extract from the Balance Sheet as on 31st June 2003 :

Assets

Plant at site: cost

Less " Depreciation provided

Current Assets :

Work in progress: Work Certified

Work Uncertified

Rs. 11,946

Rs. 10,454

Less,' Balance of profit not taken to P & L Alc

Less,' Cash received from contractee's

Add " Materials at site

Illustration: 6

Rs.

30,000

3,000

4,50,000

15,000

4,65,000

10,454

4,54,546

3,60,000

93,546

7,500

Rs.

27,000

1,02,046

Paramount Engineers are engaged in construction and erection of a bridge under a long-term

contract. The cost incurred up to 31. 03. 2003 was as under:

Fabrication

Direct Materials

Direct Labour

Overheads

Erection cost to date

Rs. in lakhs

280

100

60

440

llO

550

The contract price is Rs. 11 crores and the cash received on account till 31.03.2003 was Rs. 6 crores.

A technical estimate of the contract indicates the following degree of completion of work :

Fabrication - Direct Materials - 70%, Direct labour and overheads 60%; Erection - 40%.

You are required to estimate the profit that could be taken to profit and loss account against this partly completed

contract as at 31.03.2003.

Contract Costing

Solution: .

Estimated Cost and Profit o~ Completion of the Contract

Particulars

Direct Materials

Direct Labour

Overheads

Erection

Cost incurred up to

31.3.03 Rs. in lakhs

280.00

100.00

60.00

110.00

Total 550.00

Contract Price

Profit on completion (1,100 - 941.67)

Completion

%

70%

60%

60%

40%

Estimated cost on

completion of 100%

Rs. lakhs

400.00

166.67

100.00

275.00

941.67

1,100.00

158.33

Profit on cost of Rs.9.41.67 lakhs is Rs.158.33 lakhs. Therefore, profit on cost to date of Rs.550 lakhs.

Work Certified

= 550 x 158.33

941.67

= Cost + Profit

= Rs. 92.48 lakhs

= Rs. 550 + Rs. 92.48 = Rs. 642.48 lakhs

Degree of completion of contract is :

=

642.48 x 100

1,100

The contract is more than· half complete.

= 58.41 %

Profit to be taken to Profit and L~ss Account of the year is :

2

3

x Notional Profit x

Cash Received

Work Certified

=

2 x 92.48 x 600

3 x 642.48

= Rs. 57.58 lakhs.

Illustration: 7

The following information relates, to a building contract for Rs. 1,00,00,000

2002 2003

Rs. Rs.

Materials issued 30,00,000 8,40,000

Direct Wages 2,20,000 10,50,000

Indirect Expenses 60,000 14,000

Work Certified 75,00,000 1,00,00,000

Work Uncertified 80,000

Materials at site 50,000 70,000

Plant issued 1,40,000 20,000

Cash received from contractor 60,00,000 10,00,0000

The value of plant at the end of 2002 and 2003 was Rs. 70,000 and Rs. 50,000 respectively.

501

502

Solution:

Particulars

To materials issued

To Direct wages

To Direct Expenses

To Indirect Expenses

To Plant Issued

To profit cld

To profit & Loss Alc

To work in progress

A Textbook of Financial Cost and Management Accounting

Contract Account for 2002

Amount Particulars Amount

Rs. Rs.

30,00,000 By Materials at site 50,000

23,00,000 By Plant at site 70,000

2,20,000 By work in progress:

60,000 Work certified 75,00,000

Work uncertified 80,000

75,80,000

1,40,000

19,80,000

77,00,000 77,00,000

10,56,000 By profit bid 19,80,000

9,24,000

19,80,000 19,80,000

Profit taken to profit & Loss Alc :

= Total profit x 2/3 x

= Rs. 19,80,000 x 2/3 x

Particulars

2002 To Balance cld

2003 To Contract Alc

Particulars

To materials at site bid

To Plant at site bid

To work in progress:

(75,80,000-9,24,000)

To Materials issued

To Direct wages

To Direct Expenses

To Indirect Expenses

To Plant Issued

To Profit & Loss Alc

Cash Received

Work Certified

50,00,000

75,00,000

= Rs. 10,56,000

Contractee's Account

Amount Particulars

Rs.

60,00,000 2002 By cash

60,00,000

1,00,00,000 2003 By Balance bid

By cash

1,00,00,000

Contract Account for 2003

Amount Particulars

Rs.

50,000 By Material at site

70,000 By Plant at site

66,56,000 By Contract Ale

8,40,000

10,50,000

1,00,000

14,000

20,000

13,20,000

1,01,20,000

Amount

Rs.

60,00,000

60,00,000

60,00,000

40,00,000

1,00,00,000

Amount

Rs.

70,000

50,000

1,00,00,000

1,01,20,000

Contract Costing 503

Illustration: 8

The following figures were in respect of contract No: 999 ofL & T Construction Ltd. for the year 2003:

Materials purchased and delivered to work site

Materials issued from site stores

Materials retumed to stores

Site wages

Site office expenses

Plant transferred to site

Plant retumed from site

Consulting and design fees

Sub contract work

Central Office Overhead @ 10% Site Wages

Rs.

4,50,000

45,000

5,000

1,50,000

20,000

50,000

15,000

13,000

52,000

The year end figures were in respect of Contract No. 999 of L & T Construction Ltd.

Plant at site

Material at site

Prepayments

Accruals

Cost of work done but not certified

Value of work certified by Architect

Rs.

18,000

10,000

2,000

3,000

35,000

8,63,000

On account payment received by L & T Construction Ltd. less 10% retention money; prepare: (a) Contract

Account (b) Profit and Loss on Contract Account and (c) Customer's Account.

I. Contract Account

Particulars Amount Particulars Amount

Rs. Rs.

To Materials purchased 4,50,000 By Materials at site 10,000

and delivered to work at site

To Materials issued 45,000 By Materials returned to stores 5,000

To Site wages 1,50,000 By cost of contract c/d 7,48,000

To Site office expenses

Rs.20,OOO

Add : Accruals : 3,000

23,000

Less: Prepayments 2,000 21,000

To Plant Rs.50,OOO

Less : Returned 15,000

35,000

Less : Plant at site 18,000

Depreciation on plant 17,000

To Consulting & Design fees 13,000

To Sub-contract work 52,000

To Central office overhead }

10% of site wages 15,000

7,63,000 7,63,000

504

Particulars

To Cost of Contract bId

To P& L Alc Profit taken

To Profit in Reserve

A Textbook of Financial Cost and Management Accounting

II. Profit and Loss on Contract Account

Amount Particulars Amount

Rs. Rs.

7,48,000 By contractee Alc 8,63,000

Value of work certified

90,000 By cost of work not certified 35,000

60,000

8,98,000 8,98,000

Note: In the absence of total contract value, it has been presumed that the work has been reasonably advanced.

Hence the following formula is to be applied in order to arrive at the profit to be taken to

P & L Ale:

2/3 x National Profit x

Notional Profit

Value of work certified

Cash Received

Work Certified .

Rs.

8,63,000

Cost of contract Rs. 7,48,000

Less : Cost of work

not certified Rs. 35,000 7,13,000

Notional Profit 1,50,000

Cash Received

Profit to be taken to P & L Ale

Particulars

To contract Nc

To Balance bId

QUESTIONS

= Rs. 8,63,000 - 10% retention money

= Rs. 8,63,000 - 86,300 = Rs. 7,76,700

2 7,76,700

= - x 1,50,000 x

3 8,63,000

= Rs. 90,000

III. Contractee Accountant

Amount Particulars

Rs.

8,63,000 By Cash Nc

By Balance cld

8,63,000

86,300

1. What do you understand by Contract Costing?

2. Explain the essential features of Contract Costing?

3. Explain the important costing procedure of Contract Costing?

4. Write short notes on:

(a) Sub-Contracts

·Amount

Rs.

7,76,700

86,300

8,63,000

,

Contract Costing

(b) Work Certified

(c) Cost-Plus Contract

(d) Escalation Clause

(e) Work Uncertified

5. Explain and determine the profit to be taken to profit and loss account in case of incomplete contract

Choose the correct answer:

I. Contract costing is a basic method of

(a) Historical costing

(c) Process costing

2. Contract costing usually applicable in

(b) Specific order costing

(d) Standard costing

(a) Constructional Works (b) Textile Mills

(c) Cement Industries (d) Chemical Industries

3. In contract costing, determination of work in progress include:

(a) Work Certified (b) Work Uncertified

(c) Retention Money (d) Both a and b

4. Work Certified is valued at

(a) Cost price (b) Market price

(c) Cost or market price whichever is less (d) Estimate price

5. The degree of completion of work is determined by comparing the work certified with

(a) Contract price (b) Work in progress

(c) Cash received on contract (d) Retention money

6. In contract costing credit is taken only for a part of the profit on

(a) Completed contract (b) In complete contract

(c) Cost-plus contract (d) Work Certified

7. Escalation Clause in a contract to prefect the interest of

(a) Contractor (b) Contractee

(c) Surveyor (d) Contractee's Architect

8. In contract costing payment of cash to the contractor is made on the basis of

(a) Uncertified work (b) Certified work

(c) Work in progress (d) Estimated value

9. Materials returned under material return note credited to

(a) Contract account (b) Work in progress account

(c) Plant and machinery account (d) Profit and loss Nc

10. Cash received on contract is credited to

(a) Contract Account (b) Plant Account

(c) Work in Progress Account (d) Contractee's Account

505

[Ans: (1) b - Specific order costing (2) a - Constructional works (3) d - Both a and b (4) a - Cost price

(5) a - Contract price (6) b- Incomplete Contract (7) b - Contractee Account (8) b - Certified Work (9) a - Contract

Account (10) d - Contractee's account)

PRACTICAL PROBLEMS

(1) Kishore undertook a contract for the construction of houses on 1st Jan. 2003. The contract price was Rs. 22,50,000. The

following details are available for 2003

Materials purchased 3,60,000

Materials issued from stores 45,000

Labour 1,35,000

Plant installed at site 1,80,000

Direct expenses 90,000

Establishment charges 22,500

Materials returned to stores 22,500

Materials on hand at the end 9,000

Plant in hand at the end 1,35,000

Wages outstanding 27,000

Direct expenses outstanding 36,000

Work uncertified 2,25,000

Cash received (80% of work certified) 9,00,000

Prepare the Contract Account Show the relevant items in the balance sheet.

[Ans: Profit taken Rs. 3,31,200 ; WIP Rs. 1,60,200 ; Asset side Rs. 3,26,700)

506 A Textbook of Financial Cost and Management Accounting

(2) A Contractor's firms, having undertaken construction work at a contract price of Rs. 2,50,000, began the execution of

the work on 1st July 2003. The following are the particulars of the contract up to 31st December 2003 :

Machinery installed at site 15,000

Materials sent to site 85,349

Labour at site 74,375

Chargeable expenses 3,167

Overhead allocated 4,126

Materials returned from site 550

Work certified by the Architect 1,95,000

Cash received 1,50,000

~~~~~~~ed ~

Materials on hand 31.12.2003 1,883

Wages occurred due on 31.12.2003 2,690

Value of machinery as on 31.12.2003 11,000

Draw up the contract account showing therein the profit that should be taken to the credit of the profit and loss account

for the year ended 31st December 2003. Give reasons for your treatment of the profit on the uncompleted contract.

[Ans : Gross profit Rs. 28,226 ; Amount credited to profit and loss Nc Rs. 14,475]

(3) MIs Kishore and Company commence work on a particular contract on 1st April 1997. They close their books of

accounts for the year on 31st December each year. The following information is available from their closing records on 31.12.2003 :

Materials sent to site 50,000

Foreman's salary 12,000

Wages paid 1,00,000

A machine costing Rs.32,ooo remained in use on site for 1I5th of the year. Its working life was estimated at 5 years and

scrap value at Rs. 2000. A supervisor is paid Rs. 2000 per month and had devoted one-half of his time on the contract.

All other expenses were Rs.15,ooo. The material on site was Rs.9000. The contract price was Rs.4,oo,ooo on 31st

December, 2/3rd of the contract was completed. However, the Architect gave certificate only for Rs. 2,00,000 on which

75% was paid.

Prepare the Contract Account in the Company's book.

[Ans: Notional profit Rs. 66,350, WIP Rs. 33,175]

(4) A Contractor obtained a contract for Rs. 6,00,000 on 1st January 2003. The expenses incurred during the year ended

31st December, 2003 were as under:

Materials 1,80,000

Wages paid 1,60,000

Wages occurred 10,000

Other expenses 25,000

The plant specially installed for the contract worth Rs. 45,000 was returned to the stores subject to the depreciation of

20% materials on 31st December 2003, were valued at Rs. 24,000.

Upto 31st December, the contractor had received Rs.3,6O,ooo in cash representing 80% of the Work Certified. Work

uncertified was estimated at Rs.4000. Prepare the Contract Account, showing the profit for the year. Also how the

value of work in progress would appear in the Balance Sheet as on 31st December 2003.

[Ans: Profit to P & L Nc Rs. 50,133.33; Profit to reserve Rs. 43,866.67]

(5) Write up a contact account from the following particulars:

Direct materials

Wages

Special plant

Stores issued

Loose tools

Cost of Tractor:

39,600

26.400

17,600

7,040

3,300

Running materials 2,200

Wages of driver 3,520

Other direct charges 2,640

The contract was completed in 13 weeks at the end of which period the plant was returned subject to a depreciation of

15% on the original cost. The values of loose tools and stores returned were Rs. 2,200 and Rs. 890 respectively. The

value of the factor was Rs. 20,000 and a depreciation was to be charged to this contract at the rate of 15% per annum.

You are required to provide administration expenses at the rate of 10% on the total works cost.

[Ans : Administration cost Rs. 8,500; works cost Rs. 85,000]

Contract Costing 507

(6) Gupta & Co. Ltd. commenced the work on a particular contract on I" April 2003. They close their books of accounts for

the year on 31" December each year. The following information is available from their costing records on 31" December 2003.

Rs.

Material sent to site 5,00,000

Furemen's Salary 1,20,000

Wages paid 10,00,000

A machine costing Rs. 3,20,000 remained in use on site for 115'" of the year. Its working life was estimated at 5 years

and scrap value at Rs. 20,000. The supervisor is paid Rs. 20,000 per month an had devoted one-half of his time on the

contract.

All other expenses were Rs. 1,50,000. The materials on site were Rs. 90,000. The contract price was Rs. 40,000. On 31"

December 2003, 213 of the contract was completed; however the Architect gave certificate only for Rs. 20,00,000 on

which 75% was paid. Prepare the contract Account.

[Ans: Contract Alc: National profit Rs. 6,63,500; Estimated total cost of contract Rs. 26,73,000; Cost of work certified

Rs. 4,45,500]

(7) Pandey & Co. Ltd. undertook a contract for erecting a sewerage treatement plant for a city for a total value of Rs. 2.4

crores. It was expected that the contract would be completed by 31" March 2003. You are required to prepare a contract account for

the year ending 31" March 2002 from the following particulars :

(a) Materials

(b) Wages

(c) Overheads

(d) Special plant

(e) Depreciation @ 10% to be provided on plant.

(0 Materials laying at site on 31.12.2002 Rs. 4 lakhs

Rs.

30lakhs

60 lakhs

121akhs

20lakhs

(g) Work certified was to the extent of Rs. 1.6 crores and 80% of the same was received in cash.

(h) 5% of the value of material issued and 6% of wages may be taken to have been incurred for the portion of the work

completed but not yet certified.

(i) Overheads are charged as a percentage of direct wages.

(j) Ignore depreciation on plant for use on uncertified portion of the work.

(k) Ascertain the amount to be transferred to Profit & Loss Alc on the basis of realized profit.

[Ans: Work uncertified Rs. 58,02,000; Amount transferred to P&L Alc Rs. 35,10,400; National Profit Rs. 65,82,000]

(8) Gupta & Co. Ltd. Civil Engineering Contractor propose to tender for the construction of a Seminar Hall in a Educational

Institution and estimate their direct costs as Rs. 15,00,000.

Rs.

Direct Materials 6,00,000

Direct Labour (2100 man days of various categories) 6,30,000

Cost of transport of men and materials to work site 1,70,000

Other direct expenses 1,00,000

Existing commitments of modem construction for the year necessitate an overhead expense of Rs. 85,05,000 against

execution of works, the direct labour cost of which amount to 56,70,000. Assuming that whole of the overhead expense

is variable (for the sake of simplicity and tendering calculate the estimated value of tendering duly providing for

(a) necessary overheads (b) Interest at 5% on the average of capital outlay and (c) 10% margin.

[Ans: Price to be quoted Rs. 27,56,740]

(9) From the following information of Nigma & Co. Ltd. prepare the contract account for 2003. Also show what part of the

p. '''t on the contract should be taken credit of 2003? The contract price for Rs. 80,00,000.

Materials issued from stores

Wages paid

General charges

Plant instalIed at Site on I~ July 2003

Materials on hand at close

Wages accurred due

Work certified

Work com pled but not certified

Cash received

Rs.

15,00,000

22,00,000

80,000

4,00,000

80,000

80,000

40,00,000

1,20,000

30,00,000

508 A Textbook of Financial Cost and Management Accounting

Materials transferred to other contracts

Materials received from other contracts

Depreciation on plant is to be provided at 10% P.A.

80,000

20,000

[Ans: National profit Rs. 3,80,000; Work uncertified Rs. 1,20,000; Transfer to P&L Nc Rs. 1,90,000]

(10) The following is the information relating to contract No. 555

Contract price

Wages

General Expenses

Raw materials

Plant

Rs.

6,00,000

1,64,000

8,600

1,20,000

20,000

As on date, cash received was Rs. 2,40,000 being 80% of work certified. The value of materials remaining was

Rs. IO,OOO. Depreciate plant by 10%. Prepare contract Account showing profit to be credited to Profit and Loss Nc.

[Ans: National profit cld Rs .. 3,00,000; Transfer to P&L Nc Rs. 8,213]

DOD

Meaning

CHAPTER 23

Uniform Costing

Uniform Costing is not a distinct method of costing. In fact when several undertakings start using

the same costing principles and or practices, they are said to be following uniform costing. The basic idea

behind uniform costing is that the different firms in an industry should adopt a common method of coding

and apply uniformly the same principles and techniques for better cost comparison and common good.

Objectives

(1) Facilitates cost control and cost reduction.

(2) Fixing of common sales price among the different units.

(3) Improving performance of inefficient units by adopting uniform principle and practices.

(4) Facilitates inter-firm comparison of cost of production.

(5) Establishment of common standard for the operations of different units.

(6) Formulation of common policies, methods and procedures for the participating units.

(7) Ensures reasonable price to customers and profits to producers.

(8) Facilitates exchange of ideas and sharing experience to improve the overall performance of

common units.

(9) Avoidance of monopolistic trade practice among member units.

(10) To ensures steady demand and supply of finished goods for participating units.

Essential Requisites for Installation of Uniform Costing

The following are the essential requisites to be considered for the installation of uniform costing

system:

( 1 ) The firms in the industry should be willing to share I furnish relevant data I informations.

(2) A spirit of co-operation and mutual trust should prevail among the participating firms.

5/0 A Textbook of Financial Cost and Management Accounting

(3) Mutual exchange of ideas, methods used, special achievements made, research and know-how

etc. should be frequent.

(4) Bigger firms should take the lead towards sharing their experience and know-how with the

smaller firms to enable the latter to improve their performance.

(5) Uniformity must be established with regard to several points before the introduction of uniform

costing in an industry. Uniformity should be with regard to the following points.

(a) Size of various units covered by uniform costing.

(b) Production methods.

(c) Accounting methods, principles and procedures used.

Advantages of Uniform Costing

The following are the important advantages of Uniform Costing:

(1) Uniform Costing facilitates cost comparison among different units which helps to measure the

performance of individual units.

(2) Adopting uniform costing technique ensures the efficiency of productivity.

(3) Effective cost control and cost reduction is possible.

(4) It helps to improve the performance of un profitable activities or operations.

(5) Effective co-operation and co-ordination among the employees and employer is possible.

(6) It helps to the Government for fixing the sales price, granting subsidy and formulating policies

etc.

(7) It ensures the fixing of minimum wage or fair wage structure in all common units.

(8) Unhealthy or monopolistic competition can be eliminated.

(9) It helps to the management in exercising decisions regarding make or buy, exporting and key

factors of common units.

(10) It encourages smaller firms to improve their productivity at lowest cost.

limitations of Uniform Costing

(1) It may not be possible to adopt uniform standard methods and procedures of costing in different

firms because of different circumstances in which they operate.

(2) Disclosure of cost information is the essential requirement. Many firms do not wish to share

such information with their competitors.

(3) Small firms believe that uniform costing is only meant for big and medium sized firms because

the small firms cannot afford it.

(4) It induces monopolistic trend because due to which prices may be increased artificially and

supplies withheld.

Inter-Firm Comparison

Inter-Firm Comparison is the technique of evaluating the performance, efficiencies, costs and profits

of firms in an industry.

Uniform Costing 511

Essential Requisites of Inter-Firm Comparison

The following are the essential requisites of inter-firm comparison to be considered to achieve the

objectives of the concern :

(1) There must be a center for inter-firm comparison.

(2) Firms should become members of that center.

(3) The nature of information to be collected should be decided upon.

(4) The method of collection and presentation of information should be laid down.

Advantages of Inter-Firm Comparison

(1) It is a yardstick of performance. It helps to evaluating the over all performance of the concern.

(2) It facilitates cost control and cost reduction among participating industries.

(3) It creates cost consciousness among the personnel.

(4) Inter-firm comparison helps to reveal the efficiency and inefficiency of performance. The

inefficiency operations is analysed and immediate actions can be taken.

(5) It helps to the management in formulating policies and production planning.

(6) It is a guide to the experts in the field of research and development in future.

(7) It provides necessary information to the management of participating units to make proper

decisions.

Disadvantages

(1) Lack of suitable base for inter firm comparison.

(2) Participating firms are not willing to disclose their true facts and figures.

(3) Lack of confidence and good faith among common units, lead to difficult in measure the

operational efficiency.

(4) For small concerns, inter-firm comparison is expensive.

(5) Shortage of expert personnel.

QUESTIONS

1. What do you understand by uniform costing?

2. Define Uniform Costing. Explain its objectives.

3. Explain the essential requisites for installation of Uniform Costing.

4. What are the advantages and disadvantages of Uniform Costing?

5. What do you understand by inter-firm comparison?

6. Explain the advantages and disadvantages of inter-firm comparison.

000

Meaning

CHAPTER 24

Activity-Based Costing (ABC)

Activity-Based Costing (ABC) is that costing in which costs begin with tracing of activities and then

to producing the product. In other words, it is the process of costing system which focuses on activities

performed to produce products. This system assumes that activities are responsible for the incurrence of

costs and products creates the demand for activities. Costs are charged to products based on individual

product's use of each activity.

ABC aims at identifying as many costs as possible to be subsequently accounted as direct cost of

production. Any cost that is traced to a particular product via its consumption of activity becomes direct of

the product. For instance, in conventional costing system, cost of setup and adjustment time is considered

as factory overhead and subsequently assigned to different products on the basis of direct labour hours.

But in Activity-Based Costing, setup and adjustment time is determined for each product and its costs are

directly charged to each product. Thus. by emphasing activities, ABC tries to ascertain the factors that

cause each major activity, cost of such activities and the relationship between activities and products

produced.

According to professor Vipul "Activity-Based Costing had it genesis in the increasing importance of

indirect costs in the manufacturing operations. The direct processing costs which are easier to handle are

being relegated to the b\l<;;kgrouild with each passing day due to automation. In this changing scenario

where indirect costs (ar outweigh the direct processing costs in many a situation, one cannot be content

with rough and ready methods of yester years in dealing with indirect costs."

Different Stages in Activity-Based Costing

There are different activities in ABC costing. The following are the important stages of Activity-

Based Costing :

(1) Identify the different activities within the organisation.

(2) Relate the overhead cost to the activities.

(3) Support activities are then spread across the primary activities.

Activity-Based Costing (ABC) 5/3

(4) Determine the activity cost drivers.

(5) Calculate the activity cost drivers rate, i.e., the quantity of cost driver used by each product.

ABC and Cost Drivers

In Activity-Based Costing, activities are identified and classified into different categories that have

relationship with the different stages or parts of the production process. The factors that influence the cost

of a particular activity are known as "Cost Drivers." A Cost Driver is literally the factors, forces or events

that determine the cost of activities. The process of activity-based costing is based on the assumption that

cost behaviour is influenced by cost drives. It should be understood that direct costs do not need cost

drivers because direct costs are themselves cost drivers. They can be traced by direct relationship with the

different parts of product.

However, all other factory, office and administrative overheads need cost drives.

Examples of Cost Drivers

In order to trace overhead costs to manufacturing a product, suitable Cost Drivers should be

identified. The following are the few examples of Cost Drivers in Activity-Based Costing:

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

(9)

(to)

(11)

Cost Drivers

Number of receiving order

Number of deliveries

Number of Purchase orders

Kilometres travelled per delivery

Number of customers' visits

Number placing orders for purchase

Number of returning or empty bottles

Number Material handling hours

Amount of labour cost incurred

Number of inspections

Number of physical delivery and}

receipt of goods

Classification of Activities

Activity

Ordering

Delivery

Order Taking

Deliveries

Customer Visit

Placing Orders

Bottles Returns

Product Handling

Labour Transactions

Inspection

Delivery

In the first stage of the Activity-Based Costing activities are identified and classified into different

categories or segments of the production process. The grouping of activities is preferably done using the

different levels at which activities are performed. Broadly, activities are classified into:

(1) Unit Level Activities

(2) Batch Level Activities

(3) Product Level Activities

(4) Facility Level Activities

(1) Unit Level Activities: Unit Level Activities are those activities which are performed each time a

single product or unit is produced. These activities are repetitive in nature. For example, direct labour hours,

machine hours, powers etc. are the activities used for each time for producing a single unit. Direct materials

and direct labour activities are also unit level activities, although they do not overhead costs. Cost of unit

level activity vary with the number of units produced.

514 A Textbook of Financial Cost and Management Accounting

(2) Batch Level Activity: These activities which are performed each time a batch of products or group

of identical products are produced. All the units of a particular batch are uniform in nature and in size. The

cost of batch level activities vary with the number of batches are ascertained. Machine setups, inspections,

production scheduling, materials handling are examples of batch level activities which are related to batches.

(3) Product Level Activities: These activities which are performed to support the production of each

different type of product. Maintenance of equipment, engineering charges, testing routines, maintaining bills

of materials etc. are the few examples of product level activities.

(4) Facility Level Activities: Facility Level Activities are those which are needed to sustain a factory's

general manufacturing process. These activities are common to a variety of products and are most difficult to

link to product specific activities. Factory management, maintenance, security, plant depreciation are the few

examples of facility level activities.

Difference Between Activity-Based Costing and Conventional Costing

Activity-Based Costing

(I) It begins with identifying activities and

then to producing the products

(2) It mainly focuses on activities performed

to produce products

(3) Cost Drivers used for identifying the

factors that influence the cost of

particular activity

(4) Overhead costs are assigned to Cost

Centre or Cost Pools

(5) Overhead costs are assigned to products

using Cost Drivers Rates

(6) Variable overhead is appropriately

identified to individual products

(7) In ABC many activity based on Cost

Pools or Cost Centres are created

(8) There is no need to allocate and redistribution

of overhead of service

departments to production departments

(9) It assumes that fixed overhead costs

vary in proportion to changes in the

volume of output.

Conventional Costing (or)

Traditional Costing

(1) It begins with identifying cost and then to

producing the products

(2) It emphasises mainly on ascertainment of

costs after they have been incurred

(3) Cost unit is used for allocation and

accumulation of costs

(4) Overhead costs are assigned to production

departments or service departments

(5) Overheads allocated on the basis of

departmental overhead allocation rate

(6) Costs may be allocated or assigned either

on actual cost incurred or on standard cost

basis

(7) Overheads are pooled and collected

department wise

(8) The process of allocation and re-distribution

of the costs of the service departments to

production department is essential to find

out total cost of production

(9) It assumes that fixed overheads do not vary

with changes in the volume of output.

Activity-Based Costing (ABC) 515

Advantages of Activity-Based Costing

ABC system is a very valuable tool of control. It offers a number of advantages to the management

and the following are the main advantages :

(I) It brings accuracy and reliability of the costing data in determination of the cost of the products\_

(2) It facilitates cause and effect relationship to exercise effective cost control.

(3) It provides necessary cost information to the management to take decisions on any matter,

relating to the business\_

(4) It is much helpful in fixing the cost and selling price of a product.

(5) It facilitates overhead costs allocate directly to the specific product.

(6) It enables to manage the activities rather than costs.

(7) It helps to remove all types of wastages and inefficiencies.

(8) It provides valuable information to evaluate on the relative efficiencies of various plants and

machinery.

(9) Cost Driver Rates will help in significant impact on the development of new products or

modification of existing products.

Essentials Factors of a Good Activity-Based Costing System

The success of the Activity-Based Costing system depends on the following factors:

(1) Objectives of costing system and level of competition.

(2) Number of products manufactured.

(3) Product diversity and the business\_

(4) Adaptation of cost management measures, standardization and technical aspects.

(5) Degree of sophistication and suitability to the firm.

(6) Determination of single or combined Cost Driver.

(7) Determination number of Activity Centre, Cost Pools and Cost Drivers.

(8) Determin.ation of total overhead costs and economy.

(9) Evaluation of trade off between measurement of costs and cost of errors.

(10) Elasticity and adoptive to the changing circumstances.

Illustration: 1

Indian pottery company is noted for a full line of quality products. The company operates one of the

plants in Mumbai. That plant produces two types of products: Indian design A, and contemporary B, Rajan

the president of the company, recently decided to change from a volume-based costing system to an

activity-based costing system. Before making the change company wide he wanted to assess the effect on

the product cost of the Mumbai plant. This plant was chosen because it produces only two types of

products, most other plants produced at least a dozen. To assess the effect of the change, the following data

have been gathered :

516 A Textbook of Financial Cost and Managemelit Accounting

Products Quantity Prime Cost Machine Hours Material Moves Setups

Indian A 2,00,000 7,00,000 50,000 7,00,000 100

Contemporary B 50,000 1,50,000 12,500 1,00,000 50

Total Value (Rs.) 8,50,000 2,50,000 3,00,000 15,000

Rs. 2,50,000 is the cost of maintenance of machine.

Under the current system, the cost of maintenance, material handling and setups are assigned to the products on

the basis of machine hours.

Required

(1) Compute the unit cost of each product using the current unit-based approach.

(2) Compute the unit cost of each product using an activity-based costing approach.

Solution:

(1) Total overhead is Rs. 10,00,000. The plant wide rate is Rs. 16 per machine hour (Rs. 10,00,000 '"'

6,25,000)

Overhead is assigned as follows :

Indian A = Rs. 16 x 50,000 = Rs. 8,00,000

Contemporary B = Rs. 16 x 12,500 = Rs. 2,00,000

The unit costs for the two products are as follows :

Indian =

Rs. 8,00,000 + 7,00,000

= Rs. 7.50

2,00,000

Rs. 2,00,000 + 1,50,000

Contemporary = = Rs. 7.00

50,000

(2) In the activity-based approach, the consumption ratios are different for all three overhead activities, so

overhead pools are formed for each activity. The overhead rates for each of these pools are as follows :

Rs. 2,50,000

Maintenance = :;: R3. 4 per hour

62,500

Rs. 3,00,000

Material handling = = Rs. 0.375 per move

8,00,000

Rs. 4,50,000

Setup = = Rs. 3,000 per setup

150

Overhead is assigned as follows. :

Indian A:

Maintenance

Material handling

Setup Cost

= Rs. 4 x 50,000

= Rs. 0.375 x 7,00,000

= Rs. 3000 x 100

Total Overhead

=

=

=

=

Rs.

2,00,000

2,62,500

3,00,000

7,62,500

Activity-Based Costing (ABC)

Contemporary B :

Maintenance

Material handling

Setup Costs

= Rs. 4 x 12,500

= Rs. 0.375 x 1,00,000

= Rs. 3000 x 50

Total Overhead

This produces the following unit costs

Indian A:

Prime Cost

Add : Total Overhead Costs

Total Costs

Units Produced

Rs.

= 50,000

= 37,500

= 1,50,000

= 2,37,500

Rs.

= 7,00,000

= 7,62,500

= 14,62,500

= 2,00,000 units

Unit Cost =

Rs. 14,62,500

2,00,000

= Rs. 7.31 per unit

Contemporary B :

Prime Cost

Add : Total Overhead Costs

Total Costs

Units Produced

Unit Cost

Illustration: 2

=

Rs. 3,87,500

50,000

Rs.

= 1,50,000

= 2,37,500

= 3,87,500

= 50,000 units

= Rs. 7.75 per unit

5/7

Family store wants information about the profitability of individual product lines: Soft drinks, Fresh

Produce and Packaged food. Family store provides the following data for the year 2002-03 for each

product line :

Particulars Soft Drinks Fresh Produce Packaged Food

Revenues Rs. 7,93,500 Rs.21,00,600 Rs. 12,09,900

Cost of goods sold Rs. 6,00,000 Rs. 15,00,000 Rs. 9,00,000

Cost of bottles returned Rs. 10,000 Rs. ° Rs.O

Number of purchase orders placed 360 840 360

Number of deliveries Received 300 2,190 660

Hours of shelf-stocking Time 540 5,400 2,700

Items sold 1,26,000 11,04,000 3,06,000

518 A Textbook of Financial Cost and Management Accounting

Family store also provides the following information for the year 2002-2003

Activity Description of Activity Total Cost Cost - allocation Base

Bottles returns Returning of empty-bottles to store Rs.12,ooO . Direct tracing to

soft-drink line

Ordering Placing of orders for purchases Rs. 1.56,000 1,560 purchase orders

Delivery Physical delivery and

receipt of goods Rs. 2,52,000 3,150 deliveries

Shelf stocking Stocking of goods on store shelves } Rs. 1,72,800 8,640 hours of }

and On-going restocking shelf-stocking time

Customer support Assistance provided to }

customers including check-out Rs. 3,07,200 15,36,000 items sold

Required

(l)" Family store currently allocates support cost (all costs other than cost of goods sold) to product lines on

the basis of cost of goods sold of each product line. Calculate the operating income and operating income

as a % of revenues for each product line.

(2) If family store allocate support costs (all costs other than cost of goods sold) to product lines using an

Activity-Based Costing System, calculate the operating income as a % of revenues for each product line.

(3) Comment on your answers in requirement (1) and (2)

rCA, May, 2003 J

Solution:

(i) Calculation of Operating Income and Operating Income as a % of revenues for each

product line :

Particulars Soft Drinks Fresh Produce Packaged Foods Total

Rs. Rs. Rs. Rs.

Revenues 7,93,500 21,00,000 12,09,900 41,04,000

Cost of Goods Sold 6,00,000 15,00,000 9,00,000 30,00,000

Store Support Cost (30%) 1,80,000 4,50,000 2,70,000 9,00,000

Total Cost 7,80,000 19,50,000 11,70,000 39,00,000

Operating Income 13,500 1,50,600 39,900 2,04,000

Operating Income}

as % of revenue 1.70% 7.17% 3.30% 4.97%

(ii) The activity rates are as follows :

Activity Cost Hierarchy Total Cost Qty. of Cost Overhead

Rs. Allocation Base Allocation Rate

Ordering Batch Level 1,56,000 + 1,560 Purchase Orders = Rs. 100 per order

Delivery Batch Level 2,52,000 + 3,150 delivers = Rs. 80 per delivery

Shelf Stocking Output Unit Level 1,72,800 + 8,640 hours = Rs. 20 per hour

Customer Support Output Unit Level 3,07,200 + 15,36,000 items sold = Rs. 0.20 per items sold

Activity-Based Costing (ABC) 519

Cost Allocation Statement Under Activity-Based Costing System

Particulars Soft Drinks Fresh Produce Packaged Foods Total

Rs. Rs. Rs. Rs.

Revenues (1) 7,93,500 21,00,000 12,09,900 41,04,000

Cost of goods sold 6,00,000 15,00,000 9,00,000 30,00,000

Bottle - Return cost 12,000 - - 12,000

Ordering cost } 36,000 84,000 36,000 1,56,000

@ Rs. 100 (360 x 100) (840 x 1(0) (360 x 100)

Delivery cost } 24,000 1,75,000 52,800 2,52,000

@ Rs. 80 (300 x 80) (2,190 x 80) (660 x 80)

Shelf stock cost } 10,800 1,08,000 54,000 1,72,800

@ Rs. 20 (540 x 20) (5,400 x 80) (2700 x 20)

Customer support cost } 25,200 2,20,800 61,200 3,07,200

@ Rs. 0.20 (1,26,000 x 0.20) (ll,04,OOO x 0.20) (3,06,000 x 0.20)

Total Cost (2) 7,08,000 20,88,000 11,04,000 39,00,000

Operating Income }

(1) - (2) 85,500 12,600 1,05,900 2,04,000

Operating Income as % }

of Revenue 10.78% 0.60% 8.75% 4.97%

(iii) Managers believe the Activity-Based Cost (ABC) system is more credible than the previous

costing system. The ABC system distinguishes the different type of activities at Family store

more precisely. It also tracks more precisely how individual product lines use resources.

Soft drink consume less resources than either fresh produce or packaged food. Soft drinks have

fewer deliveries and require less Shelf-Stocking time.

Managers of Family Stores can use ABC information to guide their decisions, such as how to allocate

a planned increase in floor space. Pricing decisions can also be made in a more informed way with ABC

information.

Illustration: 3

Alpha Limited has decided to analyse the profitability of its few new customers. It buys bottled

water at Rs.90 per case and sells to retail customers at a list price of Rs.108 per case. The data pertaining

to five customers are :

Particulars A B C D E

Case Sold 4,680 19,688 1,36,800 71,550 8,775

List selling price Rs.108 Rs.108 Rs.108 Rs.108 Rs.108

Actual selling price Rs.108 Rs.106.20 Rs.99 Rs.I04.4O Rs.97.20

Number of purchase Orders 15 25 30 25 30

Number of customer Visits 2 3 6 2 3

Number of Deliveries 10 30 60 40 20

Kilometers traveled Per delivery 20 6 5 10 30

Number of expedited Deliveries 0 0 0 0 1

520

Its five activities and their cost drivers are :

Activity

Order taking

Customer visits

Deliveries

Product handling

Expedited deliveries

A Textbook of Financial Cost and Management Accounting

Cost Driver Rate

Rs. 750 per purchase order

Rs. 600 per customer visit

Rs. 5.75 per delivery k.m. travelled

Rs. 3.75 per case sold

Rs. 2,250 per expedited delivery

Required

(i) Compute the customer level operating income of each of five retail customers now being examined

(A,B,C,D, and E); comment on the results.

(ii) What insights are gained by reporting both the list selling price and the actual selling price for each

customer?

(iii) What factors Alpha Ltd. should consider in deciding whether to drop one or more of five customers?

[CA, Nov. 2003J

Solution:

Particulars A B C D E

Revenues at List Price 5,05,440 21,26,304 1,47,74,000 77,27,400 9,47,700

Less: Discount Nil 35,438 12,.31,200 2,57,580 94,770

Revenues at Actual Price 5,05,440 20,90,866 1,35,43,200 74,69,820 8,52,930

Less : Cost of Goods sold at 4,21,200 17,71,920 1,23,12,000 64,39,500 7,89,750

Rs. 90 per unit

Gross Margin (A) 84,240 3,18,946 12,31,200 10,30,320 63,180

Customer Level Operating Cost

Order taking 11,250 18,750 22,500 18,750 22,500

@ Rs. 750 (750 x 15) (750 x 25) (750 x 30) (750 x 25) (750 x 30)

Customer Visits

@ Rs. 600 1,200 1,800 3,600 1,200 1,800

Delivery Vehicles

(Rs. 5.75 per Km) 1,150 1,035 1,725 2,300 3,450

Product handling

Rs. 3.75 per case 17,550 73,830 5,l3,ooo 2,68,3l3 32,906

Expected runs

(Rs. 2250 per run) - - - - -

Total Costs (B) 31,150 95,415 5,40,825 2,90,563 62,906

Customer Level

Operating Income (A) - (B) 53,090 2,23,531 6,90,375 7,39,757 274

(i) Customer D is the most profitable customer, despite having only 52.30% of the unit volume of

customer C. A major exploitation is that customer C receives at Rs.9 discount per case while

customer D receives only at Rs.3.60 discount per case.

Customer E is less profitable, in comparison with the small customer A being profitable. Customer E received a

discount of Rs.1D.80 per case, make more frequent orders, requires more customer visits and requires more delivery

kms, in comparison with customer A.

(ii) Separate reporting of both the listed selling price and the actual selling price enables Alpha Ltd. to examine

which customer receives different discount documents and how sales people may differ in the discounts

they grant. There is a size pattern in the discount across the 5 customers, except for customer E.

Activity-Based Costing (ABC) 52!

Sales Volume Discount Per Case

C 0,36,800 Cases) 12,31,200 1,36,800 = Rs.9

D (71,550 Cases) 2,57,580 71,550 = Rs.3.60

B (19,688 Cases) 35,438 19,688 = Rs. 1.80

E (8,775 Cases) 94,770 8,775 = Rs.IO.80

A (4,680 Cases) 4,680 4,680 = Rs.O

The reasons for the Rs. 10.80 discount for customer E should be explored.

(iii) Dropping customers should be the last resort taken by Alpha Ltd. Factors to be considered include:

What is the expected future profitability of each customer? Are the currently unprofitable (E) or low profitable

(A) customers likely to be highly profitable in the future?

What costs are avoidable if one or more customers are dropped?

Can the relationship with "problem" customers be restructured so that there is a 'win win' situation?

QUESTIONS

1. What do you understand by Activity-Based Costing?

2. What is meant by Cost Driver? Explain role of Cost Driver in tracing costs to products.

3. Explain the stages in applying ABC in manufacturing company.

4. Explain the difference between Activity-Based Costing and Traditional Costing System?

5. What are the advantages of Activity-Based Costing?

6. What are the classification of activities? Explain it briefly.

7. What are the factors to be considered while adopting ABC?

DOD

CHAPTER 25

Reconciliation of Cost and Financial Accounts

Meaning

In business concern where Non-integrated Accounting System is followed. cost and financial

accounts are maintained separately, the difference between the end result of these two are required to be

reconciled. Reconciliation of cost and financial accounts mean tallying the profit or loss revealed by both

set of accounts. The chief aim is to find out the reasons for the difference between the results shown by

Cost Accounts and Financial Accounts.

Reasons for the Difference

The various reasons which create difference between cost and financial profit or loss shown by the

two set of books may be listed under the following heads :

(1) Items shown only in Financial Accounts

(2) Items shown only in Cost Accounts

(3) Absorption of Overheads

(4) Methods of Stock Valuation

(5) Abnormal Loss and Gains

(1) Items shown only in Financial Accounts: Some items of income and expenses which are included

only in financial accounts but are not shown in cost accounts and vice versa. The following items are shown

in financial accounts but not in cost accounts:

(A) Income:

(1) Profit on sale of fixed assets

(2) Interest received on investment

(3) Dividend received on investment

(4) Rent, brokerage and commission received

Reconciliation of Cost and Financial Accounts

(5) Premium on issue of shares

(6) Transfer fees received.

(B). Expenditure:

(1) Loss on sale of fixed assets, e.g., Plant, Machinery, Building etc.

(2) Interest paid

(3) Discount paid

(4) Dividend paid

(5) Losses due to scrapping of plant and machinery

(6) Penalties and,fines

(7) Expenses of shares' transfer fees

(8) Preliminary expenses written off

(9) Damages payable at law.

523

(2) Items shown only in Cost Accounts: There are some items which are recorded only in Cost Accounts

but are not included in financial accounts, national interest on capital, notional rent of premises owned, salary

to proprietor etc. are not recorded in financial account because the amount is not actually spent or paid. These

expenses reduced the profit in cost account while in financial account it may be the reverse effect.

(3) Absorption of Overheads : In financial accounts actual amount of expenses paid are recorded

while in cost accounts overheads are charged at predetermined rates. If overhead charged are not equal to

the amount of overhead incurred the under or over absorption of overhead leads to difference in profits of

two accounts.

(4) Methods of Stock Valuation: The term stock refers to opening or closing stock of raw materials,

work in progress and finished goods. In financial accounts stocks are valued at cost price or market price

whichever is lower. In Cost Account; stock of raw materials can be valued on the basis of FIFO, LIFO and

Simple Average Method etc., and work in progress may be valued at Prime Cost or Work Cost. Finished

stocks are generally valued on the basis of cost of production. Thus, the adoptation of different method of

valuation of stock leads to difference in profits of two sets of accounts.

(5) Abnormal Losses and Gains: Different items of abnormal wastages, losses or gains which are

included in financial accounts but are not recorded in cost accounts. Thus, the figures of abnormal losses and

gains may affect the results in financial accounts alone.

Importance of Reconciliation

Reconciliation of cost and financial account is necessary for the following reasons:

(1) To ensure arithmetical accuracy of both set of accounts for effective cost ascertainment and cost

control.

(2) To identify the reasons for different results in two sets of accounts.

(3) To evaluate the reasons for variations for effective internal control.

(4) To enable the smooth co-operation and co-ordination between the activities of cost and

financial accounting departments.

(5) To ensure the standardization of policies relating to stock valuation, depreciation and absorption

of overheads.

524 A Textbook of Financial Cost and Management Accounting

Methods of Reconciliation

For reconciling the profit or loss as disclosed by the financial accounting with that shown by the cost

accounting. a Reconciliation Statement or Memorandum of Reconciliation Account is prepared.

The following steps have to be taken for preparation of Reconciliation Statement :

(I) Ascertain the extent of difference between the profit or loss disclosed by two set of book of

accounts.

(2) Take the base profit or loss as per any set of books (either cost or financial) of accounts as the

starting point.

(3) Prepare a statement by making suitable adjustment of items either added or subtracted included

in one set of accounts but not in the other set.

(4) In other words. balances as per cost account has been taken as the starting point, then balance

as per financial account is to be adjusted according to the transaction recorded in the financial

accounts and vice versa.

The following table will help to prepare the reconciliation of cost and financial accounts :

Treatment of Causes for Differences

Suitable Adjustments

S. No.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Reasons For Differences

Over absorption of overhead in Cost Account

Over valuation of closing stock in Financial Account

Over valuation of opening stock in Cost Account

Excess provision for depreciation of building

plant & machinery etc., charged in Cost Account

Items of expenses charged in Cost Account but}

not in Financial Accounts (Example Notional

interest on Capital, Notional rent on Premises)

Items of income recorded in Financial Account }

but not in Cost Account

Under absorption of overhead in Financial Account

Over valuation of opening stock in Financial Account

Over valuation of closing stock in Cost Account

Item of income tax, dividend paid, preliminary expenses

written off, goodwill written off, under writing

commission and debenture discount written off and

any appropriation of profit included in

Financial Account only.

Types of Problems

Base is Costing

Profit or Financial

Loss (+) or ( - )

Add (+)

Add (+)

Add (+)

Add (+)

Add (+)

Add (+)

Less (-)

Less (-)

Less (-)

Less (-)

Base is Financial

Profit or Costing

Loss (+) or ( - )

Less (-)

Less (-)

Less (-)

Less (-)

Less (-)

Less (-)

Add (+)

Add (+)

Add (+)

Add (+)

You are required to prepare a reconciliation of cost and financial account from the following

situations :

(1) When profit or loss of financial and cost account are given

(2) When profit or loss of financial account is given

Reconciliation of Cost and Financial Accounts 525

(3) When profit or loss of cost account is given

(4) When profit and loss account and additional information are given.

Illustration: 1

The financial books of a company show a net profit of Rs.l,27,560 for the year ending 31st Dec.

2003. The Cost Account shows a net profit of Rs.I,33,520 for the same corresponding period. The

following facts are brought to light:

Factory overhead under recovered in costing Alc

Administration overhead over recovered in costing Alc

Depreciation charged in financial accounts

Depreciation recovered in cost Alc

Interest received but not included in cost Alc

Income Tax debited in financial Alc

Bank interest credited financial Alc

Stores adjustment credited in financial Alc

Rent charged in financial Alc

Dividend paid recorded in financial Alc

Loss of obsolescence charged in financial Alc

Solution:

Reconciliation Statement

Particulars

Profits as per Cost Accounts

Add:

Administration overhead over recovered in Cost Account

Depreciation over recovered in Cost Account

(7900 - 7320)

Interest received but not included in Cost Alc

Bank interest credited in Financial Alc

Stores adjustments credited in Financial Alc

Less :

Factory overhead under recovered in Cost Alc

Income Tax received but not included in Cost Alc

Rent charged in Financial Alc

Dividend paid charged in Financial Alc

Loss of obsolence charged in Financial Alc

Profit as per Financial Accounts

Illustration: 2

Rs.

8,500

580

900

460

840

1l,400

1,200

1,720

2,400

520

Rs.

1l,400

8,500

7,320

7,900

900

1,200

460

840

1,720

2,400

520

(MBA. Madras. 2001)

Rs.

1,33,520

11,280

i,44,800

17,240

1,27,560

AVS Ltd., made a Net Profit of Rs. 5,71,000 during the year 2003 as per the their financial system.

Whereas their cost accounts disclosed a profit of Rs. 7,77,200. On reconciliation, the following differences

were noticed :

(1) Directors fees charged in financial account, but not in cost account Rs. 13,000.

(2) Bank interest credited in financial account, but not in cost account Rs. 600.

526 A Textbook of Financial Cost and Management Accounting

(3) Income Tax charged in financial account, but not in cost account Rs. 1,66,000.

(4) Bad and doubtful debts written off Rs. ll,4oo in financial accounts.

(5) Overheads charged in costing books Rs. 1,70,000 but actual were Rs. 1,66,400.

(6) Loss on sale of old machinery Rs.20,ooO charged in financial accounts.

(MBA, Madurai, 2001)

Solution:

Reconciliation Statement

Particulars Amount Rs. Amount Rs.

Profits as per Financial Account 5,71,000

Add: Director fees charged in financial account but not in Cost account 13,000

Income Tax charged in financial account but not in Cost Account 1,66,000

Bad and doubtful debts written off ll,4oo

Loss on sale of old machinery 20,000 2,10,400

7,81,400

Less: Bank interest credited in financial account but not in Cost Account 600

Overheads over absorbed in Cost Nc (170000 - 166400) 3,600 4,200

Profit as per Cost Accounts 7,77,200

Illustration: 3

Harish Ltd., has furnished you the following informations from the financial books for the year

ended 30th June, 2003 :

Profit and Loss Account (ended 30th June)

Particulars Amount Particulars Amount

Rs. Rs.

To Purchases 1,26,050 By Sales (25000 units at Rs. 15) 3,75,000

Direct wages 52,500

Factory Overheads 60,650 Rent Received 1,300

Office & AdministratiVe} Profit on sale of investment ll,7oo

Overheads 26,700 Closing Stock 20,400

Depreciation 5,500

Selling Expenses 35,500

Net Profit 1,01,500

4,08,400 4,08,400

The cost sheet shows the costing profit of Rs. 98.850 and closing stock of Rs. 21,400. The factory overheads are

absorbed at 100% of direct wages and Office and Administrative overheads are charged at Re. 1 per unit. Selling

expenses are charged at 10% of Gross of sales. Depreciation in cost account absorbed was Rs. 4,000. You are required

to prepare:

(1) A statement showing as per cost account for the year ended 30th June, 2003.

(2) Statement showing the reconciliation of profit disclosed in cost accounts with the profit shown in the

financial accounts.

(CA, Inter, 2001)

Reconciliation of Cost and Financial Accounts 527

Solution:

Profit as per Cost Accounts

Particulars Amount

Purchases 1,26,050

Add: Direct Wages 52,500

Prime Cost 1,78,550

Add: Factory overhead at 100% on direct wages 52,500

2,31,050

Add: Depreciation 4,000

Factory cost or Works cost 2,35,050

Add: Office & Administrative overhead at Re. 1

Per unit (25,000 units at Re. 1) 25,000

Cost of Production 2,60,050

Less: Closing stock of finished goods 21,400

Cost of goods sold 2,38,650

Add: Selling expenses at 10% of Rs. 3,75,000 37,500

Cost of Sales 2,76,150

Costing Profit 98,850

Sales 3,75,000

Reconciliation Statement

Particulars Amount Rs. Amount Rs.

Profits as Financial Account 1,01,500

Add: Over valuation of closing stock in Cost Nc 1,000

Under absorption of Factory overhead in Cost Nc 8,150

Under absorption of Office & Admi. Overhead in Cost Nc 1,700

Depreciation under absorbed in Cost Nc 1,500 12,350

1,13,850

Less: Over absorption of selling expenses in Cost Nc 2,000

Rent received charged in Financial Nc 1,300

Profit on sale of investment charged in Financial Nc 11,700 1,5,000

Profit as per Cost Nc 98,850

Illustration: 4

The financial books of a company reveal the following data for the year ended 31st March, 2003 :

Opening Stock :

Finished goods 875 units

Work in progress

1. 4. 02 to 31. 3. 03 :

Raw materials consumed

Direct Labour

Factory Overheads

Goodwill Written off

Administrative Overheads

Dividend Paid

Rs.

74,375

32,000

7,80,000

4,50,000

3,00,000

1,00,000

2,95,000

85,000

528 A Textbook of Financial Cost and Management Accounting

Bad Debts

Selling and Distribution Overheads

Interest Received

Rent Received

Sales 14,500 units

Closing Stock :

Finished Goods 375 units

Work in progress

The work records provide as under

Factory overheads are absorbed ilt 60% of direct wages

Administrative overheads are recovered at 20% of factory cost

Selling and distribution overheads are charged at Rs.4 per unit sold

Opening stock of finished goods is valued at Rs.l04 per unit

12,000

61,000

45,000

18,000

20,80,000

41,250

38,667

The company values work-in-progress at factory cost for both Financial and Cost Profit Reporting.

Required

(i) Prepare statement for the year ended 31 st March, 2003 to show :

The profit as per financial records

The profit as per cost records.

(ii) Present a statement reconciling the profit as per costing records with the profit as per Financial Records.

Solution:

Particulars

To Opening Stock :

Finished goods

Work in progress

To Raw materials

To Direct Labour

To Factory Overheads

To Goodwill Written off

To Admn. Overheads

To Selling and Distribution }

Overheads

To Dividend Paid

To Bad Debt

To Profit

Calculation of Financial Profit

Financial Profit and Loss Account

Amount Paniculars

Rs.

By Sales

74,375 By Closing Stock:

32,000 Finished Goods

7,80,000 Work in Progress

4,50,000 By Rent Received

3,00,000 By Interest Received

1,00,000

2,95.000

61,000

85,000

12,000

33,542

22,22,917

(CA Inter; 2001)

Amount

Rs.

20,80,000

41,250

38,667

18,000

45,000

22,22,917

Reconciliation of Cost and Financial Accounts

Statement of Cost of Production

Sales

Add : Closing Stock

Total

Less : Opening Stock

Production

Raw Materials

Direct Labour

Factory overhead 60% Direct Wages

Factory Cost

Add : Opening work in progress

Total

Less : Closing work in progress

Factory Cost of goods produced

Add : Administrative Overhead 20% on Factory Cost

Production Cost

Per Unit =

=

Total Cost of Production

No. of Units Produced

17,92,000

14,000

= Rs. 128.

Statement of Costing Profit :

Opening Stock 875 units @ Rs.I04

Production 14,000 units @ Rs.l28

Total

Less: Closing Stock 375 units @ Rs. 128

Add:

Production Cost goods sold

Selling & Distribution overhead }

14,500 units @ Rs.4 per unit

Cost of Sales

Sales Revenue

Costing Profit

Units

14,500

375

14,875

875

14,000

Rs.

7,80,000

4,50,000

2,70,000

15,00,000

32,000

15,32,000

38,667

14,93,333

2,98,667

17,92,000

=

=

=

=

=

=

=

Rs.

91,000

17,92,000

18,83,000

48,000

18,35,000

58,000

18,93,000

20,80,000

1,87,000

529

530 A Textbook of Financial Cost and Management Accounting

Reconciliation of Financial Accounts and Cost Accounts

Particulars Amount Rs. Amount Rs.

Profits as per Cost Account 1,87,000

Add: Administrative overheads over recovery 3,667

Closing stock overhead 16,625

Interest recovered 45,000

Rent 18,000 83,292

2,70,292

Less: Factory overhead under recovery 30,000

Selling & Distribution overhead under recovery 3,000

Closing stock over valued 6,750

Goodwill written off 1,00,000

Dividend 85,000

Bad Debts 12,000 2,36,750

Profit as per Financial Accounts 33,542

Working Notes

Reconciliation of Financial Accounts & Cost Accounts

Particulars Financial Cost Difference Remarks Add/

Accounts Rs. Accounts Rs, Rs. Rs. Deduct

Factory Overheads 30,00,000 2,70,000 30,000 Under recovery Deduct

Administrative}

Overheads 2,95,000 2,98,667 3,667 Over recovery Add

Selling and s}

Distribution Overheads 61,000 58,000 3,000 Under recovery Deduct

Opening Stock 74,375 91,000 16,625 Over valuation Add

Closing Stock 41,250 48,000 6,750 Over valuation Deduct

Illustration: 5

A manufacturing company disclosed a Net Loss of Rs. 5,72,000 as per their Cost Accounts for the

year ended March 31, 2003. The Financial Accounts however disclosed a Net Loss of Rs. 8,84,000 for the

same period. The following information was revealed as a result of scrutiny of the figures of both the set

of Books.

(i)

(ii)

(iii)

(iv)

(v)

(vi)

(vii)

(viii)

(ix)

Factory Overheads Over-absorbed

Administration Overheads under absorbed

Depreciation charged in Financial Accounts

Depreciation charged in Cost Accounts

Interest on Investments not included in Cost Accounts

Income Tax Provided

Interest on loan funds in Financial Accounts

Transfer fees (Credits in financial books)

Stores adjustment (Credit in financial books)

Prepare a Memorandum Reconciliation Method.

Rs.

16,000

24,000

2,20,000

2,45,000

64,000

1,54,000

2,63,000

16,000

8,000

lCA Inter. 20021

Reconciliation of Cost and Financial Accounts 53/

Solution:

Memorandum Reconciliation Account

Particulars Amounts Rs. Particulars Amount Rs.

To Net Loss as per costing books 5,72,000 By Factory Overheads J

To Administration overheads } over absorbed in cost Account 16,000

Under recovered in cost accounts 24,000 By Interest on Investment }

To Income Tax not provided in } not included in cost accounts 64,000

Cost Accounts 1,54,000 By Depreciation over Charged}

To Interest on loan fund not } in Cost Accounts 25,000

included in Cost Accounts 2,63,000 By Transfer fees in financial books 16,000

By Net loss as per financial books 8,84,000

10,13,000 10,13,000

Alternatively:

Memorandum Reconciliation Account

Particulars Amount Rs. Amount Rs.

Net Loss as per Financial Books 8,84,000

Add,' Factory overheads over absorbed in Cost Accounts 16,000

Interest on Investment not included in Cost Accounts 64,000

Depreciation over charged in Cost Accounts 25,000

Transfer fees in financial books 16,000

Stores Adjustment in financial books 8,000 1,29,000

10,13,000

Less,' Administration overheads under recovered in Cost Accounts 24,000

Income Tax not provided in Cost Accounts 1,54,000

Interest on loan fund not included in Cost Accounts 2,63,000 4,41,000

Net Loss as per Cost Accounts 5,72,000

Illustration: 6

A manufacturing company disclosed a Net Loss of Rs. 347000 as per their cost accounts for the year

ended March 31, 2003. The financial accounts however disclosed a Net Loss of Rs. 5,10,000 for the same

period. The following information was revealed as a result of scrutiny of the figures of both the set of

accounts.

(i)

(ii)

(iii)

(iv)

(v)

(vi)

(vii)

(viii)

(ix)

(x)

Factory Overheads Under absorbed

Administration Overheads over absorbed

Depreciation charged in Financial Accounts

Depreciation Charged in Cost Accounts

Interest on Investment not included in Cost Accounts

Income Tax Provided

Interest on loan funds in Financial Accounts

Transfer fees (Credit in financial books)

Stores adjustments (Credit in financial books)

Dividend received

Prepare a Memorandum Reconciliation Account.

Rs.

40,000

60,000

3,25,000

2,75,000

96,000

54,000

2,45,000

24,000

14,000

32,000

[MBA, Madurai, 2002]

532

Solution:

A Textbook of Financial Cost and Management Accounting

Memorandum Reconciliation Account

Particulars Amounts Rs. Particulars Amounts Rs.

To Net Loss as per cost books 3,47,000 By Administration overheads }

To Factory overheads Under} over absorbed in Cost Accounts 60,000

absorbed in Cost Accounts 40,000 By Interest on Investments not }

To Depreciation under charged in} included in Cost Accounts 96,000

Cost Accounts 50,000 By Transfer fees in Financial books 24,000

To Income Tax not provided in}

Cost Accounts 54,000

By Stores Adjustments (Credit in }

financial books) 14,000

To Interest on loan Funds in}

Financial Accounts 2,45,000

By Dividend received in Financial}

books . 32,000

By Net loss as per financial }

books 5,10,000

7,36,000 7,36,000

QUESTIONS

1. What do you understand by Reconciliation of Cost and Financial Accounts?

2. Briefly explain the reasons for the difference between profit or loss as per cost accounts and financial accounts.

3. What are the important Reconciliation Statements?

4. Explain briefly the methods of preparation of reconciliation statement of cost and financial profit.

5. List out the different items of incomes and expenses which are included in financial account but ignored in cost account.

PRACTICAL PROBLEMS

(1) The profit as per the cost accounts is Rs. 1,50,000. The following details are ascertained on a comparison of the cost

and financial accounts :

(8) Opening Stock:

Materials

Finished goods

(b) Closing Stock:

Materials

Finished goods

Cosl Accounts

Rs.

10,000

18,000

12,000

20,000

Interest charged but not paid Rs. 10,000

Write off: Preliminary expenses Rs. 500 ; Goodwill Rs. 1,500

Dividend on ICICI received Rs. 1,000

Financial Accounts

Rs.

15,000

16,000

13,000

17,000

(c)

(d)

(e)

(t) Indirect expenses charged in the financial accounts Rs. 80.000 but Rs. 75,000 recovered

in the Cost Account. You are required to prepare a Reconciliation Statement.

[Ans : Financial Profits Rs. 1,49,500]

(2) From the following particulars, you are required to prepare a Reconciliation Statement:

Rs.

Net Loss as per cost accounts 3,44,800

Net loss as per financial accounts 4,32,890

Works overhead under recovered in cost accounts 6,240

Depreciation over charged in Cost Account 2,600

Interest on investment 17,500

Administration overhead over recovered in Cost Account 2,600

Goodwill written off 92,000

Stores adjustment (or) in financial Alc 950

Depreciation of stock charged in financial Alc 13,500

[B.B.M., Madurai]

Reconciliation of Cost and Financial Accounts

(3) The following transactions have been extracted from the books of MIs Nancy & Co Ltd. :

Sales (20,000 units)

Materials

Wages

Factory Overheads

Office and Administration Overheads

Selling and Distribution Overheads

Finished goods (1230 units) 31.12.2003

Work in progress

Wages

Factory Overheads

Goodwill Written off

Interest on Capital

Rs.

2,50,000

1,00,000

50,000

45,000

26,000

18,000

15,000

3,000

2,000

2,000

20,000

2,000

533

In Costing Books Factory overhead is charged at 100% on Wages, Administration overhead at 10% of factory cost and

selling and distribution at the rate of Re.l per unit sold. Prepare a statement reconciling the profit as per cost and

financial accounts.

[Ans : Profit as per cost Alc Rs. 30,000; profit as per financial Alc Rs. 11,000)

(4) From the following figures prepare a reconciliation statement;

Net loss as per financial records

Net loss as per costing records

Works overhead under recovered in costing

Administration overhead recovered in excess

Depreciation charged in financial records

Depreciation recovered in costing

Interest received but not included in costing

Obsolescence loss charged in financial records

Income tax provided in financial books

Bank interest credited in financial books

Stores adjustments (Credit in financial books)

Depreciation of stock charged in financial books

Rs.

2,16,045

1,72,400

3,120

1,700

11,200

12,500

8,000

5,700

40,300

750

475

6,750

(5) From the following particulars, you are required to prepare a statement of reconciliation:

Statement of reconciliation

Opening Stock of finished goods

Purchase of Materials

Closing Stock of Materials

Closing Stock of finished goods

Wages

Actual works expenses

Actual office expenses

Profit as per costing books

Profit as per financial books

Rs.

72,000

1,44,000

4,32,000

1,08,000

36,000

1,80,000

1,13,575

92,975

1,78,272

1,78,082

Works expenses are recovered at 20% on prime cost and office expenses at 80% on works on cost in cost books.

1M. Com., Madras, 2001)

(6) The following figures are available from financial accounts for the year ended 31st March 2003:

Rs.

Direct Materials Consumption 2,50,000

Direct Wages 1,00,000

Factory Overheads 3,80,000

Administration Overheads 2,50,000

Selling and Distribution Overheads 4,80,000

Bad Debts 20,000

534

Preliminary expenses (Written off)

Legal Charges

Dividend Received

Interest on Deposit Received

Sales (1,20,000 units)

Closing Stock :

Finished Stock (40,000 units)

Work in progress

The Cost Account reveal

Direct Material Consumption Rs. 2,80,000

Factory Overhead recovered at 20% on Prime Cost

Administration Overhead at Rs. 3 per unit of production

Selling and Distribution Overheads at Rs. 4 per unit sold

Prepare

(1) Statement of Cost and Profit

(2) Financial Profit and Loss Account

A Textbook of Financial Cost and Management Accounting

10,000

5,000

50,000

10,000

7,00,000

1,20,000

80,000

(3) Statement reconciling the profits disclosed by the Costing Profit and Loss Account and Financial Profit and Loss

Account

[Ans : Net loss of Cost Alc Rs. 4,22,000; Net loss of Financial Alc Rs. 5,35,000]

(7) The net profit of the James & Co. Ltd. appeared at Rs. 11,57,550 as per the financial records for the year ending 31M

December 2003. The cost books however, showed a net profit of Rs. 17,24,000 for the same period. A scrutiny of the

figures from both set of account revealed the following facts :

Work Overhead under-recovered in costs

Administration overhead over recovered

Depreciation charged in financial accounts

Interest on investments not included in costs

Loss due to obsolescence charged in accounts

Income tax pro.vided in financial accounts

Bank interest and transfer fees in financial books

Stores adjustments (credit in financial books)

Loss due to depreciation in stock value

(charged in financial accounts)

Rs.

31,200

17,000

1,12,000

80,000

57,000

4,03,000

2,500

4,750

You are required to prepare a statement reconciling both the figures of net profits.

(8) From the following figures prepare a reconciliation statement:

Net profit as per financial records

Net profit as per costing records

Works overhead under recovered in costing

Administrative overhead recovered in excess

Depreciation charged in financial records

Depreciation recovered in costing

Interest recei ved but not included in costing

Obsolescences loss charged in financial records

Income tax provided in financial books

Bank interest credited in financial books

Stores adjustments (credit in financial books)

Depreciation of stock charged in financial books

Rs.

12,87,550

17,24,000

31,200

17,000

1,12,000

1,25,000

80,000

57,000

4,03,000

7,500

4,750

67,500

(9) Compare the figure of profit as revealed by cost and the financial books and locate the difference if any.

Rs.

Opening stock of raw materials 25,000

Opening stock of finished gcods 75,000

Purchase of raw materials 1,75,000

Wages 75,000

Factory lighting 1,500

Factory rent 12,000

Power and fuel 1,250

Reconciliation of Cost and Financial Accounts

Indirect wages

Plant and Machinery's depreciation

Oil, waste etc.

Work Manager's salary

Office rent

Office lighting

Miscellaneous factory expenses

Depreciation of office appliances

Salaries of office staff

Miscellaneous office expenses

Closing stock of finished goods

Closing stock of raw materials

15,000

25,000

1,000

1,500

9,000

300

625

1,000

18,000

640

25,000

37,500

535

Factory overhead is charged at 25% on prime cost and office and administrative expenses at 50% of factory overheads.

The selling price was fixed by adding 20% on the total cost of manufacture and finished articles sold. Prepare also a

statement showing cost of Manufacture.

[Ans: Cost of Manufacture Rs. 3,24,315; profit as per cost book Rs. 2,44,400; profit as per financial books Rs.

2,09,600]

(10) The following figures have been extracted from the cost record of manufacturing unit:

Rs.

Stores: Opening balance 30,000

Purchases 1,60,000

Transfer from work-in-progress 80,000

Issues to work-in-progress 1,60,000

Issues to repairs and Maintenance 20,000

Deficiencies found in Stock taking 6,000

Work in Progress: opening balance 60,000

Direct wages applied 60,000

Overheads applied 2,40,000

Closing balance 40,000

Finished products: Entire output is sold at a profit of 10% on actual cost from work in progress. Other wages incurred

Rs. 70,000; Overhead incurred Rs. 2,50,000. Items not included in cost records; Income from investment Rs. 10,000,

Loss on sale of capital assets Rs. 20,000.

Draw stores Control Account, work in progress Control Account, Costing Profit & Loss Ale; Profit and Loss Alc and

Reconciliation Statement.

[Ans: Stores control Alc Rs. 84,000; work in progress Rs. 40,000; costing profit Rs. 4,000; financial protit Rs. 30,000]

(11) The following figures are available from financial accounts for the year ending 31" Murch 2003:

R.5.

Direct materials consumed 2,00,000

Direct wages 1,00,000

Factory overheads 75,000

Administrative overheads 2,,25:000

Selling and distribution overheads 2,40,000

Bad Debts 30,000

Preliminary expenses written off 40,000

Legal charges 20,000

Interest on Bank deposit received 20,000

Sales (1,20,000 units) 18,00,000

Closing stock (30,000 units) 1,60,000

The cost accounts reveal the following :

Direct materials consumed 2,20,000; Direct wages Rs. 80,000; Factory overheads at 20% on prime cost. Administration

overheads at Rs. 2 per unit produced and selling overheads at Rs. 2 per unit sold.

Prepare: (a) Statement showing cost and profit

(b) Financial profit and loss account

(c) Reconciliation statement

[Ans: Costing profit Rs. 10,32,000; Financial profit Rs. 11,00,000].

000

CHAPTER 26

Marginal Costing and Cost Volume Profit Analysis

Meaning

Marginal Cost: The tenn Marginal Cost refers to the amount at any given volume of output by which

the aggregate costs are charged if the volume of output is changed by one unit. Accordingly, it means that the

added or additional cost of an extra unit of output.

Marginal cost may also be defined as the "cost of producing one additional unit of product." Thus,

the concept marginal cost indicates wherever there is a change in the volume of output, certainly there will

be some change in the total cost. It is concerned with the changes in variable costs. Fixed cost is treated

as a period cost and is transferred to Profit and Loss Account.

Marginal Costing: Marginal Costing may be defined as "the ascertainment by differentiating

between fixed cost and variable cost, of marginal cost and of the effect on profit of changes in volume or

type of output." With marginal costing procedure costs are separated into fixed and variable cost.

According to J. Batty, Marginal costing is "a technique of cost accounting pays special attention to

the behaviour of costs with changes in the volume of output." This definition lays emphasis on the

ascertainment of marginal costs and also the effect of changes in volume or type of output on the

company's profit.

FEATURES OF MARGINAL COSTING

(1) All elements of costs are classified into fixed and variable costs.

(2) Marginal costing is a technique of cost control and decision making.

(3) Variable costs are charged as the cost of production.

(4) Valuation of stock of work in progress and finished goods is done on the basis of variable costs.

(5) Profit is calculated by deducting the fixed cost from the contribution, i.e., excess of selling

price over marginal cost of sales.

(6) Profitability of various levels of activity is detennined by cost volume profit analysis.

Marginal Costing and Cost Volume Profit Analysis 537

Absorption Costing

Absorption costing is also termed as Full Costing or Total Costing or Conventional Costing. It is a

technique of cost ascertainment. Under this method both fixed and variable costs are charged to product or

process or operation. Accordingly, the cost of the product is determined after considering both fixed and

variable costs.

Absorption Costing Vs Marginal Costing: The following are the important differences between

Absorption Costing and Marginal Costing:

(1) Under Absorption Costing all fixed and variable costs are recovered from production while

under Marginal Costing only variable costs are charged to production.

(2) Under Absorption Costing valuation of stock of work in progress and finished goods is done on

the basis of total costs of both fixed cost and variable cost. While in Marginal Costing

valuation of stOl!k of work in progress and finished goods at total variable cost only.

(3) Absorption Costing focuses its attention on long-term decision making while under Marginal

Costing guidance for short-term decision making.

(4) Absorption Costing lays emphasis on production, operation or process while Marginal Costing

focuses on selling and pricing aspects.

Differential Costing

Differential Costing is also termed as Relevant Costing or Incremental Analysis. Differential Costing

is a technique useful for cost control and decision making.

According to ICMA London differential costing "is a technique based on preparation of adhoc

information in which only cost and income differences between two alternatives / courses of actions are

taken into consideration."

Marginal Costing and Differential Costing: The following are the differences between Marginal Costing

and Differential Costing:

(1) Differential Costing can be made in the case of both Absorption Costing as well as Marginal

Costing

(2) While Marginal Costing excludes the entire fixed cost, some of the fixed costs may be taken

into account as being relevant for the purpose of Differential Cost Analysis.

(3) Marginal Costing may be embodied in the accounting system whereas Differential Cost are

worked separately as analysis statements.

(4) In Marginal costing, margin of contribution and contribution ratios are the main yardstick for

the performance evaluation and for decision making. In Differential Cost Analysis. differential

costs are compared with the incremental or decremental revenues as the case may be.

Advantages of Marginal Costing (or)

Important Decision Making Areas of Marginal Costing

The following are the important decision making areas where marginal costing technique is used :

(I) Pricing decisions in special circumstances :

(a) Pricing in periods of recession;

(b) Use of differential selling prices.

538 A Textbook of Financial Cost and Management Accounting,

(2) Acceptance of offer and submission of tenders.

(3) Make or buy decisions.

(4) Shutdown or continue decisions or alternative use of production facilities.

(5) Retain or replace a machine.

(6) Decisions as to whether to sell in the export market or in the home market.

(7) Change Vs status quo.

(8) Whether to expand or contract.

(9) Product mix decisions like for example :

(a) Selection of optimal product mix;

(b) Product substitution;

(c) Product discontinuance.

(10) Break-Even Analysis.

Limitations of Marginal Costing

(1) It may be very difficult to segregation of all costs into fixed and variable costs.

(2) Marginal Costing technique cannot be suitablf> for all type of industries. For example, it is

difficult to apply in ship-building, contract industries etc.

(3) The elimination of fixed overheads leads to difficulty in determination of selling price.

(4) It assumes that the fixed costs are controllable, but in the long run all costs are variable.

(5) Marginal Costing does not provide any standard for the evaluation of performance which is

provided by standard costing and budgetary control.

(6) With the development of advanced technology fixed expenses are proportionally increased.

Therefore, the exclusion of fixed cost is less effective.

(7) Under marginal costing elimination of fixed costs results in the under valuation of stock of

work in progress and finished goods. It will reflect in true profit.

(8) Marginal Costing focuses its attention on sales aspect. Accordingly, contribution and profits

are determined on the basis of sales volume. It does nnt con:::ider other functional aspects.

(9) Under Marginal Costing semi variable and semi fixed costs cannot be segregated accurately.

COST VOLUME PROFIT ANALYSIS

Cost Volume Profit Analysis (C V P) is a systematic method of examining the relationship between

changes in the volume of output and changes in total sales revenue, expenses (costs) and net profit. In

other words. it is the analysis of the relationship existing amongst costs, sales revenues, output and the

resultant profit.

To know the cost, volume and profit relationship, a study of the following is essential :

(1) Marginal Cost Formula

(2) Break-Even Analysis

Marginal Costing and Cost Volume Profit Analysis

(3) Profit Volume Ratio (or) PN Ratio

(4) Profit Graph

(5) Key Factors and

(6) Sales Mix

Objectives of Cost Volume Profit Analysis

The following are the important objectives of cost volume profit analysis:

(1) Cost volume is a powerful tool for decision making.

(2) It makes use of the principles of Marginal Costing.

539

(3) It enables the management to establish what will happen to the financial results if a specified

level of activity or volume fluctuates.

(4) It helps in the determination of break-even point and the level of output required to earn a

desired profit.

(5) The PN ratio serves as a measure of efficiency of each product, factory, sales area etc. and thus

helps the management to choose a most profitable line of business.

(6) It helps us to forecast the level of sales required to maintain a given amount of profit at

different levels of prices.

Marginal Cost Equation

The Following are the main important equations of Marginal Cost :

Sales = Variable Cost + Fixed Expenses ± Profit I Loss

(or)

Sales - Variable Cost = Fixed Cost ± Profit or Loss

(or)

Sales - Variable Cost = Contribution

Contribution = Fixed Cost + Profit

The above equation brings the fact that in order to earn profit the contribution must be more than

fixed expenses. To avoid any loss, the contribution must be equal to fixed cost.

Contribution

The term Contribution refers to the difference between Sales and Marginal Cost of Sales. It also

termed as "Gross Margin." Contribution enables to meet fixed costs and profit. Thus, contribution will

first covered fixed cost and then the balance amount is added to Net profit. Contribution can be represented

as:

Contribution = Sales - Marginal Cost

Contribution = Sales - Variable Cost

Contribution = Fixed Expenses + Profit

Contribution - Fixed Expenses = Profit

Sales - Variable Cost = Fixed Cost + Profit

540

C=S-V.C

C=F.C+P

S-V.C=F.C+P

C-F.C=P

Illustration: 1

(or)

A Textbook of Financial Cost and Management Accounting

Where:

C = Contribution

S = Sales

F ;:: Fixed Cost

P = Profit

V = Variable Cost

From the following information, calculate the amount of profit using marginal cost technique:

Solution:

Fixed cost Rs. 3,00,000

Variable cost per unit Rs. 5

Selling price per unit Rs. 10

Output level 1,00,000 units

Contribution

Contribution

Rs. 5,00,000

Profit

Profit

=

=

=

=

=

=

=

=

=

Break-Even Analysis:

Selling Price - Marginal Cost

(1,00,000 x 10) - (l,OO,OOO x 5)

10,00,000 - 5,00,000

Rs.5,OO,OOO

Fixed Cost + Profit

3,00,000 + Profit

Contribution - Fixed Cost

Rs. 5,00,000 - Rs. 3,00,000

Rs. 2,00,000

Break-Even Analysis is also called Cost Volume Profit Analysis. The term Break-Even Analysis is used to

measure inter relationship between costs, volume and profit at various level of activity. A concern is said to break-even

when its total sales are equal to its total costs. It is a point of no profit no loss. This is a point where contribution is

equal to fixed cost. In other words, the break-even point where income is equal to expenditure {or) total sales equal to

total cost.

The break-even point can be calculated by the following formula:

Break-Even Point in Units

(1) Break-Even Point in Units

(or) B E P (in units)

(2) Break-Even Point in Units

Total Fixed Cost =--------

=

=

Contribution per unit

F

C

Total Fixed Cost

SeIling Price - Variable Cost

Per unit Per unit

Marginal Costing alld Cost Volume Profit Analysis

Break-Even Point in Sales Volume

(J) Break-Even Sales

(2) Break-Even Sales

(3) Break-Even Sales

Profit Volume Ratio (PI V ratio)

Illustration: 2

=

=

=

=

=

=

Fixed Cost x Sales

Sales - Variable Cost

(or)

FxS

S-V

Fixed Cost

Variable Cost

1 - Sales

(or)

F

V

1 -

S

Fixed Cost

P I V Ratio

Contribution

x 100

Sales

From the following particulars find out break-even point:

Fixed Expenses Rs. 1.00.000

Selling price Per unit Rs. 20

Variable cost per unit Rs. 15

Solution:

Break-Even Point in Units

Contribution per unit

B E P (in units)

BE P in Sales

Profit Volume Ratio (P I V Ratio)

Fixed Cost

=

Contribution per unit

= Selling Price per unit - Variable Cost per unit

= Rs. 20 - Rs. 15 = Rs. 5

Rs. 1.00.000

= 5

= 20.000 units

= 20,000 x Rs. 20 = Rs. 4,00,000

541

Profit Volume Ratio is also called as Contribution Sales Ratio (or) Marginal Income Ratio (or) Variable Profit

Ratio. It is used to measure the relationship of contribution, the relative profitability of different products. processes or

departments.

542 A Textbook of Financial Cost and Management Accounting

The following fonnula for calculating the P I V ratio is given below:

Contribution C

(I) PI V Ratio = (or) x 100

Sales S

Sales - Variable Cost S-V

(2) PI V Ratio = x 100 (or) x 100

Sales S

Fixed Cost + Profit F+P

(3) PI V Ratio = x 100 (or) x 100

Sales S

When we find out the P I V Ratio, Break-Even Point can be calculated by the following fonnula :

Fixed Cost

(a) B E P (Sales volume) = -----

P I V Ratio

(b) Fixed Cost = B E P x P I V Ratio

(c) Sales required in units to maintain a desired profit:

Fixed Cost + Desired Profit

P I V Ratio

F+P

(or) = ----P

I V Ratio

(or) =

Required Contribution

New Contribution per unit

(d) Contribution = Sales x P I V Ratio

(e) Variable Cost = Sales ( 1 - P I V Ratio)

Illustration: 3

From the following information calculate :

(I) P I V Ratio

(2) Break-Even Point

(3) If the selling price is reduced to Rs. 80, calculate New Break-Even Point:

Total sales

Selling price per unit

Variable cost per unit

Fixed cost

Solution:

(1) P / V Ratio

Contribution

Total Sales

Selling price per unit

Rs. 5,00,000

Rs. 100

Rs. 60

Rs. 1,20,000

Contribution

= ----- x 100

Sales

= Sales - Variable Cost

Rs. 5,00,000

= Rs. 100

Marginal Costing and Co.vt Volume Profit Analysis

Sales in units =

5,00,000

100

= 5000 units

Contribution = Rs. 5,00,000 - (5000 x 60)

= Rs. 5,00,000 - Rs. 3,00,000 = Rs. 2,00,000

PI V Ratio =

Rs. 2,00,000

Rs. 5,00,000

x 100 = 40%

(2) Break-Even Point in sales = Fixed Cost

P I V Ratio

Rs. 1,20,000 1,20,000

:;:: =

40% 40

=

1,20,000

40

:;:: Rs. 3,00,000

100

x 100

(3) If the Selling price is reduced to Rs. 80 :

5,00,000

Sales

Break-Even Point

(in units)

Break-Even Point in Sales

Illustration: 4

Sales Rs. 2,00,000

Profit Rs. 20,000

Variable Cost 60%

You are required to calculate:

(1) P I V Ratio

(2) Fixed Cost

=

=

=

=

=

=

=

x 80

100

Rs. 4,00,000

Fixed Cost

Contribution per unit

(or)

Fixed Cost

Selling Price - Variable Cost

Rs. 1,20,000 1,20,000

= 80 - 50 30

4,000 units x Rs. 80

Rs. 3,20,000

(3) Sales volume to earn a profit of Rs. 50,000

Solution:

Sales = Rs. 2,00,000

Variable Cost = 60%

60

Variable Cost = -- x 2,00,000

100

= 4,000 units

543

544 A Textbook of Financial Cost and Management Accounting

(1) P / V Ratio

(2) Contribution

Contribution

= Rs. 1,20,000

Sales - Variable Cost

Sales

2,00,000 - 1,20,000

2,00,000

80,000

x 100

x 100

= x 100 = 40%

2,00,000

Fixed Cost + Profit

(or)

= Sales - Variable Cost

Contribution

80,000

Fixed Cost

Rs. 2,00,000 - Rs. 1,20,000 = Rs. 80,000

Fixed Cost + Profit

Fixed Cost + Rs. 20000

= Rs. 80,000 - Rs. 20,000 = Rs. 60,000

(3) Sales volume to earn a profit of Rs. 50,000

Fixed Cost + Desired Profit

Sales

P / V Ratio

Rs. 60,000 + Rs. 50,000

=

40%

Rs. 1,10,000 Rs. 1,10,000

= =

40 40

100

= Rs. 2,75,000

Illustration: 5

From the following particulars, calculate :

(a) P / V Ratio

Solution:

(b) Profit when sales are Rs. 40,000, and

(c) New break-even point if selling price is reduced by 10%

Fixed cost = Rs. 8,000

Break-even point = Rs. 20,000

Variable cost = Rs. 60 per unit

Fixed Cost

(a) Break-Even Point =

PlY Ratio

Fixed Cost

P I V Ratio =

Break-Even Point

8,000

= x 100 = 40%

20,000

x 100

Marginal Costing and Cost Volume Profit Analysis

(b) Profit when sales are Rs. 40,000

Profit = Sales x P I V Ratio - Fixed Cost

= Rs. 40,000 x 40% - Rs. 8,000

= Rs. 16,000 - Rs. 8,000 = Rs. 8,000

545

(c) New break-even point if the selling price is reduced by 10%. If the selling price is Rs. 100, now

it is reduced by 10%, i.e., it will be Rs. 90 (100 - 10)

Variable Cost = Rs. 60 Per unit

New PI V Ratio

Selling Price - Variable Cost

= x 100

Selling Price

90 - 60

= x 100 = 33.33%

90

Fixed Cost

New Break-Even Point =

New P I V Ratio

8,000

= = Rs. 24,002.40

33.33%

New Break-Even Point = Rs. 24,002.40

Illustration: 6

MNP Ltd. produces a chocolate almond bar. Each bar sells for Rs. 20. The variable cost for each bar

(sugar, chocolate, almonds, wrapper, labour) total Rs. 12.50. The total fixed cost are Rs. 30,00,000.

During the year, 10,00,000 bars were sold. The CEO of MNP Ltd. not fully satisfied with the profit

performance of chocolate bar, was considering the following options to increase the profitability :

(I) Increase advertising

(II) Improve the quality of ingredients and, simultaneously, increase the selling price

(III) Increase the selling price

(IV) Combination of three.

Required

(I) The sales manager is confident that an advertising campaign could double sales volume. If the company

CEO's goal is to increase this year's profits by 50% over last year's, what is the maximum amount that

can be spent on advertising.

(2) Assume that the company improves the quality of its ingredients, thus increasing variable cost to Rs.15.

Answer the following questions:

(a) How much the selling price be increased to maintain the same break-even point?

(b) What will be the new price, if the company wants to increase the old contribution margin ratio by

50%?

(3) The company has decided to increase its selling price to Rs. 25. The sales volume drops from 10,00,000 to

8,00,000 bars. Was the decision to increase the price a good one? Compute the sales volume that would be

needed at the new price for the company to earn the same profit at last year.

(4) The sales manager is convinced that by improving the quality of ingredients (increasing variable cost to

Rs. 15) and by advertising the improved quality (advertisement amount would be increased by Rs.

50,00,000), sales volume could be doubled. He has also indicated that a price increase would not affect the

546 A Textbook of Financial Cost and Management Accounting

ability to double sales volume as long as the price increase is not more than 20% of the current selling

price. Compute the selling price that would be needed to achieve the goal of increasing profits by 50%. Is

the sales manager's plan feasible? What selling price would you choose? Why?

(CA, PE, 2002)

Solution:

Contribution Analysis of operating result of a most recent year:

Selling price

Less : Variable Cost

Contribution

For 10,00,000 units x 7.50

Less : Fixed Cost

Profit

(1) Desired Profit

Contribution (Rs.7.50 x 20,00,000 bars)

Less: Desired Operating Profits

Less: Fixed Cost (other than Incremental }

Advertising)

Maximum amount that can be spent on }

Advertisement

(2) (a) Variable cost increased to

Break-Even Point

(Most recent year)

Let S = Desired Selling Price

4,00,000

4,00,000

S

.'. S

Selling Price, increased by

Rs.20.00

Rs. 12.50

Rs. 7.50

= Rs. 75,00,000

= Rs. 30,00,000

= Rs. 45,00,000

= Rs. 45,00,000 x Rs. 1.50

= Rs. 67.50,000

= Rs. 1,50,00,000

= Rs. 67,50,000

= Rs. 82.50,000

= Rs. 30,00,000

= Rs. 52,50,000

= Rs. 15 per bar

Fixed Cost

=

Selling Price - Variable Cost

30,00,000 30,00,000

= = 20 - 12.50 7.50

= 4,00,000 bars

=

=

=

3,00,000

Sales - Variable Cost

30,00,000

S - Rs.15

30,00,000

4,00,000

= 7.50 + 15 = Rs. 22.50

= Rs.22.50

2.50 = -- x 100 = 12.50%

20

Marginal Costing and Cost Volume Profit Analysis

2. (b) New Price, if Co. wants to increase old contribution margin ratio by 50%

7.50

Old contribution margin ratio = -- x 100 = 37.50%

20

Desired to increase at 56.25% = (37.50 + 50% of 37.50)

.. Variable Cost I Sales = 43.75%

Rs. 15

Hence new Selling Price = 0.4375

= Rs.34.2857

(3) New Selling Price = Rs.25

New sales Volume = 8,00,000 bars

Contribution Sales - Variable Cost Per unit

= Rs. 25 - 12.50 = Rs.12.50

Contribution = 8,00,000 x 12.50

= Rs. 1,00,00,000

Less : Fixed Cost = Rs. 30,00,000

Operating profit Rs. 70,00,000

The decision seems to be good one as operating profit has increased from Rs. 45 lakhs to Rs. 70 lakhs:

Desired Sales Qty. =

=

Fixed Cost + Desired Profit

Selling Price - Variable Cost

Rs. 30,00,000 + Rs. 45,00,000

12 - 12.50

= 6,00,000 bars.

(4) Variable cost per bar = Rs. 15

Fixed cost increased due to advertising = From Rs.30 lakhs to Rs. 80 lakhs

Let desired selling price be S

Then desired Selling price needed to achieve profit goals of Rs. 67,50,000

\

20,00,000 bars

20,00,000

S

.'. S

Yes, Sales manager's plan seems feasible

As price increase of

to achieve desired profit

but the caveat is :

(l) Is market so big?

=

=

Fixed Cost + Desired Profit

S - Variable Cost Per bar

Rs. 80 lakhs + Rs. 67.5 lakhs

S - Rs. 15

Rs. 147.5 lakhs

20,00,000

Rs.22.375

Rs.22.375

= Rs. 7.375 + 15

2.375

20

x 100 = 11.875% is required

(2) Will competitors not follow aggressive strategy when it hurts them?

The choice of selling price of Rs. 22.375 depends on the assessment of above two factors.

547

548

Illustration: 7

A Textbook of Financial Cost and Management Accounting

A Company manufactures a single product with a capacity of 1,50,000 units per annum. The

summarized profitability statement for the year is as under:

Sales: 1,00,000 units @ RS.15 per unit

Less : Cost of Sales :

Direct Materials

Direct Labour

Production overhead :

Variable

Fixed

Administration Overhead (Fixed)

Selling and Distribution Overheads:

Variable

Fixed

Profit

You are required to evaluate the following options:

Rs.

3,00,000

2,00,000

60,000

3,00,000

1,50,000

90,000

1,50,000

Rs.

15,00 ,000

12,50,000

2,50,000

(I) What will be the amount of sales required to earn a target profit of 25% on sales, if the packing is

improved at a cost of Re.l per unit?

(2) There is an offer from a large retailer for purchasing 30,000 units per annum, subject to providing a

packing with a different brand name at a cost of Rs. 2 per unit. However, in this case there will be no

selling and distribution expenses. Also this will not, in any way, affect the company's existing business.

What be the break-even price for this additional offer.?

(3) If an expenditure of Rs. 3,00,000 is made on advertising the sales would increase from the pre.>ent level of

l,oo,ooo units to 1,20,000 units at a price of Rs. 18 per unit, will that expenditure be justified?

(4) If the selling price is reduced by Rs. 2 per unit, there will be 100% capacity utilization. Will the reduction

in selling price be justified?

Solution:

Selling price

Less : Variable Cost :

Direct materials

Direct Labour

Production Overheads

Selling Overheads

Total variable Cost

Contribution (Sales-Variable Cost)

Method I

(Per unit Rs.)

15.00

3.00

2.00

0.60

0.90

6.50

8.50

(C A Inter. May 2(01)

Method II

(in total Rs.)

15,00,000

3,00,000

2,00,000

60,000

90,000

6,50,000

8,50,000

Marginal Costing and Cost Volume Profit Analysis

Evaluation of Options

(1) Option I:

Present Marginal Cost (V. C.)

Add : Additional Cost of Packing

Revised Contribution }

(Sales - Variable Cost)

P / V Ratio =

Contribution

Sales

x 100 =

Let the proposed sales be equal to X

Sales X =

7,50,000

15,00,000

Method I

(Per unit Rs.)

6.50

1.00

7.50

=50%

(Fixed Cost + 25% of X)

50%

Method II

(in total Rs.)

6,50,000

1,00,000

7,50,000

50%

6,00,000 + 0.25 X 6,00,000 + 0.25 x 100

Sales = = 50% 50

= Rs. 24,00,000

Alternative Solution:

Let the number of units to be sold = X

The equation is :

Sales

15 x

=

=

Variable Cost + Fixed Cost + Profit

7.50 x + Rs.6,OO,ooo + 3.75 x

Transposing and solving we get

3.75 x

(2) Option II :

X

.'. Sales in units

Sales in volume

Present Marginal Cost

Less : Variable selIing Cost

Net cost per unit

Add : Special packing Cost

Total Variable Cost per unit

Total Variable Cost for 30,000 units

= Rs. 6,00,000

6,00,000 = = 1,60,000 units

3.75

= 1,60,000 units

= 1,60,000 x 15 = Rs. 24,00,000

= Rs.6.50

= Rs.0.90

= Rs.5.60

= Rs.2.00

= Rs.7.60

= 30,000 x 7.60

= Rs. 2,28,000

549

There is no impact of this transactions on fixed cost. Hence the price should atlest cover

Rs. 2,28,000. Therefore, unit price to break-even is Rs. 760.

550 A Textbook of Financial Cost and Management Accounting

(3) Option III :

Revised Contribution when selling price is Rs. 18

. '. Contribution = Selling Cost - Variable Cost

= Rs. 18 - Rs. 6.50 = Rs. 11.50

Quantum of sales =

Total contribution 1,20,000 x 11.50 =

Less: Fixed Cost: Present 6,00,OOO}

Additional 3,00,000 =

Profit =

As the profit increases, the proposal is justified.

(4) Option IV:

Revised price Rs. 15 - 2

Less : Marginal Cost

Contribution (selling costing-V.C.)

Total constriction at 1,50,000 units

(l,50,OOO x Rs. 6.50)

Less: Fixed Cost

Profit (contribution - Fixed Cost)

As per problem normal profit is

Revised profit is

1,20,000 units

Rs. 13,80,000

Rs.9,00,000

Rs. 4,80,000

Rs. 13.00

Rs. 6.50

Rs. 6:50

Rs. 9,75,000

Rs. 60,00,000

Rs. 3,75,000

Rs. 2,50,000

Rs. 3,75,000

Since the profit is increased by (Rs. 3,75,000 - Rs. 2,50,000) Rs. 1,25,000 the proposal is acceptable.

Illustration: 8

Fill in the blanks for each of the following independent situation :

Selling Price per unit

Variable Cost as % of }

Selling Price

No. of units sold

Marginal contribution

Fixed costs

Profit I Loss

Solution:

(A) Profit

Contribution

P I V Ratio

Sales

Units Sold

Selling Price

A B C D

Rs.50 Rs. 20

60 75 75

10,000 4,000 6,000

Rs.20,000 Rs.80,000 Rs.25,000

Rs. 12,000 Rs. 1,20,000 Rs.1O,OOO

20,000 Rs.30,000

= Co]ntribution - Fixed costs

= Rs. 20,000 - 12,000 = 8,000

= 20,000

= (100 - 60) =40%

Contribution 20,000

= = = Rs.50,000

P I V Ratio 40%

= 10,000

Sales volume 50000

= = = Rs.5

Units 10000

E

Rs.30

5,000

Rs.50,000

Rs.15,000

Marginal Costing and Cost Volume Profit Analysis

(B) Sales 4000 units X Price Rs.50

Contribution (S - V.C. = Rs. 2,00,000 - Rs. 1,20,(00)

Variable Cost (60% of sales, i.e., 2,00,000 x ~)

100

Fixed Cost (contribution - Profit) Rs. 80,000 - Rs. 20,000

(C) Contribution (Fixed cost + Profit) Rs. 1,20,000 + Rs. 30,000

Contribution per unit 25% of Rs. 20

Contribution

= Rs. 2,00,000

= Rs. 80,000

= Rs. 1,20,000

= Rs. 60,000

= Rs. 1,50,000

= Rs.5

No. of units = =

1,50,000

5

= 30,000 units.

Contribution per unit

(0) Profit (Contribution - Fixed Cost) 25,000 - 10,000 = Rs. 15,000

P I V Ratio = (100 - 75) = 25%

Contribution 25,000 25,000

Sales = = = x 100

P I V Ratio 25% 25

= Rs.l,OO,OOO

No. of units = 6,000 Units

Contribution 1,00,000

Price per unit = = = Rs. 16.67

No. of Units 6,000

(E) Sales 5,000 units x Rs. 30 = Rs. 1,50,000

Variable cost (Sales - Contribution) Rs. 1,50,000 - 50,000 = 1,00,000

=

1,00,000

Variable cost as % of selling price x 100 = 66.67%

1,50,000

Fixed Cost (Contribution - Profit) = Rs. 50,000 - Rs. 15,000 = Rs. 35,000

55/

Margin of Safety: The term Margin of safety refers to the excess of actual sales over the break-even sales. It is

known as the Margin of Safety. Margin of safety can also be expressed as a percentage of sales. Margin of safety can be

improved by :

(a) Increasing the selling price

(b) Reducing the variable cost

(c) Selecting a product mix of larger PN ratio items

(d) Reducing fixed costs

(e) Increasing the output

Margin of Safety can be calculated by the following formula:

(1) Margin of Safety = Total Sales - Break-Even Sales

Profit

(2) Margin of Safety = P I V Ratio

Profit

(3) Margin of Safety = x Sales

Contribution

(4) Profit = Margin of Safety x P I V ratio

552 A Textbook of Financial Cost and Management Accounting

(5) Margin of Safety expressed as percentage:

Margin of Safety =

=

Illustration: 9

Margin of Safety

x 100

Total Sales

(or)

Actual Sales - Break-Even Sales

Total Sales

From the following particulars, calculate Margin of safety :

Fixed cost Rs. 1,00,000

Variable cost Rs. 1,50,000

Total Sales Rs. 3,00,000

Solution:

Profit

Margin of Safety = P I V Ratio

(or)

= Actual Sales - Break-Even Sales

Sales - Variable Cost

P I V Ratio = x 100

Sales

3,00,000 - 1,50,000

= x 100 =

3,00,000

= 50%

P I V Ratio = 50%

Fixed Cost Rs. 1,00,000

Break-Even Sales = = P I V Ratio 50%

1,00,000

= x 100 = Rs.2,OO,000

50

Margin of Safety = Actual Sales - Break-Even Sales

x 100

1,50,000

3,00,000

= Rs. 3,00,000 - Rs. 2,00,000 = Rs. 1,00,000

Alternatively :

Contribution

Profit

Margin of Safety

= Sales - Variable Cost

= Rs. 3,00,000 - 1,50,000 = Rs. 1,50,000

= Contribution - Fixed Cost

= Rs. 1,50,000 - 1,00,000 = Rs. 50,000

Profit 50,000 = =

=

P I V Ratio 50%

50,000

50

x 100 = Rs. 1,00,000

x 100

Marginal Costing and Cost Volume Profit Analysis 553

Margin of Safety expressed in percentage of sales:

Margin of Safety

= x 100 Actual Sales

Rs. I ,00,000

= x 100

Rs.3,OO,OOO

= 33.33%

Illustration: 10

A company manufactures a product, currently utilizing 80% capacity with a turnover of Rs. 8,00,000

at Rs.25 per unit. The cost data are as under:

Material Cost Rs. 7.50 per unit, Labour Cost Rs. 6.25 per unit. Semi-Variable Cost (including variable cost of

Rs. 3.75 per unit) Rs. 1,80,000.

Fixed Cost Rs. 90,000 upto 80% level of output, beyond this an additional Rs. 20,000 will be incurred.

Calculate:

(1) Activity level at Break-Even Point.

(2) Number of units to be sold to earn a net income of 8% of sales.

(3) Activity level needed to earn a profit of Rs. 95,000.

(4) What should be the selling price per unit, if break-even point is to be brought down to 40% activity level?

Solution:

Working Notes:

(a) Variable cost per unit :

Material cost per unit

Labour cost per unit

Semi Variable cost per unit

Variable Cost per unit

(b) Contribution per unit:

Contribution per unit

(c) Fixed cost in Semi Variable Cost:

Total semi variable cost

Less: Variable cost @ Rs. 3.75 per unit

(Rs. 3.75 x 32000 units)

Fixed cost in semi-variable cost

(d) Total Fixed cost upto 80% level :

Fixed cost upto 80%

Add : Fixed cost in Semi variable cost

Total Fixed cost upto 80% level

=

=

=

=

=

=

(C A. Inter. Nov. 2000)

Rs.

7.50

6.25

3.75

17.50

Selling price per unit - Variable cost per unit

Rs. 25 - Rs. 17.50

= Rs. 7.50 per unit.

= Rs. 1,80,000

= Rs. 1,20,000

= Rs. 60,000

= Rs. 90,000

= Rs. 60,000

= Rs. 1,50,000

554

(e) Total Fixed cost above 80% level:

Fixed cost upto 80% Level

Add: Fixed cost in Semi-variable cost

Add: Additional Fixed cost

Total Fixed cost above 80% level

(I) No. of units produced at 80% level:

Total Turnover

Per unit

No. of units produced

(g) No. of units produced at 100% level:

No. of units produced at 80% level

No. of units produced at 100% level

(h) Profit at 80% level of activity:

Profit

Percentage to sales

(i) So upto desired profit Rs. 90,000

Fixed Cost

(1) Activity level at B E P :

Activity level at B E P

Activity level

=

=

=

=

A Textbook of Financial Cost and Management Accounting

Rs. 90,000

Rs. 60,000

Rs. 20,000

Rs. 1,70,000

= Rs. 8,00,000

= Rs. 25

8,00,000

= = 32,000 units

25

= 32,000 units

32,000

= = 40,000 units

80

= Sales units x Contribution per unit - Fixed Cost

= (32,000 x Rs. 7.5) - Rs. 1,50,000

= Rs. 2,40,000 - Rs. 1,50,000 = Rs. 90,000

=

Rs.90,ooo

8,00,000

= 11.25%

11.25% of sales

= Rs. 1,50,000

=

=

=

Fixed Cost

Contribution per unit

Rs. 1,50,000

Rs.7.5

20,000

= 20,000 units

--- x 100 = 50% level

40,000

(2) Number of units to be sold to earn a net income of 8 % of sales:

Equation:

Suppose Sales Unit = X

Sales

25 X

25 X

25 X - 19.5 X

=

=

=

=

Variable Cost + Fixed Cost + Profit

17.5 X + 1,50,000 + 2X

(or)

19.5 X + 1,50,000

1,50,000

Marginal Costing and Cost Volume Profit Analysis

5.5 X =

X =

1,50,000

1,50,000

5.5

= 27,273 units

(3) Activity level needed to earn a profit of Rs. 95,000 :

The profit amount can be achieved at over 80% level, hence fixed cost will be Rs. 1,70,000

Sales

Activity Level

Fixed Cost + Desired Profit

= -----------

Contribution per unit

1,70,000 + 95,000

= = 35,333 units

7.5

Sales

= x 100

No. of units produced at 100% level

35,333

=

40,000

= 88.33%

x 100

(4) Selling price per unit required to bring down B E P to 40% activity level:

40% Activity level = 40% of 40,000

40 = 40,000 x = 16,000 units

100

Selling price to Break-Even at the level

Fixed Cost + Variable cost per unit = Sales

1,50,000

= + Rs. 17.50

16000

= Rs.9.375 + Rs. 17.50 = Rs. 26.875

= Rs.26.875

Selling price per unit }

required to bring down

B E P to 40% activity level

I. Break-Even Chart

555

A break-even chart is a graphical presentation which indicates the relationship between cost, sales

and profit. The chart depicts fixed costs, variable cost, break-even point, profit or loss, margin of safety

and the angle of incidence. Such a chart not only indicates break-even point but also shows the estimated

cost and estimated profit or loss at various level of activity. Break-even point is an important stage in the

break-even chart which represents no profit no loss.

556 A Textbook of Financial Cost and Management Accounting

The following Break-Even Chart can explain more above the inter relationship between the costs,

volume and profit :

Y

Cost and

Revenues

(Rs.ooo)

150

Profit

125

Angle of incidence

100

B.E.P Total Cost

Variable cost

75

50 F----,,,c------+-------

25

o 50 100 150 200

Output in Units

Fixed cost

250 300 x

From the above break-even chart, we can understand the following points :

(1) Cost and sales revenue are represented on vertical axis, i.e., Y-axis.

(2) Volume of production or output in units are plotted on horizontal axis, i.e., X-axis.

(3) Fixed cost line is drawn parallel to X-axis.

(4) Variable costs are drawn above the fixed cost line at different level of activity. The variable

cost line is joined to fixed cost line at zero level of activity.

(5) The sales line is plotted from the zero level, it represents sales revenue.

(6) The point of intersection of total cost line and sales line is called the break-even point which

means no profit no loss.

(7) The margin of safety is the distance between the break-even point and total output produced.

(8) The area below the break-even point represents the loss area as the total sales and less than the

total cost.

(9) The area above the break-even point represents profit area as the total sales more than the cost.

(10) The sales line intersects the total cost line represents the angle of incidence. The large angle of

incidence indicates a high rate of profit and vice versa.

Marginal Costing and Cost Volume Profit Analysis 557

II. Cash Break-Even Point

In cash break-even chart, only cash fixed costs are considered. Non-cash items like depreciation etc.

are excluded from the fixed costs for computation of break-even point. Cash Break-Even Chart depicts the

level of output or sales at which the sales revenue will be equal to total cash outflow. It is computed as

under:

Cash Fixed Costs

Cash Break-Even Point =

Contribution per unit

Illustration: 11

From the following information calculate the Cash Break-Even Point:

SeIling ,price per unit

Variable cost per unit

Fixed cost

Depreciation included in fixed cost

Solution:

Cash Fixed Cost

Cash Break-Even point in units

Advantages of Break-Even Chart

Rs. 60

Rs. 40

Rs. 2,00,000

Rs. 50,000

=Rs. 2,00,000 - Rs. 50,000 = Rs. 1,50,000

=60 - 40 = Rs.20

=

=

Cash Fixed Cost

Contribution per unit

1,50,000

20

= 7,500 units

(1) It enables to determine the profit or loss at different levels of activities.

(2) It is useful to measure the relationship between cost volume and profit.

(3) It helps to determine the break-even units, i.e., output and sales volume.

(4) It helps to measure the profitability of various products.

(5) It facilitates most profitable product mix to be adopted.

(6) It assists future planning and forecasting.

(7) It enables to determine total cost, fixed cost and variable cost at different levels of activity.

(8) This chart is very useful for effective cost control.

Limitations of Break-Even Chart

(1) It is based on number of assumptions which may not hold good.

(2) Break-even charts are rarely of value in a multi-product situation.

(3) A break-even chart does not take into consideration semi-variable cost, valuation of opening stock and

closing stock.

(4) Determination of seIling price is based on many factors which will affect the constant selling price.

(5) Capital employed, Government policy, Market environment etc. are the important aspects for managerial

decisions. These aspects are not considered in break-even chart.

558 -A Textbook of Financial Cost and Management Accounting

Angle of Incidence

The angle formed by the sales line and the total cost line at the break-even point is known as Angle

of Incidence. The angle of incidence is used to measure the profit earning capacity of a firm. A large angle

of incidence indicates a high rate of profit and on the other hand a small angle of incidence means that a

low rate of profit.

Relationship between Angle of Incidence, Break-Even Sales and Margin of Safety Sales

(1) When the Break-even sales are very low, with large angle of incidence, it indicates that the firm

is enjoying business stability and in that case margin of safety sales will also be high.

(2) When the break-even sales are low, but not very low with moderate angle of incidence, in that

case though the business is stable, the profit earning rate is not very high as in the earlier case.

(3) Contrary to the above when the break-even sales are high, the angle of incidence will be narrow

with much lower margin of safety sales.

QUESTIONS

1. What do you understand by Marginal Costing?

2. Define Marginal Costing Briefly explain the features of marginal costing.

3. What are the differences between Absorption costing and Marginal costing?

4. What is meant by Differential costing?

5. Compare and contrast Marginal costing and Differential costing.

6. What are the important decision making areas of Marginal costing?

7. Briefly explain the advantages and limitations of Marginal costing.

8. What do you understand by Cost Volume Profit Analysis?

9. Briefly explain the objectives of cost volume profit analysis.

10. Explain Marginal cost equation.

11. What is Contribution? How it is computed?

12. What do you understand by Break-Even Analysis?

13. Write short notes on :

(a) Profit Volume ratio. (b) Margin of Safety. (c) Break-Even chart. (d) Angle of Incidence.

14. Briefly explain the advantages .md limitations of Break-Even Chart

15. Briefly explain the relationship between Angle of Incidence, Break-Even Sales and Margin of Safety.

16. From the following particulars, you are required to find out (a) Contribution (b) Break-even point in units (c) Margin

of safety and (d) Profit

Total Fixed cost Rs. 4,500

Total Variable cost Rs. 7,500

Total Sales Rs. 15,000

Units sold 5,000 units

Also calculate the volume of sales to earn profit of Rs. 6,000

[ADS: (a) Contribution Rs. 7,500 (b) Break-even point in units Rs. 3,000 units (c) Margin of Safety Rs. 6,000 (d) Profit

Rs.3,000]

17. From the following data, calculate:

(a) P I V Ratio.

(b) Profit when sales are Rs. 40,000.

(c) New break-even point if selling price is reduced by 20%.

Fixed Expenses Rs. 8,000.

Break-Even point Rs. 10,000.

[Ans : (a) Profit volume ratio 40%. (b) Profit when sales are Rs. 40,000 is Rs. 8,000.

(c) New break-even point if seIling price is reduced by 20% is Rs. 32.000.]

18. From the following particulars you are required to calculate (a) P I V ratio and (b) Break-even point:

Present sales Rs. 2,00,000

Variable cost Rs. 1,20,000

Fixed expenses Rs. 40,000

Ascertain the effect of 10% reduction of selling price on (a) P I V ratio and (b) Break-Even Point.

Also calculate the sales required to maintain the profit at the present level.

[Ans : (a) P I V Ratio 40% ; New PI V Ratio = 33%.

(a) Break-even point Rs. 1,00,000; New BEP = Rs. 1,20,000.

Marginal Costing and Cost Volume Profit Analysis

(b) Sales required to maintain the profit at the present level.

Present profit Rs. 20000. Required Sales Rs. 1,81,820.)

19. The following are the cost information in relation to the manufacture of a product:

Selling price - Rs. 10 per unit

Trade discount - 5% of selling price

Material cost - Rs. 3 per unit

Labour - Rs. 2 per unit

Overheads:

Fixed Rs. 10,000

Variable 100% of labour cost

Calculate:

(a) BE P.

(b) Profit if sales are 15% above break-even volume.

[Aos: BEP - 4,000 units; Profits Rs. 1,500, Volume 4,600 units.)

20. Sales Price - Rs. 20 unit

Variable manufacturing cost - Rs. 11 per unit

Variable selling cost - Rs. 3 per unit.

Fixed factory overheads - Rs. 5,40,000 per year.

Fixed selling costs - Rs. 2,52,000 per unit.

Calculate:

(a) BEP Volume and Value.

(b) Sales required to earn a profit of Rs. 60,000.

(c) Sales required to earn a profit of 10% of sales.

[Aos: (a) BEP Volume - 1,32,000 units; Value - Rs. 26,40,000.

(b) Sales - 1,42,000 units; Value - Rs. 28,40,000.

(d) Sales - 1,98,000 units; Value - Rs. 39,60,000.

(11,88,000; 3,96,000).)

21. From the following data, find out how many units should be sold to earn a net profit of 10% on sales.

Selling price per unit Rs. 20

Variable cost per unit Rs. 14

Fixed cost (total) Rs. 7,92,000

[Aos: Sales in Units 1.98,000)

559

22. A company estimates that next year it will earn a profit of Rs. 50,000. The budgeted fixed costs and sales are Rs.

2,50,000 and Rs. 9,93.000 respectively. Find out the break-even point for the company.

[Aos: B.E.P in sales. Rs. 8,27,500)

23. Plant I produces a product which costs Rs. 3 per unit when produced in quantities of 10,000 Units and Rs. 2.50 per Unit

when produced in quantities of 20,000 units. You are asked to estimate total fixed costs.

[Aos: Fixed cost Rs. 10,000)

24. The following are the budgeted data of a company.

Sales

Variable costs

Fixed costs

Find out the break-even point at

(i) the budgeted data

(ii) assuming 20% increase in variable cost.

Rs.

6,00,000

3,00,000

1,80,000

[Aos: Break-even point Rs. 3,60,000; New Break-even point at 20% increase in variable costs Rs. 4,50,(00)

25. Calculate No. of Units to be sold to earn a profit of Rs. 60,000 a year

Sale price Rs. 20 per unit

Variable manufacturing cost Rs. 11 per unit

Variable selling price Rs. 3 per unit

Fixed factory overhead Rs. 5,40.000 per year

Fixed selling costs Rs. 2,52,000 per year

[ADS: No. of Units to be sold is 1,42,000 units)

26. Present production and sales : 8,000 units

Selling price per unit Rs. 20

Direct labour Rs. 2.50

Variable overhead Rs 100% of direct labour cost

Direct materials Rs. 5

Fixed costs Rs. 40,000

560 A Textbook of Financial Cost and Management Accounting

Find out;

(a) PN Ratio

(b) Sales required to break-even point and

(c) Margin of safety

[Ans: PN ratio 50% ; BEP Rs SO,OOO; Margin of safety Rs SO,OOO]

27. The PN ratio of Gupta & Co. is 60% during 2003. Sales were Rs 1,50,000 and the fixed cost Rs 15,000. Calculate:

(a) Total variable expenses

(b) Total contribution

(c) Profit and

(d) Profit if sales are increased to Rs. 2,25,000

[Ans: a) Total variable cost Rs. 60,000; b) Total contribution Rs. 90,000

c) Profit Rs. 75.000; d) Profit Rs. 1,20,000]

2S. The projected capacity of a plant, when sold, would return Rs. 70,000 in sales income to the company. The variable

costs for this production volume were determined to be Rs. 30,000. The fixed costs are Rs. 20,000. Determine the

following:

(I) the break-even point of the business

(2) the profit or loss to the business on sales of Rs. 49,000; Rs. 2S,OOO

(3) the amount of sales that will enable the business to earn a net profit of Rs. 2S,OOO

[Ans: (I) break-even point Rs. 35,000;

(2) if sales of Rs. 49,000 the profit is Rs. S,OOO; if sales of Rs. 2S,OOO the loss is Rs. 4,000

(3) the amount of sales Rs. SO,5OO]

29. From the following data, find out the break-even point; PN ratio, and margin of safety ratio.

Fixed costs 6,00,000 30%

Variable costs 12,00.000 60%

Net profit 2,00.000 10%

Sales 20,00,000 100%

[Ans: PN ratio 40%; BEP Rs 15,00,000; Margin of safety Ratio 25%]

30. A company budgets for a production of 1,50,000 units. The variable cost per unit is Rs. 14 and fixed cost is Rs. 2 per

unit. The company fixes its seIling price to fetch a profit of 15% on cost.

(a) What is the break-even point?

(b) What is the profit-volume ratio?

(c) If it reduces its selling price by 5%, how the revised seIling price affect the break-even point and the profit-volume

ratio?

(d) If a profit increase of 10% is desired more than the budget, what should be the sales at the reduced prices?

[Ans: (a) Break-even point (in Rs.) Rs. 12.54.549 (b) PN ratio 23.91%

(c) New break-even point in units 86.207 units new PN ratio 19.90% (d) Sales for desired profit Rs. 34,96.000]

31. The following information regarding the operations of 2003 has been made available from the records of the AAA

corporation.

Sales

Direct materials used

Direct labour

Fixed manufacturing overheads

Fixed selling and administrative expenses

Gross profit

Net loss

Rs. 1.00,000

40,000

15,000

20,000

10,000

20.000

5,000

There are no opening or closing inventories. It is required to calculate :

(I) Variable seIling and administrative expenses

(2) Contribution Margin in rupees

(3) Variable factory overhead

(4) Break even point in rupee sales

(5) Factory cost of goods sold

[Ans: Variable factory overheads Rs. 5,000; variable seIling & administrative expenses Rs. 15,000; Contribution Margin

Rs. 25,000; Break-even point Rs. 1,20,000; Factory cost of goods sold Rs. SO,OOO]

000

CHAPTER 27

Budgeting and Budgetary Control

Introduction

Budgeting has come to be accepted as an efficient method of short-term planning and control. It is

employed, no doubt, in large business houses, but even the small businesses are using it at least in some

informal manner. Through the budgets, a business wants to know clearly as to what it proposes to do

during an accounting period or a part thereof. The technique of budgeting is an important application of

Management Accounting. Probably, the greatest aid to good management that has ever been devised is the

use of budgets and budgetary control. It is a versatile tool and has helped managers cope with many

problems including inflation.

DEFINITION OF BUDGET

The Chartered Institute of Management Accountants, England, defines a 'budget' as under:

" A financial and/or quantitative statement, prepared and approved prior to define period of time, of

the policy to be persued during that period for the purpose of attaining a given objective."

According to Brown and Howard of Management Accountant "a budget is a predetermined statement

of managerial policy during the given period which provides a standard for comparison with the results

actually achieved."

Essentials of a Budget

An analysis of the above said definitions reveal the following essentials of a budget:

(1) It is prepared for a definite future period.

(2) It is a statement prepared prior to a defined period of time.

(3) The Budget is monetary and I or quantitative statement of policy.

(4) The Budget is a predetermined statement and its purpose is to attain a given objective.

A budget, therefore, be taken as a document which is closely related to both the managerial as well as

accounting functions of an organization.

562 A Textbook of Financial Cost and Management Accounting

Forecast Vs Budget

Forecast is mainly concerned with an assessment of probable future events. Budget is a planned

result that an enterprise aims to attain. Forecasting precedes preparation of a budget as it is an important

part of the budgeting process. It is said that the budgetary process is more a test of forecasting skill than

anything else. A budget is both a mechanism for profit planning and technique of operating cost control.

In order to establish a budget it is essential to forecast various important variables like sales, selling prices,

availability of materials, prices of materials, wage rates etc.

Difference between Forecast and Budget

Both budgets and forecasts refer to the anticipated actions and events. But still there are wide

differences between budgets and forecasts as given below:

Forecasts

(1) Forecasts is mainly concerned with anticipated or

probable events

(2) Forecasts may cover for longer period or years

(3) Forecast is only a tentative estimate

(4) Forecast results in planning

(5) The function of forecast ends with the forecast of

likely events

(6) Forecast usually covers a specific business function

(7) Forecasting does not act as a tool of controlling

measurement.

Budgets

(1) Budget is related to planned events

(2) Budget is planned or prepared for a shorter period

(3) Budget is a target fixed for a periOd.

(4) Result of planning is budgeting

(5) The process of budget starts where forecast ends

and converts it into a budget

(6) Budget is prepared for the business as a whole

(7) Purpose of budget is not merely a planning device

but also a controlling tool.

BUDGETARY CONTROL

Budgetary Control is the process of establishment of budgets relating to various activities and

comparing the budgeted figures with the actual performance for arriving at deviations, if any. Accordingly,

there cannot be budgetary control without budgets. Budgetary Control is a system which uses budgets as

a means of planning and controlling.

According to I.C.M.A. England Budgetary control is defined by Terminology as the establishment of

budgets relating to the responsibilities of executives to the requirements of a policy and the continuous

comparison of actual with the budgeted results, either to secure by individual actions the objectives of that

policy or to provide a basis for its revision.

Brown and Howard defines budgetary control is "a system of controlling costs which includes the

preparation of budgets, co-ordinating the department and establishing responsibilities, comparing actual

performance with the budgeted and acting upon results to achieve maximum profitability."

The above definitions reveal the following essentials of budgetary control:

(1) Establishment of objectives for each function and section of the organization.

(2) Comparison of actual performance with budget.

(3) Ascertainment of the causes for such deviations of actual from the budgeted performance.

(4) Taking suitable corrective action from different available alternatives to achieve the desired

objectives.

Objectives of Budgetary Control

Budgetary Control is planned to assist the management for policy formulation, planning, controlling

and co-ordinating the general objectives of budgetary control and can be stated in the following ways:

Budgeting and Budgetary Control 563

(1) Planning: A budget is a plan of action. Budgeting ensures a detailed plan of action for a

business over a period of time.

(2) Co-ordination: Budgetary control co-ordinates the various activities of the entity or organization

and secure co-operation of all concerned towards the common goal.

(3) Control: Control is necessary to ensure that plans and objectives are being achieved. Control

follows planning and co-ordination. No control performance is possible without predetermined

standards. Thus, budgetary control makes control possible by continuous measures against

predetermined targets. If there is any variation between the budgeted performance and the

actual performance, the same is subject to analysis and corrective action.

Scope and Techniques of Standard Costing and Budgetary Control

Scope:

(1) Budgets are prepared for different functions of business such as production, sales etc. Actual

results are compared with the budgets and control is exercised.

Standards on the other hand are complied by classifying, recording and allocation of the

expenses to cost units. Actual costs are compared with standard costs.

(2) Budgets have a wide range of coverage of the entire organization. Each operation or process is

divided into number of elements and standards are set for each such element.

(3) Budgetary control is concerned with origin of expenditure at functional levels.

Standard costing is concerned with the requirements of each element of cost.

(4) Budget is a projection of financial accounts whereas standard costing projects the cost

accounts.

Technique:

(1) Budgetary control is exercised by putting budgets and actuals side by side.

Variances are not normally revealed in the accounts. Standard costing variances are revealed

through accounts.

(2) Budgetary control system can be operated in parts. For example, Advertisement Budgets,

Research and Development Budgets, etc. Standard costing is not put into operation in parts.

(3) Budgetary control of expenses is broad in nature whereas standard costing system is a far more

technically improved system by means of which the variances are analysed in detail.

Requisites for Effective Budgetary Control

The following are the requisites for effective budgetary control :

(1) Clear cut objectives and goals should be well defined.

(2) The ultimate objective of realising maximum benefits should always be kept uppermost.

(3) There should be a budget manual which contains all details regarding plan and procedures for

its execution. It should also specify the time table for budget preparation for approval, details

about responsibility, cost centers etc.

(4) Budget committee should be set up for budget preparation and efficient execution of the plan.

(5) A budget should always be related to a specified time period.

564 A TeXlbook of Financial Cost and Management Accounting

(6) Support of top management is necessary in order to get the full support and co-operation of the

system of budgetary control.

(7) To make budgetary control successful, there should be a proper delegation of authority and

responsibility.

(8) Adequate accounting system is essential to make the budgeting successful.

(9) The employees should be properly educated about the benefits of budgeting system.

(10) The budgeting system should not cost more to operate than it is worth.

(11) Key factor or limiting factor, if any, should consider before preparation of budget.

(12) For budgetary control to be effective, proper periodic reporting system should be introduced.

Organization for Budgetary Control

In order to introduce budgetary control system, the following are essential to be considered for a

sound and efficient organization. The important aspects to be considered are :

1. Organisation Chart

2. Budget Center

3. Budget Officer

4. Budget Committee

5. Budget Manual

6. Budget Period

7. Key Factor

(1) Organisation Chart: For the purpose of effective budgetary control, it is imperative on the part

of each entity to have definite "plan of organization." This plan of organization is embodied in the

organization chart. The organization chart explaining clearly the position of each executive's authority and

responsibility of the firm. All the functional heads are entrusted with the responsibility of ensuring proper

implementation of their respective departmental budgets. An organization chart for budgetary control is

given showing clearly the type of budgets to be prepared by the functional heads.

Organization Chart

I Chairman I

~

Budget Officer

~

Purchase Production Sales Personnel Finance Accounts

Manager Manager Manager Manager Manager Manager

(Purchase & (Production (Sales Budget (Labour (Cash Budget (Cost

Material Budget Plant Advertising Budget) & Income & Budget)

Budget) Utilization Budget) Budget & Cost Budget) Expenditure Budget)

Budgeting and Budgetary Control 565

From the above chart we can observe that the chairman of the company is the overall in charge of the

functions of the Budgeted Committee. A Budget Officer is the convener of the budget committee, who

helps in co-ordination. The Purchase Manager, Production Manager, Sales Manager, Personnel Manager,

Finance Manager and Account Manager are made responsible to prepare their budgets.

(2) Budget Center: A Budget Center is defined by the terminology as "a section of the organization

of an undertaking defined for the purpose of budgetary control." For effective budgetary control budget

centre or departments should be established for each of which budget will be set with the help of the head

of the department concerned.

(3) Budget Officer: Budget Officer is usually some senior member of the accounting staff who

controls the budgetary process. He does not prepare the budget himself, but facilitates and co-ordinates the

budgeting activity. He assists the individual departmental heads and the budget committee, and ensures

that their decisions are communicated to the appropriate people.

(4) Budget Committee: Budget Committee comprising of the Managing Director, the Production

Manager, Sales Manager and Accountant. The main objectives of this committee is to agree on all

departmental budgets, normal standard hours and allocations. In small concerns, the Budget Officer may

co-ordinate the work for preparation and implementation of budgets. In large-scale concern a budget

committee is setup for preparation of budgets and execution of budgetary control.

(5) Budget Manual: A Budget Manual has been defined as "a document which set out the

responsibilities of persons engaged in the routine of and the forms and records required for budgetary

control." It contains all details regarding the plan and procedures for its execution. It also specifies the time

table for budget preparation to approval, details about responsibility, cost centers, constitution and

organization of budget committee, duties and responsibilities of budget officer.

(6) Budget Period: A budget is always related to specified time period. The budget period is the

length of time for which a budget is prepared and employed. The period may depend upon the type of

budget. There is no specific period as such. However, for the sake of convenience, the budget period may

be fixed depending upon the following factors:

(a) Types of Business

(b) Types of Budget

(c) Nature of the demand of the product

(d) Length of trade cycle

(e) Economic factors

(f) Ava!lability of accounting period

(g) Availability of finance

(h) Control operation

Key Factor

Key Factor is also called as "Limiting Factor" or Governing Factor. While preparing the budget, it is

necessary to consider key factor for successful budgetary control. The influence of the Key Factor which

dominates the business operations in order to ensure that the functional budgets are reasonably capable of

fulfilment. The Key Factors include.

(1) Raw materials may be in. short supply.

(2) Non-availability of skilled labours.

566 A Textbook of Financial Cost and Management Accounting

(3) Government restrictions.

(4) Limited sales due to insufficient sales promotion.

(5) Shortage of power.

(6) Underutilization of plant capacity.

(7) Shortage of efficient executives.

(8) Management policies regarding lack of capital.

(9) Insufficient research into new product development.

(10) , Insufficiency due to shortage of space.

Advantages of Budgetary Control

The advantages of budgetary control may be summarized as follows :

(1) It facilitates reduction of cost.

(2) Budgetary control guides the management in planning and formulation of policies.

(3) Budgetary control facilitates effective co-ordination of activities of the various departments and

functions by setting their limits and goals.

(4) It ensures maximization of profits through cost control and optimum utilization of resources.

(5) It evaluates for the continuous review of performance of different budget centers.

(6) It helps to the management efficient and economic production control.

(7) It facilitates corrective actions, whenever there is inefficiencies and weaknesses comparing

actual performance with budget.

(8) It guides management in research and development.

(9) It ensures economy in working.

(10) It helps to adopt the principles of standard costing.

Limitations of Budgetary Control

Budgetary Control is an effective tool for management control. However, it has certain important

limitations which are identified below:

(1) The budget plan is based on estimates and forecasting. Forecasting cannot be considered to be

an exact science. If the budget plans are made on the basis of inaccurate forecasts then the

budget progamme may not be accurate and ineffective.

(2) For reasons of uncertainty about future, and changing circumstances which may develop later

on, budget may prove short or excess of actual requirements.

(3) Effective implementation of budgetary control depends upon willingness, co-operation and

understanding among people reasonable for execution. Lack of co-operation leads to inefficient

performance.

(4) The system does not substitute for management. It is mere like a management tool.

(5) Budgeting may be cumbersome and time consuming process.

Budgeting and Budgetary Control 567

Types of Budgets

As budgets serve different purposes, different types of budgets have been developed. The following

are the different classification of budgets developed on the basis of time, functions, and flexibility or

capacity.

(A) Classification on the basis of Time:

1. Long-Term Budgets

2. Short-Term Budgets

3. Current Budgets

(B) Classification according to Functions:

1. Functional or Subsidiary Budgets

2. Master Budgets

(C) Classification on the basis of Capacity :

1. Fixed Budgets

2. Flexible Budgets

The following chart can explain this more:

Types of Budget

t

Long-Term Short-Term

Budget Budget

Current

Budget

(A) Classification on the Basis of Time

Functional

Budget

Master

Budget Fixed

Budget

Flexible

Budget

1. Long-Term Budgets: Long-term budgets are prepared for a longer period varies between five to

ten years. It is usually developed by the top level management. These budgets summarise the general plan

of operations and its expected consequences. Long-Term Budgets are prepared for important activities like

composition of its capital expenditure, new product development and research, long-term finance etc.

2. Short-Term Budgets: These budgets are usually prepared for a period of one year. Sometimes

they may be prepared for shorter period as for quarterly or half yearly. The scope of budgeting activity may

vary considerably among different organization.

3. Current Budgets: Current budgets are prepared for the current operations of the business. The

planning period of a budget generally in months or weeks. As per ICMA London, "Current budget is a

budget which is established for use over a short period of time and related to current conditions."

(B) Classification on the Basis of Function

1. Functional Budget: The functional budget is one which relates to any of the functions of an

organization. The number of functional budgets depend upon the size and nature of business. The

following are the commonly used:

568 A Textbook of Financial Cost and Management Accounting

(1) Sales Budget

(2) Purchase Budget

(3) Production Budget

(4) Selling and Distribution Cost Budget

(5) Labour Cost Budget

(6) Cash Budget

(7) Capital Expenditure Budget

2. Master Budget: The Master Budget is a summary budget. This budget encompasses all the

functional activities into one harmonious unit. The ICMA England defines a Master Budget as the

summary budget incorporating its functional budgets, which is finally approved, adopted and employed.

(C) Classification on the Basis of Capacity

1. Fixed Budget: A fixed budget is designed to remain unchanged irrespective of the level of activity

actually attained.

2. Flexible Budget: A flexible budget is a budget which is designed to change in accordance with the

various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding

Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account.

Control Ratios

Ratios are used by the management to determine whether performance of its activities is going on as

per estimates or not. If the ratio is 100 % or more, the performance is considered as favourable and if the

ratio is less than 100% the performance is considered as unsatisfactory. The following are the ratios

generally calculated for performance evaluation.

1. Capacity Ratio: This ratio indicates the extent to which budgeted hours of activity is actually

utilised.

Actual Hours Worked Production

Capacity Ratio = x 100

Budget Hours

2. Activity Ratio: This ratio is used to measure the level of activity attained during the budget

period.

Standard Hours for Actual Production

Activity Ratio = x 100

Budgeted Hours

3. Efficiency Ratio: This ratio shows the level of efficiency attained during the budget period

Efficiency Ratio =

Standard Hours for Actual Production

Actual Hours Worked

x 100

4. Calendar Ratio: This ratio is used to measure the proportion of actual working days to budgeted

working days in a budget period.

Calendar Ratio =

Number of Actual Working Days in a Period ------------------------------x 100

Budgeted Working Days for the Period

Budgeting and Budgetary Control 569

Illustration: 1

A company produces two articles A and B. Each unit takes 4 hours for A and 10 hours for B as

production time respectively. The budgeted production for April, 2003 is 400 units of A and 800 units for

B. The actual production at the end of the months was 320 units of A and 850 units of B. Actual hours

spent on this production was 200. Find out the Capacity, Activity, and Efficiency Ratios for April 2003.

Also find out the Calendar Ratio if the actual working days during the month be 28 corresponding to

26 days in the budget.

Solution:

Standard Budgeted Hours:

A-400+ 4 =

B-800+10 =

Standard Hours for Actual Production:

A - 320 + 4 =

B-850+1O =

( 1) Capacity Ratio =

100 hours

80 hours

180 hours

80 hours

85 hours

165 hours

Actual Hours worked

Budgeted Hours

200

x 100

= -- x 100

(2) Activity Ratio

(3) Efficiency Ratio

180

= 111.1%

=

=

Standard Hours for Actual Production

Budgeted Standard Hours

165

180

x 100

= 91.66%

=

=

Standard Hours for Actual Production

Actual Hours Worked

165

200

x 100

= 82.5%

x 100

x 100

(4) Calendar Ratio =

Number of Actual Working Days in a Period

Number of Working Days in a Budget Period

28

= x 100

26

= 107.69%

x 100

570

Illustration: 2

A Textbook of Financial Cost and Management Accounting

From the given below information you are required to calculate Capacity Ratio, Activity Ratio and

Efficiency Ratio:

Actual Hours worked

Budgeted Hours

3,600

4,000

Standard Hours for Actual Production 5,600 (Actual Production converted into Standard Hours)

Budgeted Standard Hours 6,000

(Budgeted Production Converted into Standard Hours )

Solution:

( 1 ) Capacity Ratio

(2) Activity Ratio

(3) Efficiency Ratio

Illustration: 3

=

=

=

=

Actual Hours Worked

Budgeted Hours

3,600

4,000

90%

x 100

x 100

Standard Hours for Actual Production

5,600

6,000

Budgeted Standard Hours

x 100

= 93.33%

=

=

Standard Hours for Actual Production

Actual Hours Worked

5,600

3,600

x 100

= 155.55%

x 100

x 100

Product A takes 4 hours to make and B requires 8 hours. In a month 27 effective days of 8 hours a

day. 500 units of A and 300 units, of Y were produced. The company employ 25 workers in the production

department. The budgeted hours are 60,000 for the year. Calculate Capacity Ratio, Activity Ratio and

Effective Ratio.

Solution:

Standard Hours for Actual Production

Product A : 500 x 4 =

Product B : 300 x 8 =

Std. Hours for Actual Production =

Budgeted Hours for the month =

=

Actual Hours Worked = 25 x 27 x 8 =

2,000 hours

2,400 hours

4,400 hours

60,000

12

5,000 hours

5,400 hours

Budgeting and Budgetary Control

( 1 ) Capacity Ratio =

=

=

(2) Activity Ratio =

=

=

(3) Efficiency Ratio =

Illustration: 4

Actual Hours Worked

x 100

Budgeted Hours

5,400

x 100

5,000

108%

Standard Hour for Actual Production

Budgeted Hours

4,400

x 100

5,000

88 %

Standard Hours for Actual Production

4,400

5,400

81.48 %

Actual Hours Worked

x 100

x 100

x 100

A Manufacturing company submits the following figures:

Budgeted Production 44 units

Actual Production 40 units

Standard Hours Per unit 8

Actual work Hours 500

You are required to calculate (a) Capacity Ratio (b) Activity Ratio and (c) Efficiency Ratio.

Solution:

Standard hours for actual period =

=

Budgeted hours =

=

( 1 ) Capacity Ratio =

=

=

(2) Activity Ratio =

=

=

(3) Efficiency Ratio =

=

=

Standard hours per unit x Actual Production

8 x 40 = 320 hours

Standard hour per unit x Budgeted Production

8 x 44 = 352 hours

Actual Hours worked

x 100

Budgeted Hours

500

x 100

352

142.04%

Standard hours for actual production

x 100

Budgeted Hours

320

x 100

352

90.90%

Standard hours for actual Production

x 100

Actual Hours worked

320

x 100

500

64%

571

572 A Textbook of Financial Cost and Management Accounting

Performance of Budgeting

Perfonnance of Budget has been defined as a "budget based on functions, activities and projects."

Perfonnance of Budgeting may be described as "the budgeting system in which input costs are

related to the perfonnance, i.e., end results."

According to National Institute of Bank Management, Perfonnance Budgeting is, "the Process of

analyzing, identifying, simplifying and crystallizing specific perfonnance objectives of a job to be

achieved over a period, in the framework of the organizational objectives, the purpose and objectives of

the job."

From the above definitions, it is clear that budgetary perfonnance involves the following:

(1) Establishment of well defined centers of responsibilities:

(2) Establishment for each responsibility centre - a programme of target perfonnance is -

physical units.

(3) Forecasting the amount of expenditure required to meet the physical plan laid down.

(4) Comparison of the actual perfonnance with the budgets, i.e., evaluation of perfonnance.

(5) Undertaking periodic review of the programme with a view to make modifications as required.

SOME IMPORTANT BUDGETS

Sales Budget

Sales Budget is one of the important functional budget. Sales estimate is the commencement of

budgeting may be made in quantitative terms. Sales budget is primarily concerned with forecasting of what

products will be sold in what quantities and at what prices during the budget period. Sales budget is

prepared by the sales executives taking into account number of relevant and influencing factors such as :

(1) Analysis of past sales (Product wise; Territory wise, Quote wise).

(2) Key Factors.

(3) Market Conditions.

(4) Production Capacity.

(5) Government Restrictions.

(6) Competitor's Strength and Weakness.

(7) Advertisement, Publicity and Sales Promotion.

(8) Pricing Policy.

(9) Consumer Behaviour.

(10) Nature of Business.

( 11 ) Types of Product.

(12) Company Objectives.

Budgeting and Budgetary Control

(13) Salesmen's Report.

(14) Marketing Research's Reports.

(15) Product Life Cycle.

Illustration: 5

573

Thomas Engineering Co. Ltd. Manufactures two articles X and Y. Its sales department has three

divisions: West, South and East. Preliminary sales budgets for the year ending 3151 December 2003. based

on the assessments of the divisional executives:

Product X : West 40,000 units: South 1,00,000 units and East 20,000 units

Product Y : West 60,000 units: South 8,00,000 units and East Nil

Sales Price X Rs. 2 and Y Rs. 3 in all areas.

Arrangements are made for the extensive advertising of product X and Y and it is estimated that West division

sales will increase by 20,000 units. Arrangements are also made to advertise and distribute product Y in the Eastern

area in the second half of 2003 when sales are expected to be 1,00,000 units.

Since the estimated sales of the South division represented an unsatisfactory target, it is agreed to increase both

the estimates by 10 %.

Prepare a sales budget for the year to 31" December 2003.

Solution:

Sales Budget for the year 2003

Product X Product Y

Division Qty. Price Value Qty. Price Value Total

Rs. Rs. Rs. Rs. Rs. Rs.

West 60,000 2 1,20,000 80,000 3 2,40,000 3,60,000

South 1,10,000 2 2,20,000 88,000 3 2,64,000 4,84,000

East 20,000 2 40,000 1,00,000 3 3,00,000 3,40,000

Total 1,90,000 3,80,000 2,68.000 8.04,000 11,84,000

Illustration: 6

Two articles A and B are manufactured in a department. Sales for the year 2003 were planned as

follows:

Product 1st Quaner 2nd Quarter 3rd Quaner 4th Quarter

Units Units Units Units

Product A 5,000 6,000 6,500 "7,500

Product B 2,500 2,250 2,000 1,900

Selling price were Rs. 10 per unit for A and Rs. 20 per unit for B respectively. Average sales return are 10 %

of sales and the discounts and bad debts amount to 2 % of the total sales.

Prepare Sales Budget for the year 2003.

Sales Budget for the Year 2003

Paniculars 1st Quaner 211d Quaner 3rd Quaner 4th Quaner Total

Qty. Price Value Qty. Price Value Qty. Price Value Qty. Price Value Qty. Price Value

Units Rs. Rs. Units Rs. Rs. Units Rs. Rs. Units Rs. Rs. Units Rs. Rs.

Product A 5,000 10 50,000 6,000 10 60,000 6,500 10 65,000 7,500 10 75,000 25,000 10 2,50,000

Product B 2,500 20 50,000 2,250 20 45,000 2,000 20 40,000 1,900 20 38,000 8,650 20 1,73,000

Total (I) 7,500 - 1,00,000 8,250 - 1,05,00 8,500 - 1,05,000 9,400 - 1,13,000 33,650 - 4,23,000

Less:

Sales Return

at 10% on

Sales

Discount - - 10,000 - - 10,500 - - 10,500 - - 11,300 - - 42,300

'Bad Debts at

2% on Sales

- - 2,000 - - 2,100 - - 2,100 - - 2,260 - - 8460

Total (2) - - 12,000 - - 12,600 - - 12,600 - - 13,560 - - 50,760

Net Sales - - 88,000 - - 92,400 - - 92,400 - - 92,400 - - 3,72,240

(I) - (2)

Budgeting and Budgetary Control 575

Illustration: 7

Natarajan Ltd. has four sales territories A, B, C, D. Each salesman is expected to sell the following

number of units during the First Quarter of 2003. Assume the Average Selling Price to be Rs. 10:

Territory

Month A B C D

Units Units Units Units

April 500 750 1,250 1,750

May 1,000 900 1.400 2,000

June 1,250 1,000 '1,500 2,250

Solution:

Sales Budget, First Quarter 2003

Territory April May June Quter

Qty. Price Value Qty. Price Value Qty. Price Value Qty. Value

unit Rs. Rs. unit Rs. Rs. unit Rs. Rs. unit Rs.

A 500 10 5,000 1,000 10 10,000 1,250 10 12,500 2,750 27.500

B 750 10 7,500 900 10 9,000 1,000 10 10,000 2.650 26,500

C 1,250 10 12,500 1.400 10 14,000 1,500 10 15,000 4,150 41,500

D 1,750 10 17,500 2,000 10 20,000 2,250 10 22,500 6,000 60,000

Total 4,250 42,500 5,300 53,000 6,000 60,000 15,550 1,55,500

Production Budget

Production budget is usually prepared on the basis of sales budget. But it also takes into account the

stock levels desired to be maintained. The estimated output of business firm during a budget period will be

forecast in production budget. The production budget determines the level of activity of the produce

business and facilities planning of production so as to maximum efficiency. The production budget is

prepared by the chief executives of the production department. While preparing the production budget, the

factors like estimated sales, availability of raw materials, plant capacity, availability of labour, budgeted

stock requirements etc. are carefully considered.

Cost of Production Budget

After Preparation of production budget, this budget is prepared. Production Cost Budgets show the

cost of the production determined in the production budget. Cost of Production Budget is grouped in to

Material Cost Budget, Labour Cost Budget and Overhead Cost Budget. Because it breaks up the cost of each

product into three main elements material, labour and overheads. Overheads may be further subdivided in

to fixed, variable and semi-fixed overheads. Therefore separate budgets required for each item.

Illustration: 8

From the following particulars prepare a production budget of product P and Q of Nancy sales

Corporation for the First Quarter of 2003:

Particulars Product P Product Q Product R

Sales (in units) :

January 20,000 15,000 5,000

February 15,000 20,000 5,000

March 25,000 25.000 5,000

Selling Price Per unit (Rs.) 5 10 20

576

Particulars

Targets for 1st Quarter 2003 :

Sales Quantity increase

Sales Price increase

Stock Position I "Jan. 2003 :

Stock position and Jan. 2003 Sales

Stock Position 31" Mar. 2003 :

Stock Position end Jan. & Feb.

Percentage of subsequent month sales

Solution:

A Textbook of Financial Cost and Management Accounting

Product P Product Q Product R

10% 10% 10%

Nil 10% 20 %

50 % 50 % 50 %

10,000 20,000 5,000

50% 50 % 50 %

Production Budget (Units) of Product P and Q for the First Quarter of 2003

Product Particulars . April May June Total

P Expected Sales 22,000 16,500 27,500 66,000

Add : Closing stock 8,250 13,750 10,000 10,000

30,250 30,250 37,500 76,000

Less : Opening stock 11,000 8,250 13,750 10,000

Budgeted Production 19,250 22,000 23,750 66,000

(in units)

Q Expected sales 16,500 22,000 27,500 66,000

Add : Closing stock 11,000 13,750 20,000 20,000

27,500 35,750 47,500 86,000

Less: Opening stock 13,750 17,875 23,750 13,750

Budgeted Production 13,750 17,875 23,750 72,250

(to be Produced)

Illustration: 9

From the following particular, you are required to prepare production budget of

Mrs. V. G. P. Ltd. a manufacturing organization that has three products X, Y and Z

Product Estimated Stock at Estimated Stock at the Estimated Sales as

the beginning of end of the budget Per sales budget

the budget period Period

X 5,000 units 6,400 units 21,600 units

y 4,000 units 3,850 units 19,200 units

Z 6,000 units 7,800 units 23,100 units

Solution:

Particulars X (Units) Y (Units) Z (Units)

Expected Sales during the period 21,600 19,200 23,100

Add : Closing stock at the end

of budget period 6,400 3,850 7,800

28,000 23,050 30,900

Less : Opening stock at the

beginning of the budget period 5,000 4,000 6,000

Budgeted Production 23,000 19,050 24,900

Budgeting and Budgetary Control

Illustration: 10

Production cost of a factory for a year is as follows :

Direct wages Rs. 40,000

Direct materials Rs. 60,000

Production overhead fixed Rs. 20,000

Production overhead variable Rs. 30,000

During the forthcoming year, it is expected that

(a) The average rate for direct labour remuneration will be far from Rs. 3 per hour to Rs. 2 per hour

(b) Production efficiency will remain unchanged

(c) Direct labour hours will increase by 33 1/3 %

577

The purchase price per unit of direct materials and of the other materials and services which comprise overheads

will remain unchanged.

Draw up a budget and a factory overhead rate, the overhead being absorbed on a direct wage basis.

Solution:

Cost of Production Budget

Paniculars Rs. Amount Rs.

Direct Materials 60,000

Direct wages [RS. 40,000 x ; x : j 35,556

Prime Cost 95,556

Add : Production Overhead :

Fixed Rs.20,OOO

Variable Rs.30,OOO 50,000

Factory cost (or) Cost of production 1,45,556

Illustration: 11

Prepare a Production Budget for each month and Production Cost budget for the six months period

ending 3151 Dec. 2003 from the following data of product "X":

(1) The units to be sold for different months are as follows:

July, 2003

August

September

October

November

December 2003

January 2004

1,100

1,100

1,700

1,900

2,500

2,300

2,000

(2) There will be no work in progress at the end of any month.

(3) Finished units equal to half the sales for the next month will be in stock at the end of each month

(including June 2003).

(4) Budgeted production and production cost for the year ending 31" December 2003 are as follows:

Production (Units)

Direct Material Per unit

22,000

Rs.IO.00

578 A Textbook of Financial Cost and Management Accounting

Direct wages Per unit

Total factory overhead apportioned to product

Rs. 4.00

88,000 (ICWA; Inter)

Solution:

(A) Production Budget (from July to December)

Particulars July August Sept. Oct. Nov. Dec.

Estimated Sales 1,100 1,100 1,700 1,900 2,500 2,300

Add,' Closing Stock

of finished goods

(half of next months sales) 550 850 950 1,250 1,150 1,000

1,650 1,950 2,650 3,150 3,650 3,300

Less,' Opening Stock

of finished goods 550 550 850 950 1,250 1,150

Budgeted Production 1,100 1,400 1,800 2,200 2,400 2,150

Working Notes :

Estimated Production = Expected Sales + Desired Closing Stock - Estimated Opening Stock.

This is the closing stock June 2003 = 50 % of sale of July 2003.

(B) Production Cost Budget (from July to Dec.)

Particulars Amount Amount

( 11.050 Units) (Per Unit)

Direct Material cost } 1,10,500 10

(at Rs. 10 per unit)

Direct Wages } 44,200 4

(at Rs. 4 per unit)

Factory Overhead

88,000

x 11,050 44,200 4

22,000

Total Cost of Production 1,98,900 18

Assumed to be variable. If it is fixed, 50 % of Rs. 88,000 (Rs. 44,000) is to be charged.

Material Purchase Budget

Total

10,600

1,000

11,600

550

11,050

The different level of material stock are based on planned out. Once the production budget is

prepared, it is necessary to considered the requirement of materials to carryout the production activities.

Material Purchase Budget is concerned with purchase and requirement of direct materials to be made

during the budget period. While preparing the materials purchase budget, the following factors to be

considered carefully:

(1) Estimated sales and production.

(2) Requirement of materials during budget period.

(3) Expected changes in the prices of raw materials.

(4) Different stock levels, EOQ etc.

(5) Availability of raw materials, i.e., seasonal or otherwise.

(6) Availability of financial resources.

Budgeting and Budgetary Control

(7) Price trend in the market.

(8) Company's stock policy etc.

Illustration: 12

Draw up a material purchase budget from the following information :

579

Estimated sales of a product is 30,000 units. Two kinds of raw materials A and B are required for

manufacturing the product. Each unit of the product requires 3 units of A and 4 units of B. The estimated

opening balance in the beginning of the next year: finished goods 5,000 units; A, 6,000 units; B, 10,000

units. The desirable closing balance at the end of the next year: finished product, 8,000 units; A, 10,000

units; B 12,000 units.

Solution:

Estimated Production =

=

Expected Sales + Desired Closing Stock of

Finished Goods

- Estimated Opening Stock of Finished Goods

30,000 + 8,000 - 5,000

= 33,000 units

Material Purchase Budget for the year

Particulars Material A Material B

Units Units

Material Required to meet Production Target

Material A - 33,000 x 3 99,000 1,32,000

Material B - 33,000 x 4

Add : Desired closing stock at the end of next year 10,000 12,000

1,09,000 1,44,000

Less : Expected stock at the commencement of

next year (opening balance) 6,000 10,000

Quantity of Materials to be purchased 1,03,000 1,34,000

Cash Budget

This budget represent the anticipated receipts and payment of cash during the budget period. The

cash budget also called as Functional Budget. Cash budget is the most important of all the functional

budget because, cash is required for the purpose to meeting its current cash obligations. If at any time, a

concern fails to meet its obligations, it will be technically insolvent. Therefore, this budget is prepared on

the basis of detailed cash receipts and cash payments. The estimated Cash Receipts include:

(1) Cash Sales

(2) Credit Sales

(3) Collection from Sundry Debtors

(4) Bills Receivable

(5) Interest Received

(6) Income from Sale of Investment

(7) Commission Received

(8) Dividend Received

580 A Textbook of Financial Cost and Management Accounting

(9) Income from Non-Trading Operations etc.

The estimated Cash Payments include the following :

(1) Cash Purchase

(2) Payment to Creditors

(3) Payment of Wages

(4) Payments relate to Production Expenses

(5) Payments relate to Office and Administrative Expenses

(6) Payments relate to Selling and Distribution Expenses

(7) Any other payments relate to Revenue and Capital Expenditure

(8) Income Tax Payable, Dividend Payable etc.

Illustration: 13

A company is expecting to have Rs. 25,000 cash in hand on 1st April 2003 and it requires you to

prepare an estimate of cash position in respect of three months from April to June 2003, from the

information given below :

Sales Purchase Wages Expenses

Rs. Rs. Rs. Rs.

February 70,000 40,000 8,000 6,000

March 80,000 50,000 8,000 7,000

April 92,000 52,000 9,000 7,000

May 1,00,000 60,000 10,000 8,000

June 1,20,000 55,000 12,000 9,000

Additional Information :

(a) Period of credit allowed by suppliers - two months.

(b) 25 % of sale is for cash and the period of credit allowed to customer for credit sale one month.

(c) Delay in payment of wages and expenses one month.

(d) Income Tax Rs. 25,000 is to be paid in June 2003.

Solution:

Cash Budget

Particulars April May June Total

Rs. Rs. Rs. Rs.

Opening balance of cash 25,000 53,000 81,000 1,59,000

Cash Respects :

Cash Sales 23,000 25,000 30,000 78,000

Debtors 60,000 69,000 75,000 2,04,000

Total Cash Receipts - (l) 1,08,000 1,47,000 1,86,000 4,41,000

Cash Payments :

Creditors 40,000 50,000 52,000 1,42,000

Wages 8,000 9,000 10,000 27,000

Expenses 7,000 7,000 8,000 22,GOO

Income tax - - 25,000 25,000

Total Payment - (2) 55,000 66,000 95,000 2,16,000

Closing Balance of Cash (1-2) 53,000 81,000 91,000 2,25,000

Budgeting and Budgetary Control

Illustration: 14

58/

Prasad & Co. wishes to prepare cash budget from January. Prepare a cash budget for the first six

months from the following estimated revenue and expenses:

Month Total Sales Materials Wages Production Selling and

Rs. Rs. Rs. Overheads Distribution

Rs. Overheads

Rs.

January 10,000 10,000 2,000 1,600 400

February 11,000 7,000 2,200 1,650 450

March 14,000 7,000 2,300 1,700 450

April IS,OOO 11,000 2,300 1,750 500

May 15,000 10,000 2,000 1,600 450

June 20,000 12,500 2,500 I,Soo 600

Additional Information

1. Cash balance on 1st January was Rs. 5,000. A new machinery is to be installed at Rs. 10,000 on credit, to

be repaid by two equal installments in March and April.

2. Sales commission @ 5 % on total sales is to be paid within a month of following actual sales.

3. Rs. 5,000 being the amount of 2nd call may be received in March. Share Premium amounting to Rs. 1,000

is also obtainable with the 2nd call.

4. Period of credit allowed by suppliers - 2 months.

5. Period of credit allowed to customers - 1 month.

6. Delay in payment of overheads - 1 month.

7. Delay in payment of wages -Ih month.

S. Assume cash sales to be 50 % of total sales.

Solution:

Cash Budget from January to June

Particulars January February March April May June

Rs. Rs. Rs. Rs. Rs. Rs.

Opening Balance 5,000 9,000 14,900 13,500 12,350 16,550

Estimated Cash

Receipts:

Cash Sales 5,000 5,500 7,000 9,000 7,500 10,000

Credit Sales - 5,000 5,500 7,000 9,000 7,500

Second Call - - 5,000 - - -

Share Premium - 1,000 - - -

Total Cash } Receipts (A) 10,000 19,500 33,400 29,500 2S,S50 34,050

Estimated Cash

Payments: ,

Materials - - 10,000 7,000 7.000 11,000

Wages 1,000 2,100 2,250 2,300 2,150 2,250

Production } Overheads - 1,600 1,650 1,700 1,750 1,600

582 A Textbook of Financial Cost and Management Accounting

Selling & Distribution

Overheads - 400 450 450 500 450

Sales Commission - 500 550 700 900 750

Purchase of Machinery - - 5,000 5,000 - -

Total Cash } Payment (B) 1,000 4,600 19,900 17,150 12,300 16,050

Closing Balance 9,000 14,900 13,500 12,350 16,550 18,000

(A - B)

Illustration: 15

From the following data, forecast the cash position at the end of April, May and June 2003.

Month Sales Purchases Wages Miscellaneous

Rs. Rs. Rs. Rs.

February 60,000 42,000 5,000 3,500

March 65,000 50,000 6,000 4,000

April 40,000 52,000 4,000 3,000

May 58,000 53,000 5,000 6,000

June 44,000 40,000 4,000 3,000

Additional Inrormation

1. Sales: 10 % realized in the month of sales; balance realised equally in two subsequent months.

2. Purchases: These are paid in the month following the month of supply.

3. Wages: 10 % Paid in arrears following month.

4. Miscellaneous expenses: Paid a month in arrears.

5. Rent: Rs. 500 Per month paid Quarterly in advance due in April.

6. Income Tax: First installment of advance tax Rs. 15,000 due on or before 15th June.

7. Income from Investment: Rs. 3,000 received quarterly in April, July etc.

8. Cash in hand: Rs. 3,000 on 1st April 2003.

Solution:

Cash Budget for the month of April, May and June

Paniculars April May June

Rs. Rs. Rs.

Opening Balance of Cash 3,000 7,550 700

Add: Cash Receipts:

Cash Sales 4,000 5,800 4,400

Receipts from Debtors

(Credit Sales)

Collection in 1st month 29,250 18,000 19,800

Collection in 2nd month 27,000 29,250 18,000

Income from Investment 3,000 - -

Total Cash Receipts (1) 66,250 60,600 42,900

Less : Cash Payments :

Creditors for Purchases 50,000 52,000 53,000

Budgeting and Budgetary Control 583

Wages; Current ( 90%) 3,600 4,500 3,600

Arrears (10%) 600 400 500

Rent 500 - -

Miscellaneous Expenses 4,000 3,000 6,000

Income Tax - - 15,000

Total Payments (2) 58,700 59,900 78,100

Closing Balance of Cash ( 1- 2) 7,550 700 (-)35,200

Working Notes

(I) Out of total sales, 10 % are cash sales. Balance 90 % are credit sales. In any given month 50 % of credit

sale of the previous two months are collected (See W.N.)

(2) In any given month, 90 % of the wages of the same month and 10 % of previous month's wages are paid.

(3) Working Notes for collections of cash from Debtors and Sales

Particulars February March April May June

Rs. Rs. Rs. Rs. Rs.

Total Sales 60,000 65,000 40,000 58,000 44,000

Less : Cash Sales}

(10%) 6,000 6,500 4,000 5,800 4,400

Credit Sales 54,000 58,500 36,000 52,200 39,600

Collection in 1st month after }

Credit Sales - 27,000 29,250 18,000 19,800

Collection in

2nd month after }

Credit Sales - - 27,000 29,250 18,000

Total Credit 56,250 47,250 37,800

Master Budget

When the functional budgets have been completed, the budget committee will prepare a Master

Budget for the target of the concern. Accordingly a budget which is prepared incorporating the summaries

of all functional budgets. It comprises of budgeted profit and loss account, budgeted balance sheet,

budgeted production, sales and costs. The ICMA England defines a Master Budget as "the summary

budget incorporating its functional budgets, which is finally approved, adopted and employed." The

Master Budget represents the activities of a business during a profit plan. This budget is also helpful in coordinating

activities of various functional departments.

Illustration: 16

Pushpack & Co., a glass manufacturing company requires you to calculate and present the budget for

the next year from the following information :

Toughened Glass

Bent Toughened Glass

Direct Material Cost

Direct Wages

Rs. 2,00,000

Rs. 3,00,000

60% of Sales

10 workers @ Rs. 100 per month

584 A Textbook of Financial Cost and Manageme.1t Accounting

Factory Overheads

Indirect Labour:

Work Manager

Foreman

Stores and Spares

Depreciation on Machinery

Light and Power

Repairs and Maintenance

Other Sundries

Rs. 300 Per month

Rs. 200 Per month

2% on Sales

Rs.6,ooO

Rs. 2,000

Rs.4,ooO

10% on direct Wages

Administration, Selling and Distribution expenses Rs. 7,000 per year.

Solution:

Master Budget for the year ending ...... .

Particulars Amount

Sales (as per Sales Budget):

Toughened glass

Bent Toughened glass

Less :Cost of Production:

(as per cost of Production Budget)

Direct Materials 3,00,000

Direct Wages 12,000

Prime Cost 3,12,000

Add: Factory Overhead:

Variable:

Stores and Spares Rs. 10,000

Light and Power Rs. 2,000

Repairs and Maintance Rs. 4,000 16,000

Fixed:

Work Manager's Salary Rs. 3,600

Foremen Salary Rs. 2,400

Depreciation Rs. 6,000

Sundries Rs. 1,200 13,200

Work's Cost 3,41,200

Gross Profit

Less: Administration, Selling } & Distribution Overheads

Net Profit

Fixed Budget

Amount

2,00,000

3,00,000

5,00,000

3,41,200

1,58,800

7,000

1,51,800

A budget is drawn for a particular level of activity is called fixed budget. According to ICWA

London "Fixed budget is a budget which is designed to remain unchanged irrespective of the level of

activity actually attained." Fixed budget is usually prepared before the beginning of the financial year.

This type of budget is not going to highlight the cost variances due to the difference in the levels of

activity. Fixed Budgets are suitable under static conditions.

Budgeting and Budgetary Control 585

Flexible Budget

Flexible Budget is also called Variable or Sliding Scale budget, "takes both the fixed and

manufacturing costs into account. Flexible budget is the opposite of static budget showing the expected

cost at a single level of activity. According to leMA, England defined Flexible Budget is a budget which

is designed to change in accordance with the level of activity actually attained."

According to the principles that guide the preparation of the flexible budget a series of fixed budgets

are drawn for different levels of activity. A flexible budget often shows the budgeted expenses against each

item of cost corresponding to the different levels of activity. This budget has come into use for solving the

problems caused by the application of the fixed budget.

Advantages of Flexible Budget

1.

2.

3.

4.

5.

6.

7.

8.

(1) In flexible budget, all possible volume of output or level of activity can be covered.

(2) Overhead costs are analysed into fixed variable and semi-variable costs.

(3) Expenditure can be forecasted at different levels of activity.

(4) It facilitates at all times related factor can be compared. which are essential for intelligent

decision making.

(5) A flexible budget can be prepared with standard costing or without standard costing depending

upon What the Company opts for.

(6) Flexible budget facilitates ascertainment of costs at different levels of activity, price fixation,

placing tenders and Quotations.

(7) It helps in assessing the performance of all departmental heads as the same can be judged by

terms of the level of activity attained by the business.

Distinction between Fixed Budget and Flexible Budget

Fixed Budget Flexible Budget

It does not change with the volume of activity. 1. It can be recast on the basis of volume of cost.

All costs are related to one level of activity only. 2. Costs are analysed by behaviour and variable costs

are allowed as per activity attained.

If budget and actual activity levels vary. cost 3. Flexible budgeting helps in fixation of selling price

ascertainment does not provide a correct picture. at different levels of activity.

Ascertainment of costs is not possible in fixed cost. 4. Costs can be easily ascertained at different levels of

activity.

It has a limited application for cost control. 5. It has more application and can be used as a tool

for effective cost control.

It is rigid budget and drawn on the assumption that 6. It is designed to change according to changed

conditions would remain constant. conditions.

Comparison of actual and budgeted performance 7. Comparisons are realistic according to the change

cannot be done correctly because the volume of in the level of activity.

production differs.

Costs are not classified according to their variability. 8. Costs are classified according to the nature of their

i.e .• fixed. variable and semi-variable. variability.

586 A Textbook of Financial Cost and Management Accounting

Method of Preparing Flexible Budget

The following methods are used in preparing a flexible budget:

(1) Multi-Activity Method.

(2) Ratio Method.

(3) Charting Method.

(1) Multi-Activity Method: This method involves preparing a budget in response to different level

of activity. The different level of activity or capacity levels are shown in Horizontal Columns, and the

budgeted figures against such levels are placed in the Vertical Columns. The expenses involved in

production as per budget are grouped as fixed, variable and semi variable.

(2) Ratio Method: According to this method, the budget is prepared first showing the expected

normal level of activity and the estimated variable cost per unit at the side expected level of activity in

addition to the fixed cost as estimated. Therefore, the expenses as per budget, allowed for a particular level

of activity attained, will be calculated on the basis of the following formula : Budgeted fixed cost +

(Variable cost per unit of activity x Actual unit of activity)

(3) Charting Method: Under this method total expenses required for any level of activity, are

estimated having classified into three categories, viz., Variable. Semi Variable and Fixed. These figures are

plotted on a graph. The expenses are plotted on the Y-axis and the level of activity are plotted on X-axis.

The graph will thus, help in ascertaining the quantum of budgeted expenses corresponding to the level of

activity attained with the help of this chart.

Zero Base Budgeting (ZBB)

Zero Base Budgeting is a new technique of budgeting. It is designed to meet the needs of the

management in order to ensure the operational efficiency and effective utilization of the allocated

resources of a concern. This technique was originally developed by Peter A. Phyhrr, Manager of Taxas

Instrument during 1969. This concept is widely used in USA for controlling their state expenditure when

Mr. Jimmy Carter was the president of the USA. At present the technique has for its global recognition for

many countries have implemented in real terms.

According to Peter A. Phyhrr ZBB is defined as an "Operative Planning and Budgeting Process"

which requires each Manager to justify his entire budget in detail from Scratch (hence zero base) and shifts

the burden of proof to each Manager to justify why we should spend any money at all."

In zero-base budgeting, a manager at all levels have to justify the importance of activity and to

allocate the resources on priority basis.

Important Aspects of ZBB

Zero Base Budgeting involves the following important aspects:

(1) It emphasises on all requisites of budgets.

(2) Evaluation on the basis of decision packages and systematic analysis, i.e., in view of cost

benefit analysis.

(3) Planning the activities, promotes operationai efficiency and monitors the performance to

achieve the objectives.

Budgeting and Budgetary Control

Steps Involved in ZBB

The following are the steps involved in Zero Base Budgeting:

587

(1) No Previous year performance of inefficiencies are to be taken as adjustments in subsequent

year.

(2) Identification of activities in decision packages.

(3) Determination of budgeting objectives to be attained.

(4) Extent to which Zero Base Budgeting is to be applied.

(5) Evaluation of current and proposed expenditure and placing them in order of priority.

(6) Assignment of task and allotment of sources on the basis of cost benefit comparison.

(7) Review process of each activity examined afresh.

(8) Weightage should be given for alternative course of actions.

Advantages of ZBB

(1) Utilization of resources at a maximum level.

(2) It serves as a tool of management in formulating production planning.

(3) It facilitates effective cost control.

(4) It helps to identify the uneconomical activities.

(5) It ensures the proper allocation of scarce resources on priority basis.

(6) It helps to measure the operational inefficiencies and to take the corrective actions.

(7) It ensures the principles of Management by Objectives.

(8) It facilitates Co-operation and Co-ordination among all levels of management.

(9) It ensures each activity is thoroughly examined on the basis of cost benefit analysis.

Illustration: 17

The expenses budgeted for production of 10,000 units in a factory are furnished below :

Materials

Labour

Variable factory overheads

Fixed factory overhead (Rs. 1,00,000)

Variable expenses (Direct)

Selling expenses (10 % Fixed)

Distribution expenses (20 % Fixed)

Administrative expenses (Rs. 50,000)

Total cost of sale per unit

You are required to prepare a budget for the production of 8,000 units.

Per unit

Rs.

70

25

20

10

5

13

7

5

155

588

Solution:

A Textbook of Financial Cost and Management Accounting

Flexible Budget

Particulars Output 10,000 units Output 8,000 units

Per unit Amount Per unit Amount

Variable Expenses:

Material cost 70 7,00,000 70 5,60,000

Labour cost 25 2,50,000 25 2,00,000

Direct expenses (variable) 5 50,000 5 40,000

Prime cost 100 10,00,000 100 8,00,000

Add: Factory overheads :

Variable overheads 20 2,00,000 20 1,60,000

Fixed overheads 10 1,00,000 12.50 1,00,000

Works cost 130 13,00,000 132.50 10,60,000

Add: Administrative expenses

Fixed (Assumed) 5 50,000 6.25 50,000

Cost of production 135 13,50,000 138.75 11,10,000

Add: Selling Expenses

Fixed - 10 % of Rs. 13 1.30 13,000 1.63 13,000

Variable - 90 % of Rs. 13 11.70 1,17,000 11.70 93,600

Add: Distribution Expenses:

Fixed - 20 % of Rs.7 1.40 14,000 1.75 14,000

Variable - 80 % of Rs.7 5.60 56,000 5.60 44,800

Total Cost of Sales 155 15,50,000 159.43 12,75,400

IIIustration: 18

Prepare a flexible budget for overheads on the basis of the following data. Ascertain the overhead

rates at 50 %. 60 % and 70 % capacity.

Variable overheads :

Indirect Material

Indirect Labour

Semi-variable overheads:

Electricity (40 % fixed 60 % Variable)

Repairs ( 80 % fixed 20 % Variable)

Fixed Overheads :

Depreciation

Insurance

Salaries

Total overheads

Estimated direct labour hours

At 60 % capacity

Rs.

3,000

9,000

15,000

1,500

8,250

2,250

7,500

46,500

93,000

Budgeting and Budgetary Control 589

Solution:

Flexible Budget

Particulars 50 % Capacity 60 % Capacity 70 % Capacity

Variable overheads:

Indirect material 2,500 3,000 3,500

Indirect labour 7,500 9,000 10,500

Semi-variable overheads:

Electricity 13,500 15,000 16.500

Repairs and Maintenance 1,450 1,500 1.550

Fixed overheads :

Depreciation 8.250 8,250 8,250

Insurance 2,250 2,250 2,250

Sales 7,500 7,500 7,500

Total Overheads 42.950 46,500 50,050

Estimated direct labour hours 77,500 93,000 1,08,500

Overhead Rate Re.0.55 Re.0.50 Re.0.46

Working Notes :

(1) Electricity: Rs. 15,000 is the cost of electricity at 60 % capacity, of which 40% are fixed overheads, i.e., Rs.

6,000 and variable is Rs. 9,000 :

For 60 % capacity variable overheads =

For 50 % capacity variable overheads =

Therefore electricity cost at 50 % capacity =

For 70 % capacity, variable overheads =

Therefore electricity cost at 70 % =

Rs.9,000

9,000

-- x 50 = Rs.7,500

60

6,000 + 7,500 = Rs. 13,500

9,000

x 70 = Rs. 10,500

60

Rs. 10,500 + Rs. 6,000 = Rs. 16,500

(2) Repairs and Maintenance: Rs. 1,500 is the cost of repairs and maintenance at 60 % capacity, of which 80%

is fixed overhead, i.e., Rs. 1,200 and variable is Rs. 300 :

For 60 % capacity variable overhead

For 50 % capacity variable overhead

= Rs.300

300

-- x 50 = Rs. 250

60

Therefore the total cost of repairs and maintenance at 50 %

= Rs. 1,200 + Rs. 250 = Rs.1,450

300

For 70 % capacity, the variable overhead = -- x 70 = Rs. 350

60

Therefore the total cost of repairs and maintenance

= Rs. 1,200 + Rs. 350 = Rs. 1,550

590

Illustration: 19

A Textbook of Financial Cost and Management Accounting

With the following data for a 60 % activity prepare a budget for production at 80 % and 100 % capacity

Production at 60 % capacity 300 units

Materials Rs. lOOper unit

Labour Rs. 40 per unit

Expenses Rs. IO per unit

Factory expenses Rs. 40,000 ( 40 % fixed)

Administrative expenses Rs. 30,000 ( 60 % fixed)

Solution:

Flexible Budget

Particulars 60 % Capacity

300 units

Direct cost :

Material Rs. 100 per unit 30,000

Labour Rs. 40 per unit 12,000

Expenses Rs. 10 per unit 3,000

Total Direct Costs 45,000

Add: Variable Factory Expenses (Rs. 40 per unit) 12,000

Variable Administrative Expenses (Rs. 20 per unit) 6,000

Fixed Factory Expenses (40 % of Rs, 40,000) 16,000

Fixed Administrative Expen. ( 60 % of Rs. 30,000) 18,000

Total 97,000

Illustration: 20

80 % Capacity 100 % Capacity

400 units 500 units

40,000 50,000

16,000 20,000

4,000 5,000

60,000 75,000

16,000 20,000

8,000 10,000

16,000 16,000

18,000 18,000

1,18,000 1,39,000

The Cost Sheet of a Company based on a budgeted volume of sales of 3,00,000 units per Quarter is

as under:

Direct materials

Direct wages

Factory overheads ( 50 % fixed)

Selling and Administrative overheads (variable)

Selling Price

Rs. Per unit

5.00

2.00

6.00

3.00

18.00

When the budget was discussed it was felt that the company would be able to achieve only a volume of 2,50,000

units of production and sales per Quarter. The Company therefore decided that an aggressive sales promotion

campaign should be launched to achieve the following improved operations:

Proposal I:

(a) Sell 4,00,000 units per quarter by sending Rs. 2,00,000 on special advertising

(b) The factory fixed costs will increase by RsA,oo,OOO per Quarter

Proposal II :

(a) Sell 5,00,000 units per Quarter subject to the following conditions

(b) An overall price reduction of Rs. 2 per unit is allowed on all sales

(c) Variable Selling and Administration costs will increase by 5 %

(d) Direct Material costs will be reduced by I % due to purchase price discounts

(b) The fixed factory costs will increase by Rs. 2,00,000 more

You are required to prepare a Flexible Budget at 2,50,000 units, 4,00,000 units and 5,00,000 units of output per

quarter and calculate the profit at each of the above levels of output.

Budgeting and Budgetary Control

Solution:

Paniculars

Sales Revenue

Variable Costs :

Direct Materials @ Rs.5

Factory Labour @ Rs. 2

Factory Overheads @ Rs. 3

Sales and Administrative

Overheads (? variable) @ Rs. 3

Total Variable Cost

Contribution

(Sales - Total Variable cost)

Fixed Costs :

Factory Overhead

Sales and Administrative }

Overhead (Fixed)

Increase in fixed cost

Advertisement

Total Fixed Cost

Profit (Contribution - Fixed cost)

Illustration: 21

Flexible Budget

2.50.000 units

Rs.

45,00,000

12,50.000

5,00,000

7,50,000

2,50,000

27,50,000

17,50,000

9,00,000

6,00,000

--

15,00,000

2,50,000

591

4.00.000 units 5.00.000 units

Rs. Rs.

72,00,000 8,00,000

20,00,000 24,75,000

8,00,000 10,00,000

12,00,000 15,00,000

4,00,000 5,25,000

44,00,000 55,00,000

28,00,000 25,00,000

9,00,000 9,00,000

6,00,000 6,00,000

4,00,000 6,00,000

2,00,000 -

21,00,000 21,00,000

7,00,000 4,00,000

The Managing Director of your company has been given the following statement showing the result

for August 2003.

Month ending 31" August 2003

Master Budget

Units produced and sold 10,000 units

Rs.

Sales 40,000

Rs.

Direct materials 10,000

Direct wages 15,000

Variable overhead 5,000

Fixed overhead 5,000

Total cost 35,000

Net profit 5,000

The standard cost of the product are as follows :

Direct material (lkg @ Re. 1 per kg)

Direct Wages (1 hour @ Rs. 1.50)

Variable overhead ( 1 hour @ Re. 0.50)

Actual

9,000 units

Per unit

Rs.

1.00

1.50

0.50

Rs.

35,000

Rs.

9,200

13,100

4,700

4,900

31,900

3,100

Variance

1000 units

Rs.

(5,000) Adverse

Rs.

800

1,900

300

100

3,100

(1,900) Adverse

Actual results for the month showed that 9,800 kg of material were used and 8,800 labour hours were recorded.

592 A Textbook of Financial Cost and Management Accounting

Required : (a) Prepare a flexible budget for the month and compare with actual results

(b) Calculate the variances which have arisen.

Solution:

Statement showing Flexible Budget and its Comparison with Actual

Particulars Master Budget Flexible Budget Actual for Variance

For 10,000 Units Per Unit For 9,000 9,000 Units

Rs. Rs. Rs. Rs. Rs.

Sales 40,000 4.00 36,000 35,000 1,000 (A)

Less : Variable cost:

Direct materials 10,000 1.00 9,000 9,200 200 (A)

Direct wages 15,000 1.50 13,500 13,100 400 (F)

Variable overheads 5,000 0.50 4,500 4,700 200 (A)

Total Variable Costs 30,000 3.00 27,000 27,000 -

Contribution } (Sales - Total variable cost) 10,000 1.00 9.000 8,000 1000 (A)

Less : Fixed overheads 5,000 0.50 5,000 4,900 100 (F)

Net profit 5,000 0.50 4,000 3,100 900 (A)

Illustration: 22

A company operates at 50 % of capacity utilization. At this level of operation, the sales value is

Rs. 9,00,000. At 100 % capacity utilization the following costs and relationships will apply:

Factory Overheads Rs. 1,80,000 ( 50 % Variable)

Factory Cost 60 % of sales

Selling Costs (75 Variable), i.e., 20 % of sales

The company anticipates that its sales will increase up to 75 % of capacity utilization. The company also

receives a special order from a government department. This order will occupy 15 % of capacity utilization of the

plant. The prime cost in this order is Rs. 1,35,000 and the variable selling cost will only be 2 % of the sales value

offered. Besides, the cost of processing the order is Rs. 8,000. The sales price offered is Rs. 1,45,000.

Required: (1) Present a statement of profitability at 50 % and 75 % level of activity.

(2) Evaluate the government order and state whether it is acceptable or I¥>t.

Solution:

Flexible Buoget

Particulars 50 % Capacity

Rs.

Sales 9,00,000

Prime cost 50 % of sales 75 % of sales 4,50,000

Factory overheads :

Variable Cost 45,000

Fixed Cost 90,000

Factory Cost (Prime cost + Factory overheads) 5,85,000

Selling Cost : Variable Cost 1,35,000

Fixed Cost 90,000

Total Cost (Factory Cost + Selling Cost) 8,10,000

Profit (Sales - Total Cost) 90.000

75 % Capacity

Rs.

13,50,000

6,75,000

67,500

90,000

8,32,500

2,02,500

90,000

11,25,000

2,25,000

Budgeting and Budgetary Control

Working Notes:

Sales at 50% = Rs. 9,00,000

Sales at 100% = Rs. 18,00,000

Profitability at 100% Capacity

Sales

Prime Cost (10,80,000 - 1,80,000)

Factory Overhead

Factory Cost

Selling Cost

Total Cost

Profit (Sales - Total Cost)

(18,00,000 - 1,44,0000)

Evaluation of Government order ( 15 % Capacity)

Sales

Prime Cost

Factory overhead (Variable cost)

Selling cost variable @ 2 %

Processing cost

Total Cost

Loss (Sales - Total cost)

1,45,000 - 1,59,400

Hence not acceptable.

QUESTIONS

1. What do you mean by a budget?

2. What are the essentials of a budget?

Rs.

18,00,000

9,00,000

1,80,000

10,80,000

3.60,000

14,40,000

3,60,000

Rs.

1,45,000

1,35,000

13,500

2,900

8,000

1,59,400

1,440

3. What are the differences between budgets and forecasts?

4. What do you understand by budgetary control?

Explain briefly the characteristics of a good budget.

5. What are the objectives of Budgetary Control?

= 50% of sales

Given

= 60% of sales

= 20% of sales

6. What are the scope and techniques of Standard Costing and Budgetary control?

7. Describe essential requisites for effective budgetary control.

8. What do you understand by organization for budgetary control?

9. Write short notes on :

593

(a) Budget Centre. (b) Budget Officer. (c) Budget Committee. (d) Budget Manual. (e) Budget Period. (f) Key Factor.

(g) Performance of Budgeting.

to. What are the advantages of budgetary control?

11. What are the limitations of budgetary control?

12. Briefly explain the different types of budgets.

13. What you understand by control ratios?

14. What is sales budget? What are the factors considered in developing the sales budget?

15. Write short notes on :

(a) Production Budget. (b) Cost of Production Budget. (c) Materials Budget.

16. What do you understand by Cash Budget? Discuss the procedure for preparing the cost budget.

17. What do you understand by Master Budget?

18. What do you understand by Fixed Budget and Flexible Budget? Whiit are the advantages of Flexible Budget?

19. What are the differences between fixed budget and flexible budget?

20. Describe the different methods of preparing Flexible Budget.

594

EXERCISES

A Textbook of Financial Cost and Management Accounting

(1) XYZ Ltd. has prepared the budget for tbe production of a lakh units of the only commodity manufactured by them for

a costing period as under:

Raw Material

Direct Labour

I

2.52 Per unit

0.75 Per unit

Direct Expenses 0.10 Per unit

Works overheads (60 % Fixed) 2.50 Per unit

Administration overhead ( 80 % Fixed) 0.40 Per unit

Selling overheads ( 50 % Fixed) 0.20 Per unit

The actual production during the period was only 60,000 units. Calculate the revised budget cost per unit.

. (ICWA, Inter)

[Ans : Cost of Sales Rs. 4,65,000; Per unit @ Rs. 7.75)

(2) The expenses budgeted for production of 10.000 units in a factory are furnished below:

Materials

Labour

Variable overheads

Fixed overheads (Rs. 1,00,(00)

Variable expenses (direct)

Selling expenses (l0% fixed)

Distribution expenses (20 % fixed)

Administration expenses (Rs. 50,(00)

Rs. Per unit

70

25

20

10

5

13

7

5

Total cost of sales per unit (to make and sell) 155

Prepare a budget for the product of

(a) 8,000 units and (b) 6,000 units

Assume that administration expenses are rigid for all levels of production.

[Ans : Total Cost Rs. 12,75,400 for 8,000 units; Rs. 10,00,800 for 6,000 units]

(3) The income and expenditure forecasts for months of March to August, 2003 are given as follows:

Months Sales Purchases Wages Manufacturing Office

(credit) (Credit) Expenses Expenses

March 60,000 36,000 9,000 3,500 2,000

April 62,000 38,000 8,000 3,750 1,500

May 64,000 33,000 10.000 4.000 2,500

June 58,000 35,000 8,500 3,750 2,000

July 56,000 39,000 9,500 5,000 1,000

August 60,000 34,000 8,000 5,200 1,500

Additional Information

You are given the following further information:

Selling

Expenses

4,000

5,000

4,500

3,500

3,500

4,500

(a) Plant costing Rs. 16,000 is due for delivery in July payable 10 % on delivery and the balance after 3 months.

(b) Advance tax of Rs, 8,000 is payable in March and June each.

(c) Creditors allow 2 months credit and debtors are paying one month late. Opening balance of cash Rs. 8,000 lag or

one month in expenses.

[Ans : Balance: May Rs. 15,750; June Rs. 12,750; July Rs. 18,400]

(4) From the following average figures of previous quarters, prepare a manufacturing overhead budgeted for the quarter

ending on March 31, 2003. The budget output during this quarter is 6,000 units:

Fixed overheads Rs. 60,000

Variable overheads Rs. 30,000 (Varying @ Rs. 5 per unit)

Semi variable overheads 30,000 ( 40 % fixed and 60 % varying @ Rs. 3 per unit)

[Ans : 1,68,000]

(5) Calculate (a) Efficiency Ratio (b) Activity Ratio and (c) Capacity Ratio from the following figures:

Budgeted Production

Actual Production

176 units

150 units

Budgeting and Budgetary Control 595

Standard hour per unit 20

Actual working hours 1,200

[Ans : (a) Efficiency Ratio = 125%; (b) Activity Ratio = 85. 23%; (b) Capacity Ratio = 68. 18%]

(6) A department of Tan India Company attains sale of Rs. 6,00,000 at 80% on its nonnal capacity and its expenses are

give below:

Particulars Rs.

Administration Costs :

Office salaries 90,000

General expenses 2% on sales

Depreciation Rs.7,5oo

Rate and Taxes Rs.8,750

Distribution Costs:

Wages Rs. 15,000

Rent 1% of sales

Other expenses 4% of sales

Selling Cost:

Salaries 8% of sales

Traveling expenses 2% of sales

Sales office 1% of sales

General expenses 1% of sales

Draw up flexible administration, selling and distribution costs budget, operating at 90 per cent, 100 per cent and 110 per

cent of nonnal capacity.

(7) The following expresses relate to a cost center operating at 80% of nonnal capacity (sales are in 12,00,000). Draw up

flexible administration, selling and distribution costs budget operating at 90%, 100% and 1l0% of normal capacity.

Administration costs

Office Salaries

General Expenses

Depreciation

Rates and taxes

Selling Costs

Salaries

Traveling Expenses

Sales Office

General Expenses

Distribution Costs

Wages

Rent

Rs.

30,000

1.5% of sales

15,000

17,500

Rs.

4% of sales

1.5% of sales

1% of sales

1% of Sales

Rs.

30,000

5% of sales

Other expenses 2% of sales

[Ans: Total costs : 80% of capacity Rs. 6,000; 90% of Capacity Rs. 67,500; 100% of capacity

Rs. 75,000; 110% of capacity Rs. 82,500.]

(8) PQR Company Ltd. has given the following particulars, you are required to prepare a cash Budget for the three months

ending I" Dec. 2003.

..

Months Sales Materials Wages Overheads

August 20,000 10,200 3,800 1,900

September 21,000 10,000 3,800 210

October 23,000 9,800 4,000 2,300

November 25,000 10,000 4,200 2,400

December 30,000 10,800 4,500 2,500

(i) Credit Tenns are :

Sales I Debtors - 10% sales are on cash basis: 50% of the credit sales are coIlected next month and the balance in

the following month

Creditors Materials 2 month

Wages lI5 month

Overheads \12 month

596 A .Textbook of Financial Cost and Management Accounting

(ii) Cash balance on I" October 2003 in expected to be Rs. 8,000

(iii) A machinery will be miscalled in August, 2003 at a cost of Rs. 1,00,000. The monthly installment of Rs. 5,000

payable from October onwards.

(iv) Dividend at 10% on preference there capital of Rs. 3,00,000 will be paid on I" December 2003.

{v) Advance to be received for sales of vehicle Rs. 20,000 in December.

wi) Income tax (advance) to be paid I December Rs. 5,000

[Ans: October closing balance Rs. 7,390; November closing balance Rs. 8,180; December Bank overdraft Rs. 3.910]

(9) With the following data for a 60% capacity, prepare a budget for production at 80% and 100% activity.

• Production at 60% activity 600 units materials Rs. 100 per unit (100% variable)

• Materials Rs. 40 per unit (100% variable)

• Labours Rs. 40 per unit (100% variable)

• Direct Expenses Rs. 10 per unit (Rs. 6 per unit fixed)

• Factory expenses Rs. 40,000 (40% fixed)

• Administrative expenses Rs. 30,000 (60% fixed)

[Ans: Total Costs : 60% Capacity Rs. 1,60,000

80% capacity Rs. 2,00,800

100% capacity Rs. 2,41,600]

(10) A factory is currently to 50% capacity and produces 10,000 units estimate the profits of the company when it works at

60% and 80% capacity and offer your critical comments.

At 60% working raw materials cost increases by 2% and selling price falls by 2% at the 80% working, raw material cost

increases by 5% and selling price falls by 5%.

A 50% capacity working the product costs Rs. 180 per unit and is sold at Rs. 200 per unit. The unit cost of Rs. 180 is

made up as follows :

Materials

Labour

Factory Overhead

Administrative Overhead

[Ans: Rs. 2,00,000; Rs. 2,12,000; Rs. 2,12,000]

Rs. 100

Rs.30

Rs. 30 (40% fixed)

Rs. 20 (50% fixed)

(11) PQR Ltd. manufactures two products X and Y. Product X takes 6 hours to make while product Y takes 12 hours. In a

month of 25 days of 8 hours each, 1,200 units of X and 750 units of Y were produced. The firm employs 75 men in the department

responsible for producing these two products. The budget hours are 1,86.000 per annum. You are required to calculate a Activity

Ratio, Capacity Ratio and Efficiency ratio.

[Ans: Activity ratio 104.5%; Capacity Ratio 96.8% Efficiency Ratio 108%]

(12) Glass manufacturing company requires you to calculate and present the budget for the next year from the following

information :

Sales:

Toughened glass Rs. 3,00,000

Bent Toughened glass Rs. 5,00,000

Direct Material cost 60% of sales

Direct wages 20 workers @ Rs. 150 P.M.

Factory Overheads

Indirect Labour - Works Manager Rs. 500 per month, Foreman Rs. 400 per month.

Stores and spares 2 Ih% on sales

Depreciation machinery Rs. 12,600

Light and power Rs. 5,000

Repairs etc. Rs. 8,000

Other sundries 10% on Daily wages

Administration selling and distribution expenses Rs. 14,000 per annum

[Ans: Sales budget - sales revenues Rs. 7,86,000; production cost budget Rs. 5,76,000; expected profit as budgeted

Rs. 2,10,000]

DOD

CHAPTER 28

Standard Costing and Variance Analysis

Introduction

The success of a business enterprise depends to a greater extent upon how efficiently and effectively

it has controlled its cost. In a broader sense the cost figure may be ascertained and recorded in the form of

Historical costing and Predetermined costing. The term Historical costing refers to ascertainment and

recording of actual costs incurred after completion of production ..

One of the important objectives of cost accounting is effective cost ascertainment and cost control.

Historical Costing is not an effective method of exercising cost control because it is not applied according

to a planned course of action. And also it does not provide any yardstick that can be used for evaluating

actual performance. Based on the limitations of historical costing it is essential to know before production

begins what the cost should be so that exact reasons for failure to achieve the target can be identified and

the responsibility be fixed. For such an approach to the identification of reasons to evaluate the

performance, suitable measures may be suggested and taken to correct the deficiencies.

MEANING OF STANDARD COST AND STANDARD COSTING

Standard Cost

The word "Standard" means a "Yardstick" or "Bench Mark." The term "Standard Costs" refers to

Pre-determined costs. Brown and Howard define Standard Cost as a Pre-determined Cost which

determines what each product or service should cost under given circumstances. This definition states that

standard costs represent planned cost of a product.

Standard Cost as defined by the Institute of Cost and Management Accountant, London "is the Predetermined

Cost based on technical estimate for materials, labour and overhead for a selected period of

time and for , a prescribed set of working conditions."

Standard Costing

Standard Costing is a concept of accounting for determination of standard for each element of costs.

These predetermined costs are compared with actual costs to find out the deviations known as "Variances."

Identification and analysis of causes for such variances and remedial measures should be taken in order to

overcome the reasons for Variances.

598 A Textbook of Financial C~st and Management Accounting

Chartered Institute of Management Accountants England defines Standard Costing as "the Preparation

and use of standard costs, their comparison with actual costs and the analysis of variances to their causes

and points of incidence."

From the above definition, the technique of Standard Costing may be summarized as follows :

(1) Determination of appropriate standards for each element of cost.

(2)' Ascertainment of information about actuals and use of Standard Costs.

(3) Comparison of actual costs with Standard Costs, the differences known as Variances.

(4) Analysis of Variances to find out the causes of Variances.

(5) Reporting to the responsible authority for taking remedial measures.

Difference between Estimated Costs and Standard Costs

Although, Pre-determination is the essence of both Standard Costing and Estimated Costing, the two

differ from each other in the following respects:

Standard Costing

(1) It is used on the basis of scientific.

(2) It emphasises "what the cost should be."

(3) It is used to evaluate actual performance and it

serves as an effective tool of cost.

(4) It is applied to any industry engaged in mass

production.

(5) It is a part of accounting system and standard

costing variances are recorded in the books of

accounts.

Esti11UZUd Costing-

(1) It is used on the basis of statistical facts and figures.

(2) It emphasises "what the cost will be."

(3) It is used to cost ascertainment for fixing sales price.

(4) It is applicable to concern engaged in construction

work.

(5) It is not a part of accounting system because it is

based on statistical facts and figures.

Compare and Contrast between Standard Costing and Budgetary Control :

Relationship: The following are certain basic principles common to both Standard Costing and

Budgetary Control:

(1) Determination of standards for each element of costs in advance.

(2) For both of them measurement of actual performance is targeted.

(3) Comparison of actual costs with standard cost to .find out deviations.

(4) Analysis of variances to find out the causes.

(5) Give the periodic report to take corrective measures.

Differences : Though Standard Costing and Budgetary Controls are aims at the maximum efficiencies

and Marginal Cost, yet there are some basic differences between the two from the objectives of using the two

costs.

Standard Costing and Variance Analysis 599

Budgetary Control Standard Costing

(1) Budgets are projections of financial accounts. ..

(2) As a statement of both income and expenses it

forms part of budgetary control.

(1) Standard Costing is a projection of cost accounts.

(2) Standard costing is not used for the purpose of

forecasting.

(3) Budgets are estimated costs. They are "what the

cost will be."

(4) Budget can be operated with standards.

(5) In budgetary control variances are not revealed

through the accounts.

(6) Budgets are prepared on the basis of historical facts

and figures.

Advantages of Standard Costing

(3) Standard Cost are the "Norms" or "what cost should

be."

(4) Standard Costing cannot be used without budgets

(5) Under standard costing variances are revealed through

different accounts.

(6) Standard cost are planned and prepared on the basis

of technical estimates.

The following are the important advantages of standard costing :

(1) It guides the management to evaluate the production performance.

(2) It helps the management in fixing standards.

(3) Standard costing is useful in formulating production planning and price policies.

(4) It guides as a measuring rod for determination of variances.

(5) It facilitates eliminating inefficiencies by taking corrective measures.

(6) It acts as an effective tool of cost control.

(7) It helps the management in taking important decisions.

(8) It facilitates the principle of "Management by Exception."

(9) Effective cost reporting system is possible.

Limitations of Standard Costing

Besides all the benefits derived from this system, it has a number of limitations which are given

below:

(1) Standard costing is expensive and a small concern may not meet the cost.

(2) Due to lack of technical aspects, it is difficult to establish standards.

(3) Standard costing cannot be applied in the case of a- concern where non-standardised products

are produced.

(4) Fixing of responsibility is'difficult. Responsibility cannot be fixed in the case of uncontrollable

variances.

(5) , Frequent revision is required while insufficient staff is incapable of operating this system.

(6) Adverse psychological effects and frequent technological changes will not be suitable for

standard costing system.

Determination of Standard Costs

The following preliminary steps must be taken before determinatio.n of standard cost :

(1) Establishment of Cost Centres.

600 A Textbook of Financial Cost and Management Accounting

(2) Classification and Codification of Accounts.

(3) Types of Standards to be applied.

(a) Ideal Standard

(b) Basic Standard

(c) Current Standard

(d) Expected Standard

(e) Normal Standard

(4) Organization for Standard Costing.

(5) Setting of Standards.

(1) Establishment of Cost Centres: It is the first step required before setting of Star.dards.

According to CIMA. London Cost Centre is "a location. person or item of equipment for which costs may

be ascertained and used for the purpose of cost control." Cost centre is necessary for the determination of

standard costs for each product and comparison of actual cost with the predetermined standards to

ascertain the deviations to take corrective measures.

(2) Classification and Codification of Accounts: Classification of Accounts and Codification of

different items of expenses and incomes help quick ascertainment and analysis of cost information.

(3) Types of Standards to be Applied: Determination of the type of standard to be used is one of

the important steps before setting up of standard cost. The different types of standards are given below :

(a) Ideal Standard

(b) Basic Standard

(c) Current Standard

(d) Expected Standard

(e) Normal Standard

(a) Ideal Standard: The term "Ideal Standard" refers to the standard which can I)e attained

under the most favourable conditions possible. In other words, ideal standard is based on

high degree of efficiency. It assumes that there is no wastage. no machine breakdown. no

power faihTe. no labour ideal time in the production process. In practice it is difficult to

attain this ideal standard.

(b) Basic Standard: This standard is otherwise known as Bogey Standard. Basic Standard

which is established for use is unaltered over a long period of time. In other words this

standard is fixed in relation to a base year and is not changed in response to changes in

material costs. labour costs and other expenses as the case may be. The application of this

standard has no· practical importance from cost control and cost ascertainment point of

view.

(c) Current Standard: The term "Current Standard" refers to "a standard established for use

over a short period of time related to current conditions which reflects the performance that

should be attained during the period." These standards are more suitable and realistic for

control purposes.

Standard Costing and Variance Analysis 601

(d) Expected Standard: Expected Standard may be defined as "the standard which may be

anticipated to be attained during a future specified budget period." These standards set

targets which can be achieved in a normal situation. As such it is more realistic than the

Ideal Standard.

(e) Normal Standard: This standard resents an average standard in past which, it is anticipated,

can be attained over a future period of time, preferably long enough to cover one trade

cycle. The usefulness of such standards is very limited for the purpose of cost control.

(4) Organization for Standard Costing: The success of the standard costing system depends upon

the reliability of standards. Hence the responsibility for setting standard is vested with the Standard

Committee. It consists of

(a) Purchase Manager

(b) Production Manager

(c) Personnel Manager

(d) Time and Motion Study Engineers

(e) Marketing Manager and Cost Accountant

(5) Setting of Standard: The Standard Committee is responsible for setting standards for each

element of costs as given below :

I. Direct Material

II. Direct Labour

III. Overheads

(a) Fixed Overheads

(b) Variable Overheads

I. Standard for Direct Material Cost

The following are the standard involved in direct materials cost:

0) Material Quantity or Usage Standard.

(ii) Material Price Standard.

(i) Material Usage Standard: Material Usage Standard is prepared on the basis of material

specifications and quality of materials required to manufacture a product. While setting of standards proper

allowance should be provided for normal losses due to unavoidable occurrence of evaporation, breakage etc.

(ii) Material Price Standard: Material Price Standard is calculated by the Cost Accountant and the

Purchase Manager for each type of materials. When this type of standard is used, it is essential to consider

the important factors such as market conditions, forecasting relating to the trends of prices, discounb etc.

II. Standard for Direct Labour Cost

The following standards are established:

(i) Fixation of Standard Labour Time

(ii) Fixation of Standard Rate

602 A Textbook of Financial Cost and Management Accounting

(i) Fixation of Standard Labour Time: Labour Standard time is fixed and it depends upon the

nature of cost unit, nature of operations performed, Time and Motion Study etc. While determining the

standard time normal ideal time is allowed for fatigue and other contingencies.

(ii) Fixation of Standard Rates: The standard rate fixed for each job will be determined on the basis

of methods of wage payment such as Time Wage System, Piece Wage System, Differential Piece Rate

System and Premium Plan etc.

III. Setting Standards for Overheads

The following problems are involved while setting standards for overheads:

(1) Determination of standard overhead cost

(2) Estimating the production level of activity to be measured in terms of common base like

machine hours, units of production and labour hours.

Setting of overhead standards is divided into fixed overhead. variable overhead and semi-variable

overhead. The determination of overhead rate may be calculated as follows :

(a) Standard Overhead Rate

(b) Standard Variable Overhead Rate

=

=

Standard overhead for the budget period

Standard Production for the budget period

Standard overhead for the budget period

Standard Production for the budget period

Standard Hour: Usually production is expressed in terms of units, dozen. kgs, pound, litres etc.

When productions are of different types, all products cannot be expressed in one unit. Under such

circumstances, it is essential to have a common unit for all the products. Time factor is common to all the

operation. ICMA, London, defines a Standard Time as a "hypothetical unit pre-established to represent the

amount of work which should be performed in one hour at standard performance."

Standard Cost Card: After fixing the Standards for direct material, direct labour and overhead cost,

they are recorded in a Standard Cost Card. This Standard cost is presented for each unit cost of a product. The

total Standard Cost of manufacturing a product can be obtained by aggregating the different Standard Cost

Cards of different proceses. These Cost Cards are useful to the firm in production planning and pricing policies.

VARIANCE ANALYSIS

Standard Costing guides as a measuring rod to the management for determination of "Variances" in

order to evaluate the production performance. The term "Variances" may be defined as the difference

between Standard Cost and actual cost for each element of cost incurred during a particular period. The

term "Variance Analysis" may be defined as the process of analyzing variance by subdividing the total

variance in such a way that management can assign responsibility for off-Standard Performance.

The variance may be favourable variance or unfavourable variance. When the actual performance is

better than the Standard, it resents "Favourable Variance." Similarly, where actual performance is below

the standard it is called as "Unfavourable Variance."

Variance analysis helps to fix the responsibility so that management can ascertain -

(a) The amount of the variance

(b) The reasons for the difference between the actual performance and budgeted performance

Standard Costing and Variance Analysis

(c) The person responsible for poor performance

(d) Remedial actions to be taken

603

Types of Variances: Variances may be broadly classified into two categories (A) Cost Variance and

(B) Sales Variance. '

(A) Cost Variance

Total Cost Variance is the difference between Standards Cost for the Actual Output and the Actual

Total Cost incurred for manufacturing actual output. The Total Cost Variance Comprises the following :

I. Direct Material Cost Variance (DMCV)

II. Direct Labour Cost Variance (DLCV)

III. Overhead Cost Variance (OCV)

I. Direct Material Variances

Direct Material Variances are also termed as Material Cost Variances. The Material Cost Variance is

the difference between the Standard cost of materials for the Actual Output and the Actual Cost of

materials used for producing actual output. The Material Cost Variance is calculated as:

Material Cost Variance = Standard Cost - Actual Cost

MCV = SC-AC

(or)

{ Standard Standard} { Actual Actual MCV = x x }

Quantity Price Quantity Price

= (SQ x SP) - (AQ x AP)

Note: If the actual costs is more than standard cost the variance will be unfavourable or adverse variance and.

on tile other hand. if the actual cost is less than standard cost the variance will be favourabie variance. The material

cost variance is further classified into:

(I) Material Price Variance

(2) Material Usage Variance

(3) Material Mix Variance

(4) Material Yield Variance

(1) Material Price Variance (MPV) : Material Price Variance is that portion of the Material Cost

Variance which is due to the difference between the Standard Price specified and the Actual Price paid for

purchase of materials. Material Price Variance may be calculated by

Material Price Variance =

MPV =

Actual

Quantity

x {

Standard

Price

AQ (SP - AP)

Actual}

Price

Note : If actual cost of materials used is more than the standard cost the variance is adverse. it represents

negative (-) symbol. And on the other hand. if the variance is favourable it is to be represented by positive (+) symbol.

(2) Material Usage Variance (MUV): Material Usage Variance is that part of Material Cost

Variance which refers to the difference between the standard cost of standard quantity of material for

actual output and the Standard cost of the actual material used. Material Usage Variance is calculated as

follows:

604 A Textbook of Financial Cost and Management Accounting

Material Usage Variance = Standard x { Standard Actual}

Price Quantity Quantity

MUV = SP (SQ - AQ)

Note: This Variance will be favourable when standard cost of actual material is more than the Standard material

cost for actual output, and Vice Versa.

(3) Material Mix Variance (MMV) : It is the portion of the material usage variance which is due to

the difference between the Standard and the actual composition of mix. Material Mix Variance is

calculated under two situations as follows :

(a) When actual weight of mix is equal to standard weight to mix

(b) When actual weight of mix is different from the standard mix .

(a) When Actual Weight and Standard Weight of Mix are equal :

(i) The formula is used to calculate the Variance:

Material Mix Variance =

MMV =

Standard { Standard

Price Quantity

SP (SQ - AQ)

Actual }

Quantity

(ii) In case standard quantity is revised due to shortage of a particular category of materials, the

formula will be changed as follows :

Material Mix Variance =

MMV =

Standard

Price

{

Revised Standard

Quantity

SP (RSQ - AQ)

Actual }

Quantity

(b) When Actual Weight and Standard Weight of Mix are different:

(i) The formula used to calculate the Variance is :

Material Mix Variance

(

Total Weight of

Actual Mix

Total Weight of

Standard Mix

Standard ) I Standard 1

x Cost Standard - Cost of

Mix Actual Mix

(ii) In case the standard is revised due to the shortage of a particular category of materials, the

alternative formula will be as follows:

Material Mix Variance

(

Total Weight of )

Actual Mix Standard Standard

= x Cost of Revised - Cost of

Total Weight of Standard Mix ( Actual Mix 1

Standard Mix

(4) Materials Yield Variance (MYV): It is the portion of Material Usage Variance. This variance

arises due to spoilage, low quality of materials and defective production planning etc. Materials Yield

Standard Costing and Variance Analysis 605

Variance may be defined as "the difference between the Standard Yield Specified and the Actual Yield

Obtained." This variance may be calculated as under:

Material Yield Variance =

Where:

Standard Rate is calculated as follows :

Standard Rate =

Verification :

Standard

Rate

x I Actual

Yield

Standard Cost of Standard Mix

Net Standard Output

Standard

Yield

The following equations may be used for verification of Material Cost Variances :

(1) Material Cost Variance

(2) Material Usage Variance

(3) Material Cost Variance

= Material Price Variance + Material Usage Variance

= Material Mix Variance - Material Yield Variance

= Material Mix Variance + Material Yield Variance

Illustration: 1

Solution:

Calculate Material Cost Variance from the following information:

Standard Price of material per kg = Rs. 4

Standard Usage of materials = 800 kgs

Actual Usage of materials = 920 kgs

Actual Price of materials per kg = Rs. 3

Actual Cost of materials Rs. 2,760

Standard cost of material for actual production Rs. 3,200

(1) Material Cost Variance

= {Standard x Standard} \_ {Actual

Price Quantity Price

x

= (4 x 800) - (3 x 920)

= Rs. 3,200 - Rs. 2,760 = Rs. 440 (F)

Actual { Standard Actual

(2) Material Price Variance = x

Quantity Price Price

= 920 (4 - 3)

= 920 x Re. 1 = Rs. 920 (F)

}

Standard

(3) Material Usage Variance = Price

x {Standard

Quantity

Actual }

Quantity

= 4 (800 - 920)

= 4 x 120 = Rs. 480 (A)

Actual }

Quantity

606

Illustration: 2

From the following particulars calculate:

(a) Material Cost Variance

(b) Material Price Variance

(c) Material Usage Variance

(d) Material Mix Variance

The Standard Mix of Product is :

X 300 Units at Rs. 7.50 per unit

Y 400 Units at Rs. 10 per unit

Z 500 Units at Rs. 12.50 per unit

The Actual Consumption was:

X 320 Units at Rs. 10 per unit

Y 480 Units at Rs. 7.50 per unit

Z 420 Units at Rs. 15 per unit

Solution:

Standard Cost of Standard Materials:

X 300 x 7.50 = Rs.2,250

Y 400 xlO = Rs.4,ooO

Z 500 x 12.50 = Rs.6,250

1,200 Rs. 12,500

Actual Cost of Actual Materials:

X 320 xlO = Rs.3,2oo

Y 480 x 7.50' = Rs.3,600

Z 420 x 15 = Rs.6,300

1,220 Rs. 13,100

Revised Quantity :

1,220

X = --- x 300 = 305 units

1,200

1,220

Y = --- x 400 = 406.66 units

1,200

1,220

Z = --- x 500 = 508.33 units

1,200

Calculation of Variance :

(a) Material Cost Variance

(b) Material Price Variance

=

=

A Textbook of Financial Cost and Management Accounting

Standard Cost - Actual Cost

Rs. 12500 - Rs. 13100 ::: Rs. 600 (A)

Actual x {Standard

Quantity Price

Actual }

Price

Standard Costing and Variance Analysis 607

= (or) AQ (SP - AP)

X = 320 (7.50 - 10) = Rs. 800 (A)

y = 480 (10 - 7.50) = Rs. 1200 (F)

Z = 420 (12.50 - 15) = Rs. 1050 (A)

Material Price Variance = Rs. 650 (A)

Standard { Standard Actual }

(c) Material Usage Variance = x

Price Quantity Quantity

= SP (SO- AQ)

X = 7.50 (300 - 320) = Rs. 150 (A)

Y = 10 (400 - 480) = Rs. 800 (A)

z = 12.50 (500 - 420) Rs. 1000 (F)

Material Mix Variance = Rs. 50 (F)

Standard x { Revised Standard Actual }

(d) Material Mix Variance =

Price Quantity Quantity

= SP (RSQ - AQ)

X = 7.50 (305 - 320) = Rs. 112.50 (A)

y = 10 (407 - 480) = Rs. 730 (A)

Z = 12.50 (508 - 420) = Rs. 1100 (F)

Material Mix Variance = Rs. 257.50 (F)

Illustration: 3

X Y Z products Company produces a gasoline additive Gas Gain. This product increases engine efficiency and

improves gasoline mileage by creating a more complex burn in the combustion process.

Careful controls are required during the production process to ensure that the proper mix of input chemicals is

achieved and that evaporation is controlled. If controls are not effective, there can be loss of output and efficiency.

The Standard cost of producing a 500 litre batch of Gas Gain is Rs.6075. The Standard Material Mix and related

standard cost of each chemical used in a 500 litre batch as follows:

Chemicals Mix Litres Standard Purchase Standard Cost

Price Rs. Rs.

Echol 200 9 1800

Protex 100 19.125 1912.50

Benz 250 6.75 1687.50

CT-40 50 13.50 675

Total 600 6075

The quantities of chemicals purchased and used during the current production period are shown below. A total of

140 batches of Gas Gain were manufactured during the current production period. X Y Z products company

determines its costs and chemical usage variations at the end of each production period.

Chemical

Echol

Protex

Benz

CT-40

Total

Quantity used (in Ltres)

26,600

12,880

37,800

7,140

84,420

Required : Compute the total material usage variance and then breakdown this variance into mix and yield

components.

608

Solution:

Chemicals

Echol

Protex

Benz

CT-40

Total

Chemicals

Echol

Protex

Benz

CT-40

Total

Chemical

Echol

Protex

Benz

CT-40

Total

Chemical

Echol

Protex

Benz

=

=

=

=

=

=

A Textbook of Financial Cost and Management Accounting

A. Standard Cost of Standard Mix for actuals of 140 batches

Standard Mix Standard Cost per unit Standard Cost

Rs. Rs.

----

200 Litres x 140

= 28,000 Litres 9 2,52,000

100 Litres x 140

= 14,000 Litres 19.125 2,67,750

250 Litres x 140

= 35,000 Litres 6.75 2,36,250

50 Litres x 140

= 7,000 Litres 13.50 94,500

84,000 Litres • Rs. 8,50,500

B. Standard Cost of Actual Mix for Actual of 140 batches

Actual Quantity Standard Standard Cost

used Per unit (Liters) of Actual Quantity

26,600 Liters Rs.9

12,880 Liters Rs. 19.125

37,800 Liters Rs.6.75

7,140 Liters Rs. l3.50

84,420 Liters

Material Usage Variance

Standard Cost of Standard Mix for

=

Actual output of 140 Batches

Rs. 2,52,000

Rs.2,67,750

Rs. 2,36,250

Rs.94,500

Rs. 8,50,500

( -)

(- )

(- )

(- )

(- )

(-)

Rs. 2,39,400

Rs. 2,46,330

Rs. 2,55,150

Rs. 96,390

Rs. 8,37,270

Standard Cost of Actual Mix for

Actual output

Rs. 2,39,400 = Rs. 12,600 (F)

Rs. 2,46,330 = Rs. 21,420 (F)

Rs. 2,55,150 = Rs. 18,900 (A)

Rs.96,390 = Rs. 1,890 (A) '--'----

Rs. 837270 = Rs. l3,230 (F)

Standard Cost of Standard Mix for Actual Input (84,420 Litres)

Standard Mix in Standard Cost Standard Cost of Standard

Actual Quantity Per unit (Litres) Mix in Actual Quantity

200

x 84,420

600

28,140 Litres Rs.9 Rs. 2,53,260

100

x 84,420

600

14,070 Litres Rs. 19.125 Rs. 2,69,088.75

250

x 84,420

600

35,175 Litres Rs.6.75 Rs. 2,37,431.25

Standard Costing and Variance Analysis

Echol

Total

Chemical

Echol

Protex

Benz

CT-40

Total

=

50

600

x 84,420

= 7,035 Litres Rs. 13.50

84,420 Litres

=

Material Mix Variance

Standard Cost of Standard Mix in

=

Actual input used

Rs.2,53,260

Rs. 2,69,088.55

Rs. 2,37,431.25

Rs. 94,972.50

Rs. 8,54,752.50

( -)

( -)

(- )

(- )

( -)

Material Yield Variance :

{ Actual

Standard Rate

Output

Rs. 94,972.50

Rs. 8,54,752.50

Standard Cost of Actual Mix in

Actual input used (Rs.)

Rs. 2,39,400 = Rs. 13,860 (F)

Rs. 2,46,330 = Rs. 22,758.75 (F)

Rs. 2,55,150 = Rs. 17,718.75 (A)

Rs.96,390 = Rs. 1,417.50 (A)

Rs. 8,37,270 = Rs. 17,482.50 (F)

Output Expected } from Actual input

Rs. 8,50,500

{140

84,420 Litres = - }

140 batches 600 Lters / batch

= Rs. 6,075 (140 - 140.7 batches)

= Rs. 4,252.50 (A)

II. Labour Variances

Labour Variances can be classified into:

(a) Labour Cost Variance (LCV)

(b) Labour Rate Variance or Wage Rate Variance

(c) Labour Efficiency Variance

(d) Labour Idle Time Variance

(e) Labour Mix Variance

(0 Labour Revised Efficiency Variance

(g) Labour Yield Variance

609

(a) Labour Cost Variance (LCV): Labour Cost Variance is the difference between the Standard

Cost of labour allowed for the actual output achieved and the actual wages paid. It is also termed as Direct

Wage Variance or Wage Variance. Labour Cost Variance is calculated as follows:

Labour Cost Variance = Standard Cost of Labour - Actual Cost of Labour

(or)

= {Standard x Standard Time }

Labour Cost Variance

Rate for Actual Output

{

Actual

Rate

x

Actual}

Time

610 A Textbook of Financial Cost and Management Accounting

Note: If actual labour cost is more than the standard labour cost, the variance represents negative and vice

versa.

(b) Labour Rate Variance: It is that part of labour cost variance which is due to the difference

between the standard rate specified and the actual rate paid. This variances arise from the following

reasons:

(a) Change in wage rate.

(b) Faulty recruitment.

(c) Payment of overtime.

(d) Employment of casual workers etc.

It is expressed as follows :

Labour Rate Variance = {

Standard

Actual Time

Rate

Actual }

Rate

Note: If the Standard rate is higher than the actual rate, the variance will be favourable and vice versa.

(c) Labour Efficiency Variance: Labour Efficiency Variance otherwise known as Labour Time

Variance. It is that portion of the Labour Cost Variance which arises due to the difference between standard

labour hours specified and the actual labour hours spent. The usual reasons for this variance are (a) poor

supervision (b) poor working condition (c) increase in labour turnover (d) defective materials. It may be

calculated as following:

Note: If actual time taken is more than the specified standard time, the variance represents unfavourable and

vice versa.

(d) Labour Idle Time Variance: Labour Idle Time Variance arises due to abnormal situations like

strikes, lockout, breakdown of machinery etc. In other words, idle time occurs due to the difference

between the time for which workers are paid and that which they actually expend upon production. It is

calculated as follows :

Idle Time Variance = Idle Hours x Standard Rate

(e) Labour Mix Variance: It is otherwise known as Gang Composition Variance. This variance

arises due to the differences between the actual gang composition than the standard gang composition.

Labour Mix Variance is calculated in the same way of Materials Mix Variance. This variance is calculated

in two ways:

(i) When Standard Labour Mix is equal to Actual Labour Mix.

(ii) When Standard Labour mix is different from Actual Labour Mix.

(i) When Standard and actual times of the labour mix are same The formula for its

computation may be as follows :

Labour Mix Variance

= { Standard Cost of

Standard Labour Mix

Standard Cost of }

Actual Labour Mix

(ii) When Standard and actual times of the labour mix are different : Changes in the

composition of a gang may arise due to shortage of a particular grade of labour. It may be

calculated as follows :

Standard Costing and Variance Analysis

Labour Mix Variance

Where:

Revised Standard Time

= {Revised Standard \_

Time

Actual}

Time

=

Total Actual Time

Total Standard Time

611

x {Standard }

Rate

x Actual Time

(I) Labour Yield Variance: 'This variance is calculated in the same way as Material Yield Variance.

Labour Yield Variance arises due to the variation in labour cost on account of increase or decrease in yield

or output as compared to relative standard. The formula for this purpose is as follows:

Labour Yield Variance =

Standard Labour

Cost per unit of output

x {

Standard output

for Actual Time

Actual}

Output

Note: If actual output is more than Standard output for actual time, the variance is favourable and vice versa.

Verification: Labour Cost Variance = Labour Rate Variance + Labour Efficiency Variance

Illustration: 4.

From the following particulars, c~lculate Labour Variance:

Standard hours = 200

Standard rate for actual production = Re. 1 per hour

Actual hour

Actual Rate

Solution: '

= 190

= Rs. 1.25 per hour

(1) Labour Cost Variance

(or)

=

{

Standard Standard } .

x. . . - (Actual hours

Hours Rate .

(SH x SR) - (AH x AR)

(200 x Re.l) - (190 x Rs. 1.25)

Rs. 200 - Rs. 237.50 = Rs. 37.50 (A)

x Actual Rate)

(2) Labour Rate Variance {

Sta'ndard \_ Actual}

x Actual hours

Rate ,Rate

=, (Re. 1 - Rs. 1.25) x 190 '

Rs. 0.25 x 190 = Rs. 47.50 (A)

(3) Labour Efficiency Variance = {

Standard \_ Actual }

Hours Hours

x Standard Rate

Verification:

Labour Cost Variance

Rs. 37.50 (A) =

Rs. 37.50 (A) =

= (200 - 190) x Re. 1

= 10 x Re. 1 = Rs. 10 (F)

Labour Rate Variance + Labour Efficiency Variance

Rs. 47.50 (A) + Rs. 10 (F)

Rs. 37.50 (A)

612

Illustration: 5

A Textbook of Financial Cost and Management Accounting

The details regarding the composition and the weekly wage rates of labour force engaged on a job

scheduled to be completed in 30 weeks are as follows :

Category of Standard Actual

Workers No. of workers Weekly wage No. of workers Weekly wage

Rate per worker Rate per worker

Skilled 75 60 70 70

Semi-Skilled 45 40 30 50

Unskilled 60 30 80 20

The work was actually completed in 32 weeks. Calculate the various labour variances.

Solution:

(1) Labour Cost Variance = Standard Labour Cost - Actual Labour Cost

Calculation of Standard Labour Cost:

Category of Standard Workers :

Week

Skilled = 75 x 30

Semi Skilled = 45 x 30

Unskilled = 60 x 30

Calculation of Actual Labour Cost :

Actual Week

Skilled = 75 x 32

Semi Skilled = 30 x 32

Unskilled 80 x 32

(1) Labour Cost Variance =

=

(2) Labour Rate Variance

Skilled =

Semi Skilled

Unskilled =

(3) Labour Efficiency Variance = {

Skilled = (2,250 2,240)

Semi Skilled = (1,350 960)

Unskilled = (1.800 2,560)

Rate Amount

Rs. Rs.

= 2,250 x 60 = 1,35,000

= 1,350 x 40 54,000

= 1,800 x 30 = 54,000

5,400 2,43,000

Rate Amount

Rs. Rs.

= 2,240 x 70 = 1,56,800

= 960 x 50 = 48,000

= 2,560 x 20 51,200

5,760 2,56,000

Standard Labour - Actual Labour Cost

2,43,000 - 2,56,000 = Rs. 13,000 (A)

(Standard Rate - Actual Rate) x Actual Time

(Rs. 60 - Rs. 70) x 2,240 Rs. 22,400 (A)

(Rs. 40 - Rs. 50) x 960 Rs. 9,600 (A)

(Rs. 30 - Rs. 20) x 2,560 = Rs. 25,600 (F)

Labour Rate Variance = Rs. 6,400 (A)

Standard Actual } x Standard Rate

Time Time

x 60 = Rs. 6OO(F)

x 40 = Rs. 15,600 (F)

x 30 Rs. 22,800 (A)

Labour Efficiency Variance Rs. 6.600 (A)

Slandard Cosling and Variance Analysis

(4) Labour Mix Variance = {

Where :

Revised Standard Time =

Revised Standard

Time

Standard Time

Actual}

x Standard Rate

Time

x Actual Time

613

Total Standard Time

2,250

Skilled = x 5,760 = 2,400 hours

5,400

1,350

Semi Skilled = x 5,760 = 1,440 hours

5,400

1,800

Unskilled = x 5,760 = 1,920 hours

5,400

Labour Mix Variance

Skilled = (2,400 - 2,240) x 60 == Rs.

Semi Skill~d = (1,440 960) x 40 = Rs.

Unskilled = (1.920 - 2.560) x 30 = Rs.

Labour Mix Variance == Rs.

(5) Labour Revised Efficiency Variance = { Standard

Time

Skilled = (2,250 2,400) x Rs.60 = Rs.

Semi Skilled = (2,350 1,440) x RS.40 = Rs.

Unskilled = (1.800 - 1.920) x Rs.30 = Rs.

Labour Revised Efficiency Variance = Rs.

Verification :

Labour Rate

( 1 ) Labour Cost Variance = +

Variance

Rs. 13.000 (A) =

Rs. 13,000 (A) =

Rs. 6.400 (A) + Rs. 6,600 (A)

Rs. 13,000 (A)

Labour Mix

(2) Labour Efficiency Variance = Variance

Rs. 6,600 (A) = Rs. 9,600 (F) + Rs. 16,200 (A)

Rs. 6,600 (A) = Rs. 6,600 (A)

III. Overhead Variances

+

9,600 (F)

19,200 (F)

19,200 (A)

9,600 (F)

Revised Standard }

x Standard Rate

Time

9,000 (A)

3,600 (A)

300 (A)

16,200 (A)

Labour Efficiency Variance

Variance

Labour Revised Variance

Variance

Overhead may be defined as the aggregate of indirect material cost, indirect labour cost and indirect

expenses. Overhead Variances may arise due to the difference between standard cost of overhead for

actual production and the actual overhead cost incurred. The Overhead Cost Variance may be calculated as

follows:

614 A Textbook of Financial Cost and Management Accounting

{

Standard Overhead Actual Overhead }

Overhead Cost Variance = - x Actual Output

Rate Per Unit Cost

(or)

. { . Standard Hours for

Actual Output

x - Actual Overhead Cost

. Standard Overhead }

Rate Per Hour

Essentials of Certain Terms : For the purpose of measuring various Overhead Variances it is essential to

know certain technical terms related to overheads are given below:

(a) Standard Overhead Rater per unit =

(b) Standard Overhead Rater per hour =

(c) Standard Output for Actual Time =

(d) Standard Hours for Actual Output =

(e) When Output is measured in Standard Hours

Standard Rate

Recorded Overheads =

Per Hour

When Output is measured in Units:

Absorbed Overheads =

(f) Budgeted Overheads =

=

(g) Actual Overheads =

=

. Budgeted Overheads

Budgeted Output

Budgeted Overheads

Budgeted Hours

Budgeted Output

Budgeted Hours

Budgeted Hours

Budgeted Output

x Actual Hours

x Actual Output

Standard Hours for

X

Actual Output

Standard Rate Budgeted Output

X

Per Unit In Units

Standard Rate Budgeted Output

X

Per Unit In Units

(or)

Standard Rate

X Budgeted Hours

Per Hour

Actual Rate Actual Output

X

Per unit . in units

(or)

Actual Rate

X Actual Hours

Per Hour

Standard Costing and Variance Analysis 6/5

Standard Rate Standard Output

(h) Standard Overheads = X

Per unit for Actual Time

(or)

Standard Rate

= X Actual Hours

Per unit

Note: The tenn Budgeted Overheads and Standard Overheads are not used in the same sense. It is assumed that

the tenn Budgeted and Standard are used interchangeably. In other words, Budgeted Overheads are used for budgeted

time or budgeted output and standard overheads are used for actual time or budgeted output in actual time.

Classification of Overhead Variance

Overhead Variances can be classified as :

I. Variable Overhead Variances:

(1) Variable Overhead Cost Variance

(2) Variable Overhead Expenditure Variance

(3) Variable Overhead Efficiency Variance

II. Fixed Overhead Variance:

(a) Fixed Overhead Cost Variance

(b) Fixed Overhead Expenditure Variance

(c) Fixed Overhead Volume Variance

(d) Fixed Overhead Capacity Variance

(e) Fixed Overhead Efficiency Variance

<0 Fixed Overhead Calendar Variance

I. Variable Overhead Variances:

(1) Variable Overhead Cost Variance: This is the difference between standard variable overhead

for actual production and the actual variable overhead incurred. The formula is as follows :

{

Standard Variable overhead} { Actual Variable }

Variable Overhead Cost Variance = -

For Actual Output Overheads'

(2) Variable Overhead Expenditure Variance: It is the difference between standard variable

overheads allowed for actual hours worked and the actual variable overhead incurred. This variable may

be calculated as follows :

Variable Overhead )

Expenditure Variance =

=

I Standard Variable Overhead

Rate Per our

{

Standard Variable

Overheads

(or)

Actual Variable )

Overheads Rate

per hour

Actual Variable}

Overheads

616 A Textbook of Financial Cost and Management Accounting

(3) Variable Ov.erhead Efficiency Variance: This variance arises due to the difference between

variable overhead recovered from actual output produced and the standard variable overhead for actual

hours worked. The formula is a follows :

Variable Overhead

Efficiency Variance } =

Verification:

Standard Rate

Per Hour

x { Standard Hours

for Actual Production

Actual}

Hours

Variable Overhead

=

Cost Variance

Variable Overhead

Expenditure Variance

+

Variable Efficiency

Variance

Illustration: 6

From the following particulars, compute the Variable Overhead Variances :

Output in Units

Labour Hours

Variable Overheads

Solution:

Standard Variable

Overhead rate per hour

Standard Variable

Overhead rate per

Unit of output

Calculation of Variances:

(1) Variable Overhead

Cost Variance

} =

=

) =

=

Standard

2,500 units

5,000

Rs. 1,000

Actual

2,000 units

6,000

Rs. 1,500

Budgeted Variable Overhead

Budgeted Hou~

1,000

5,000

= 0.20 per hour

Budgeted Variable Overheads

Budgeted Output

1,000

2,500

= Rs. 0.40 per hour

} = {

Actual Variable }

Overheads

{

Standard Variable }

Overhead for Actual

Production

= 1,500 - (2,000 x 0.40)

= Rs. 1,500 - Rs. 800 = Rs. 700 (A)

(2) Variable Overhead } { Actual Variable } { Standard Variable } Expenditure Variance =

Overhead for Actual

Overheads Hours Worked

= 1.500 - (6,000 x 0.20)

= Rs. 1,500 - Rs. 1,200 = Rs. 300 (A)

(3) Variable Overhead

Efficiency Variance

} = {

Standard Variable} {Standard Variable }

Overhead for Actual - Overhead for Actual

Hours Output

= (Rs. 6,000 x 0.20) - (2,000 x 0.40)

= Rs. 1,200 - Rs. 800 = Rs. 400 (A)

Standard Costing and Variance Analysis

Verification:

Variable Overhead

Cost Variance

Rs. 700 (A)=

Rs. 700 (A)=

} = Expenditure Variance

Variable Overhead

Rs. 300 (A) + Rs. 400 (A)

Rs. 700 (A)

II. Fixed Overhead Variance

617

Variable Overhead

+

Efficiency Variance

(a) Fixed Overhead Cost Variance: It is that portion of overhead cost variance which is due to over

absorption or under absorption of overhead for the actual production. In other words, the variance is the

difference between the standard fixed overheads allowed for the actual production and the actual fixed

overheads incurred. The variance can be calculated as follows:

Fjxed Overhead Cost Variance = I Actual Fixed l

Overhead I Standard Fixed l Overhead for Actual

Production

(or)

= 1 Standard Fixed l

Overhead Rate Per Hour I Actual Fixed l x Actual Output

Overheads

(b) Fixed Overhead Expenditure Variance: This is otherwise tenned as "Budget Variance." It is

the difference between the budgeted fixed overheads and the actual fixed overheads incurred during the

particular period. The formula for calculation of this Variance is

Fixed Overhead Expenditure Variance = {

Budgeted Fixed }

Overheads

{

Actual Fixed 1

Overheads I

(c) Fixed Overhead Volume Variance: This Variance is the difference between the budgeted fixed

overheads and the standard fixed overheads recovered on the actual production. The formula is as follows:

Fixed Overhead Volume Variance = { Budgeted FiXed}

Overheads

{

Standard Fixed }

Overheads on

Actual Production

Note: If budgeted fixed overhead is greater than standard fixed overhead on actual production, the variance is

unfavourable and vice versa.

(d) Fixed Overhead Capacity Variance: This is that portion of volume variance which is due to

working at higher or lower capacity than the budgeted capacity. In other words, fixed overhead capacity

variance arising due to a particular cause, i.e., unexpected holidays, breakdown of machinery, strikes,

power failure etc. This is calculated as follows :

Fixed Overhead }

Capacity Variance

= {Actual Hours

Worked

= { Standard FiXed}

Overheads

(or)

BUdgeted} x

Hours

Standard fixed Overhead

Rate Per Hour

\_ {BUdgeted FiXed}

Overheads

618 A Textbook of Financial Cost and Management Accounting

(e) Fixed Overhead Efficiency Variance: It is that portion of the Volume Variance which shows the

lower or higher output arising from the efficiency or inefficiency of the workers. This is an outcome of the

performance of the workers and is calculated as :

Fixed Overhead 1 =

Efficiency Variance

Standard Fixed

Overhead Rate

Per Hour

x I Standard

Quantity

Actual 1

Quantity

(1) Fixed Overhead Calendar Variance: This is part of Capacity Variance which is due to the

difference between the actual number of working days and the budgeted working days. Calendar Variance

can be calculated as follows :

Fixed Overhead 1

Calendar Variance =

Standard Rate

Per hour / Per day

Excess or Deficit hours

x

or days worked

Note: If the actual days worked are more than the budgeted working days, the variance is favourable and vice

versa.

Combined Overhead Variances

Analysis of overhead variance can be calculated by combined overhead variances methods. It may

be:

(a) Two Variance Method and

(b) Three Variance Method

(a) Two Variance Method: If the Overhead Variances are analysed on the basis of both expenditure

and volume is called as "Two Variance Analysis."

Illustration: 7

From the following particulars calculate Fixed Overhead Variances :

Output in Units

Labour Hours

Fixed Overhead

Standard time for one unit 4 hours.

Solution:

Standard Hours for Actual Output

For 1 unit standard time 4 hours

Standard

5,000

20,000

Rs. 10,000

For 5,200 units = 5,200 x 4 = 20,800 hours

Standard Overhead Rate per Hour

For 1 unit 4 hours

For 5,000 units = 5,000 x 4 = 20,000 hours

For 20.000 hours Fixed Overhead is Rs. 10.000

10,000

For 1 hour = --- = Re. 0.50

20.000

Actual

5,200

20,100

Rs. 10,200

Standard Costing and Variance Analysis

Standard Overhead Rate per Unit

For 500 units Fixed Overhead is Rs. 10,000

10,000

For 1 unit = --- = Rs. 2 per unit

5,000

(1) Fixed Overhead Cost Variance:

Standard Hours for Standard Overhead

= x --------

Actual OutP4t Rate Per Hour

= (20,800 x Re. 0.50) - Rs. 10,400

= Rs. 10,400 - 10,200 = Rs. 200 (F)

(2) Fixed Overhead Expenditure of Budget Variance:

= Budgeted Fixed Overhead - Actual Fixed Overhead

= Rs. 10,000 - Rs. 10,200 = Rs. 200 (A)

(3) Fixed Overhead Volume Variance:

- Actual Overhead

= (Budgeted Production - Actual Production) x Standard Overhead Rate Per Unit

= (Rs.5,OOO - 5,200) x 2 = Rs. 400 (F)

(4) Fixed Overhead Efficiency Variance:

= { Standard Hours for

Actual Production

= (20,800 - 10,2(0) x Re. 0.50

Rs. 350 (F)

(5) Fixed Overhead Capacity Variance:

Actual}

x Standard Overhead Rate Per Hour

Hours

(Budgeted Hours - Actual Hours) x Standard Overhead Rate Per Hour

= (20,000 - 20,100) x Re. 0.50 = Rs. 50 (F)

Verification:

(1) Fixed Overhead Cost Variance

Rs. 200 (F)

Rs. 200 (F)

(2) Fixed Overhead Volume Variance

Illustration: 8

Rs. 400 (F)

Rs. 400 (F)

=

=

Expenditure Variance + Volume Variance

Rs. 200 (A) + Rs. 400 (F)

Rs. 200 (F)

Efficiency Variance + Capacity Variance

Rs. 350 (F) + Rs. 50 (F)

Rs. 400 (F)

Calculate Overhead Variances from the following information :

Fixed Overheads

Variable Overheads

Output in Units

Standard

Rs.4,OOO

Rs.6,OOO

2,000

Actual

Rs.4,250

Rs.5,600

1,900

619

620

Solution:

A Textbook of Financial Cost .and Management Accounting

Fixed Overhead Rate Per Unit =

Budgeted Fixed Overheads

Output in Units

Variable Overhead Rate Per Unit

(1) Variable Overhead Variance:

4,000

= --=Rs.2

2,000

=

Budgeted Variable Overheads

Output in Units

6,000

=--=Rs.3

2,000

= (Actual Output x Standard Variable Overhead Rate) - Actual Variable Overhead

= (1,900 x 3) - 5,600

= 5,700 - 5,600 = Rs. 100 (F)

(2) Fixed Overhead Variance:

= (Actual Output x Standard Fixed Overhead Rate) - Actual Fixed Overhead

= (1,900 x 2) - 4,250

= 3,800 - 4,250 = Rs. 450 (A)

(3) Fixed Overhead Volume Variance:

= (Actual Output x Standard Rate) - Budgeted Fixed Overheads

= (1,900 x 2) - 4,000 = 3,800 - 4,000 = Rs. 200 (A)

(4) Fixed Overhead Expenditure Variance:

= Budgeted Fixed Overheads - Actual Fixed Overheads

= Rs. 4,000 - Rs. 4,250 = Rs. 250 (A)

Illustration: 9

A Company has normal capacity of 100 machines working 8 hours per day of 25 days in a month.

The budgeted fixed overheads of a month are Rs. 1,50,000. The Standard time required to manufacture one

unit of product is 4 hours. In a particular month, the company worked for 24 days of 750 machine hours

per day and produced 4,500 units of the product. The actual fixed overheads incurred were Rs. 1.45,000.

Compute:

(a) Efficiency Variance

(b) Capacity Variance

(c) Calendar Variance

(d) Expenditure Variance

(e) Volume Variance

(f) Total Fixed Overhead Variance

Standard Costing and Variance Analysis

Solution:

Standard Hours Produced :

Units Produced

Hours Per Unit

Total Standard Hours

Calculation of Standard Rate:

Standard Rate

=

=

=

=

4,500 units

4 hours

4,500 x 4 = 18,000 units

1,50,000

100 x 25 x 8

1,50,000 = = Rs. 7.50 per hour

20,000

Actual hours worked 750 x 24 days = 18,000 hours

Budgeted hours in actual days = 24 x 8 x 100 = 19.200 hours

Variance Analysis:

(A) Charged to Production = 18,000 x 7.50 Rs. 1,35,000

(B) Standard Cost of Actual Hours = 18,000 x 7.50 = Rs. 1,35,000

(I)

(2)

(3)

(4)

(5)

(6)

(C) Standard Cost of Budgeted Hours in actual days = 19,200 x 7.50 = Rs. 1,44,000

(D) Budget = Rs. 1,50,000

(E) Actuals = Rs. 1,45,000

Efficiency Variance = Rs. 1,35,000 - Rs. 1,35.000 = Nil

(A - B)

Capacity Variance = Rs. 1,35,000 - Rs. 1,44,000 = Rs. 9,000 Adverse

(B - C)

Calendar Variance = Rs. 1.44,000 - Rs. 1,50,000 = Rs. 6,000 Adverse

(C-D)

Volume Variance = Rs. 1,35,000 - Rs. 1,50,000 = Rs. 15.000 Adverse

(A - D)

Expense Variance = Rs. 1,50,O<lOJ.- Rs. 1,45,000 = Rs.5,OOO Favourable

(D - E)

Total Variances = Rs. 1,35,000 - Rs. 1,45,000 = Rs. 10,000 Adverse

(A - E)

(B) Sales Variances

621

The Variances so far analysised are related to the cost of goods sold. Quantum of profit is derived from

the difference between the cost and sales revenue. Cost Variances influence the amount of profit favourably

or adversely depending upon the cost from materials, labour and overheads. In addition, it is essential to

analyse the difference between actual sales and the targeted sales because this difference will have a direct

impact on the profit and sales. Therefore the analsysis of sales variances is important to study profit variances.

Sales Variances can be calculated by Two methods:

I. Sales Value Method.

II. Sales Margin or Profit Method.

622 A Textbook of Financial Cost and Management Accounting

I. Sales Value Method

The method of computing sales variance is used to denote variances arising due to change in sales

price, sales volume or the sales value. The sales variances may be calssified as follows :

(a) Sales Value Variance

(b) Sales Price Variance

(c) Sales Volume Variance

(d) Sales Mix Variance

(e) Sales Quantity Variance

(a) Sales Value Variance: This Variance refers to the difference between budgeted sales and actual

sales. It may be calculated as follows :

Sales Value Variance = Actual Value of Sales - Budgeted Value of Sales

Note: If the actual sales is more than the budgeted sales, the variance will be favourable and vice

versa.

(b) Sales Price Variance: This is the portion of Sales Value Variance which is due to the difference

between standard price of actual quantity and actual price of the actual quantity of sales. The formula is :

Sales Price Variance = Actual Quantity x (Standard Price - Actual Price)

Note : If the actual price is more than standard price the variance is favourable and vice versa.

(c) Sales Volume Variance: It is that part of Sales Value Variance which is due to the difference

between the actual quantity or volume of sales and budgeted quantity or volume of sales. The variance is

calculated as :

{

Actual Quantity

Sales Volume Variance =

of Sales

Budgeted Quantity}

- x Standard Price

of Sales

Note: If the actual quantity sold is more than the budgeted quantity or volume of sales, the variance is

favourable and vice versa.

(d) Sales Mix Variance: It is that portion of Sales Volume Variance which is due to the difference

between the standard proportion of sales and the actual composition or mix of quantities sold. In other words

it is the difference of standard value of revised mix and standard value of actual mix: It is calculated as :

Sales Mix Variance

= {Standard Value

of Actual Mix

Standard Value of }

Revised Standard Mix

(e) Sales Quantity Variance: It is a sub variance of Sales Volume Variance. This is the difference

between the revised standard quantity of sales and budgeted sales quantity. The formula for the calculation

of this variance is :

{

Revised Standard Budgeted Sales}

Sales Quantity Variance = -

Sales Quantity Quantity

x Standard Selling Price

Note: If the Revised Standard Quantity is greater than the standard quantity, the variance is favourable and vice

versa.

Standard Costing and Variance Analysis 623

Illustration: 10

From the following information is given about standard and actual sales. You are required to

calculate Sales Variances.

Standard Oty. Units

X 250

Y 200

Z 150

600

Solution:

(1) Sales Value Variance :

=

X =

=

y =

=

Z

=

Total Sales Value Variance =

(2) Sales Price Variance :

=

X =

Y =

Z =

Tptal Sales Price Variance =

(3) Sales Value Variance :

=

X =

Y =

Z =

Total Sales Value Variance =

(4) Sales Mix Variance:

Sales Price Actual Qty. Units

2.50 250

3 300

3.50 200

750

Actual Value of Sales - Standard Value of Sales

(250 x 2.50) - (250 x 2.50)

Rs. 625 - Rs. 625 = Nil

(300 x 3.25) - (200 x 3)

Rs. 975 - Rs. 600 = Rs. 375 (F)

(200 x 3.75) - (150 x 3.50)

Rs. 750 - Rs.525 = Rs. 225 (F)

Rs. 375 (F) + Rs. 225 (F) = Rs. 600 (F)

Sales Price

2.50

3.25

3.75

Actual Quantity Sold x (Actual Price - Standard Quantity)

250 (2.50 - 2.50) = Nil

300 (3.25 - 3) = Rs. 75 (F)

200 (3.75 - 3.50) = Rs. 50 (F)

Rs. 75 (F) + Rs. 50 (F) = Rs. 125 (F)

Standard Price x (Actual Quantity - Standard Quantity)

2.50 (250 - 250) = Nil

3 (300 - 200) = Rs. 300 (F)

3.50 (200 - 150) = Rs. 175 (F)

R. 300 (F) + Rs. 175 (F) = Rs. 475 (F)

There is a difference between standard quantity and actual quantity so the standard will be revised in proportion

to actual '!uantity of sales.

250

X = -- x 750 = 312.50

600

200

Y = x 750 = 250

600

150

Z = -- x 750 = 187.50

600.

Sales Mix Variance = Standard Value of Actual Mix - Standard Value of Revised Standard Mix

624

Standard Value of Actual Mix

x

y

z

=

=

A Textbook of Financial Cost and Management Accounting

250 x 2.50 = 625

200 x 3 = 600

150 x 3.50 = 525

Rs. 1750

Standard Value of Revised Standard Mix

x =

y =

Z =

312.50 x 2.50 = 781.25

250 x 3 = 750.00

187.50 x 3.50 = 656.25

Rs.2187.50

Sales Mix Variance = Rs. 1750 - Rs. 2187.50 = Rs. 437.50 (A)

II. Sales Margin or Profit Method

Under this method of variance analysis, variances may be computed to show the effect on profit. The

sales variance according to this method can be classified as follows :

(1) Sales Margin Value Variance

(2) Sales Margin Volume or Quantity Variance

(3) Sales Margin Price Variance

(4) Sales Margin Mix Variance

(1) Sales Margin Value Variance: This is the difference between the actual value of sales margin

and budgeted value of sales margin. It is calculated as follows :

Sales Margin Value Variance = Budgeted Profit - Actual Profit

(or)

= ! Budget Sales

Quantity

x

Budgeted )

Profit per unit ! Actual

Quantity

Sold

x

Actual )

Profit

Per unit

Note: If the actual profit is more than budgeted profit the variance is favourable and vice versa.

(2) Sales Margin Volume Variance: It is that portion of Total Sales Margin Variance which is due to

the difference between budgeted and actual quantity sold. The formula is as follows :

Sales Margin Volume Variance = {

Standard

Quantity

Actual }

x Standard Profit

Quantity

Note: If the actual quantity is more than standard quantity. the variance is favourable and vice versa.

(3) Sales Margin Price Variance: This variance is the difference between the standard price of the

quantity of the sales effected and the actual price of those sales. It is calculated as follows :

Sales Margin Price Variance = Standard Profit - Actual Profit

(or)

= { Budgeted Profit \_ Actual Profit} x

Per Unit Per Unit

Actual

Quantity Sold

Note: If the actual profit is greater than the standard profit. the variance is favourable and vice versa.

Standnrd Costing and Variance Analysis 625

(4) Sales Margin Mix Variance: This is that portion of the Sales Margin Volume or Quantity

Variance which is due to the difference between the actual and budgeted quantities of each product of

which the sales mixture is composed valuing the difference of quantities at standard margin. Thus, this

variance arises only where more than one product is sold. It is calculated as follows:

Sales Margin Mix Variance

= {Revised Standard

Quantity

Actual } x

Quantity

Standard Profit

Per Unit

Note: If the actual quantity is greater than the revised standard quantity, the variance is favourable and vice versa.

Illustration: 11

From the following details, calculate Sales Margin Variances:

Product Budgeted Actual

Quantity Units Sales Price Quantity Units Sales Price

Product X 300 46 400

Product Y 500 28 450

The cost per unit of product X and Y was Rs. 45 and Rs. 20 respectively.

Solution:

(1) Total Sales Margin Value Variance:

= Actual Profit - Budgeted Profit

(or)

50

26

= { Actual

Quantity

x

Actual Profit

Per Unit } {

BUdge~ed

Quantlty

x

Budgeted }

Profit per Unit

Actual Profit Per Unit

Product X

Product Y

Budgeted Profit Per Unit

Product X

Product Y

Actual Profit

Product X

Product Y

Budgeted Profit

Product X

Product Y

Sales Margin Value Variance

(2) Sales Margin Price Variance :

=

=

=

=

=

=

=

=

=

=

=

=

=

=

Actual Sales Price - Actual Cost

50 - 45 = Rs. 5

26-20 =Rs. 6

Budgeted Sales Price - Actual Cost

46 - 45 = Re. I

28 - 20 = Rs. 8

Actual Quantity x Actual Profit Per Unit

400 x Rs. 5 = Rs. 2,000

450 x Rs. 6 = Rs. 2,700

Actual Profit = Rs. 4,700

Budgeted Quantity x Budgeted Profit Per Unit

300 x Re. I . = Rs. 300

500 x Rs. 8 = Rs. 4,000

Budgeted Profit = Rs. 4,300

Rs. 4,700 - Rs. 4,300

Rs. 400 (F)

= (Actual Price - Standard Price) x Actual Quantity

Product X = (50 - 46) x 400 = 4 x 400 = Rs. 1600 (F)

626 A Textbook of Financial Cost and Management Accounting

Product Y (26 - 28) x 450

= 2 x 450 = Rs. 900 (A)

Sales Margin Price Variance = Rs. f600 (F) + Rs. 900 (A)

:;: Rs. 700 (F)

(3) Sales Margin Volume Variance :

(Actual Quantity - Standard Quantity) x Standard Profit Per Unit

Product X (400 - 300) x' Re. 1

100 x Re. 1 = Rs. 100 (F)

Product Y (450 x 500) x Rs. 8

50 x Rs. 8 = Rs. 400 (A)

Sales Margin Volume Variance Rs. 100 (F) + Rs. 400 (A)

= Rs. 300 (A)

Verification:

Total Sales Margin Value Variance

+

Rs. 400 (F)

Rs. 400 (F) :::

Illustration: 12

Sales Margin Price Variance

Sales Margin Volume Variance

Rs. 700 (F) + Rs. 300 (A)

Rs. 400 (F)

The budgeted production of a company is 20,000 Units per month. The Standard Cost Sheet is as

under:

Direct Materials

Direct Labour

Variable Overheads

Fixed Overheads

Selling Price

1.5 kg @ Rs.6 per kg

6 hours @ Rs.5 pel' hour

6 hours @ Rs.4 per hour

Rs. 3 per unit

Rs. 72 per unit

The following are the actual details for the month:

(1) Actual production and sales 18,750 units

(2) Direct materials consumed 29,860 kg. at Rs. 5.25 per kg.

(3) Direct labour hours w~rked 1,18,125 hours at Rs. 6 per hour

(4) Actual overheads were Rs. 5,25,000 out of which a sum of Rs. 40,000 was fixed

(5) There is no change in the selling price.

Calculate:

(i) Direct Materials Usage and Price Variances

(ii) Direct Labour Efficiency and Rate Variances

(iii) Variance Overheads Efficiency and Expense Variances

(iv) Fixed Overhead Volume and Expense Variances

(v) Sales Volume Variance and Gross Margin.

Standard Costing and Variance Analysis

Solution:

Actual Output = 18,750 units

Direct Materials:

Standard Requirements

Standard Quantity (SQ)

Actual Quantity (AQ)

Standard Price (SP)

Actual Price (AP)

SQ x SP

AQ x SP

AQ x AP

Calculation of Material Variances :

(1) Material Usage Variance

(2) Material Price Variance

Direct Labour:

Standard Hours Produced 18750 x 6

Standard Hours (SH)

Actual Hours (AH)

Standard Rate

Actual Rate

SH x SR

AH x SR

AH x AR

Calculation of Labour Variances:

(1) Labour Efficiency Variance

(2) Labour Rate Variance

Variable Overheads:

A. Charged to Production

B. Standard Cost of Actual Hours

C. Actuals

Calculation of Overhead Variance:

(1) Efficiency Variance (A - B)

(2) Expenses Variance (B - C)

=

=

=

=

=

=

=

=

18,750 units x 1.5 kg.

28,125 kgs.

28.125 Kgs.

29,860 kgs.

Rs. 6 per kg.

Rs. 5.25 per kg.

28,125 x Rs. 6 = Rs. 1,68,750

29,860 x Rs. 6 = Rs. 1,79,160

29,860 x Rs. 5.25 = Rs. 1,56,765

= (SQ x SP) - (AQ x SP)

= Rs. 1,68,750 - Rs. 1,79,160

= Rs. 10,410 Adverse

= (AQ x SP) - (AQ x AP)

= Rs. 1,79,160 - Rs. 1,56,765

= Rs. 22,395 Favourable

= 1,12,500 hours

= 1,12,500 hours

= 1,18,125 hours

= Rs.5

= Rs.6

= 1,12,500 x 5 = Rs. 5,62,500

= 1,18,125 x 5 = Rs.5,90,625

= 1,18,125 x 6 = Rs.7,08,750

=

=

=

=

=

=

(SH x SR) - (AH x SR)

Rs. 5,62,500 - Rs. 5.90,625

Rs.28,125 Adverse

(AH x SR) - (AH x AR)

Rs. 5:90.625 - Rs. 7,08.750

Rs. 1,18.125 Adverse

= 1,12,500 hours x Rs.4

= Rs. 4,50,000

= 1,18,125 hours x Rs. 4

= Rs.4,72,500

= Rs. 5,25,000

= 4,50,000 - 4,72,500

= Rs. 22,500 Adverse.

= Rs. 4,72,500 - Rs. 5,25,000

= Rs. 52,500 Adverse

627

628

Fixed Overheads:

Standard Rate

3

6

A. Charged to Production

B. Budget

C. Actuals

Calculation of Fixed Overhead Variances:

(I) Volume Variance (A - B)

Sales:

(2) Expenses Variance (B - C)

Standard Quantity (SQ)

Actual Quantity (AQ)

Standard Price (SP)

SQ x SP

AQ x SP

Calculation:

Sales Volume Variance

Total Standard Cost:

Direct Material

Direct Labour

Variable Overhead

Fixed Overhead

Standard Gross Margin (SGM)

Standard Quantity (SQ)

Actual Quantity (AQ)

Standard Gross Margin (SGM)

SQ x SGM

AQ x SGM

A Textbook of Financial Cost and Management AccolUlting

= Re.0.50

= 1,12,SOO hours X Re. 0.50 = Rs. 56,250

= 20,000 hours X Rs. 3 = Rs. 60,000

= Rs. 4Q,()()()

= Rs. 56,250 - Rs. 60,000

= Rs.3,750 Adverse

= Rs. 60,000 - Rs. 40,000

= Rs. 20,000 Favourable

= 20,000 units

= 18,750 units

= Rs.72

= 20,000 x 72 = Rs. 14,40,000

= 18,750 x 72 = Rs. 13,50,000

= (SQ x SP) - (AQ x SP)

= Rs. 14.40,000 - Rs. 13,50,000

= Rs. 90,000 Adverse

= Rs. 9 (1.5 kg x Rs.6)

= Rs. 30 (6hrs x Rs. 5)

= Rs. 24 (6 hrs x Rs. 4)

= Rs.3

Rs.66

= Rs. 72 - Rs. 66 = Rs. 6

= 20,000 units

= 18,750 units

= Rs.6

= Rs. 1,20,000

:;: Rs. 1,12,500

Calculation of GM Sales Volume Variance:

GM Sales Volume Variance = (SQ x SGM) - AQ x SGM)

= Rs. 1,20,000 - Rs. 1,12,500 = Rs. 7,500 Adverse.

Illustration: 13

A Company produces a finished product by using three basic raw materials. The following standards

have been set up for raw materials

Material

A

B

C

Standard Mix in Percentages

25

35

40

Standard Price per kg. in Rs.

4

3

2

The standard loss in process is 20% of input. During a particular month, the company produced 2,400 kgs of

finished product. The details of stock and purchases for the month are as under :

Standard Costing and Variance Analysis

Materials

A

B

C

Opening Stock

200

150

300

Closing Stock (Kgs)

350

200

200

The opening stock is valued at standard cost. Compute:

(1) Material Price and Material Cost Variances, When:

Purchases during the month

Qty in Kgs. Cost in Rs.

800

1,000

1,100

3,600

3,500

1,980

(a) Variance is calculated at the point of issue of First In - First Out basis (FIFO).

(b) Variance is calculated at the point of issue of Last In - First Out basis (LIFO).

(ii) Material Usage Variance

(iii) Material Mix Variance

(iii) Material Yield Variance

Solution:

Standard Price at Standard Mix for output of 80 kg (100 kgs - 20% loss, i.e., 20 kgs)

Material % Qty (kgs) Std. Price (Rs.) Amount (Rs.)

A 25 25 4 100

B 35 35 3 105

C 40 40 2 80

100 - -

Standard Loss 20 - -

80 285

Actual Consumption: Opening Stock + Purchase - Closing Stock

For A in kgs 200 + 800 - 350 = 650

B 150 + 1,000 - 200 = 950

C 300 + 1,100 - 200 = 1,200

2,800

Output 2,400

Loss 400

(1) Material Price Variance at the Point of Issue:

MPV = AQ (SP - AP)

(a) When FIFO Method is used:

A = issued from opening stock 200kg @ Rs.4 (no variance) + balance 450 kgs

(Rs. 4 - 4.50)

A

B

C

=

=

=

650 - 425

150 (Rs. 3 -3) + 800 (Rs. 3 - 3.50)

300 (Rs. 2 - 2) + 900 (Rs. 2 - 1.80)

(b) When LIFO Method is used:

A

B

C

=

=

=

650 (Rs.4 - 4.50)

950 (Rs.3 - 3.50)

1,100 (Rs.2 - 1.80) + 100 (2 -2)

=

=

=

=

=

Rs. 225 Adverse

Rs. 400 Adverse

Rs. 180 Favourable

Rs. 445 Adverse

Rs. 325 (A)

Rs. 475 (A)

Rs. 220 (F)

Rs. 580 (A)

629

630 A Textbook of Financial Cost and Management Accounting

(i) Material Cost Variance at the Point of Issue:

MCV = ( TSC - TAC )

Material Cost Variance = Total Std. Cost - Total Actual Cost

Total Std. Quantity for Actual Output (TSC)

285

= -- x 2,400 = Rs. 8,550

80

(a) Total Actual Qualltity (TAC) :

A (200 x 4) + 3,600 - (350 x 4.5)

B (150 x 3) + 3,500 - (200 x 3.5)

C (300 x 2) + 1,980 - (200 x 1.8)

Total Actual Quantity

Rs.2,825

Rs.3,250

Rs.2,220

Rs.8,295

Material Cost Variance = Rs. 8,550 - Rs. 8,295 = Rs. 255 (F)

(b) Whell LIFO Method is used:

TAC A Rs. (200 x 4) + 3,600 - [(150 x 4.5) + (200 x 4)] = Rs. 2,925

B Rs. (150 x 3) + 3,500 - (50 x 3.5 + 150 x 3) = Rs. 3,325

C Rs. (300 x 2) + 1,980 - (200 x 2) = Rs. 2,180

Total Actual Cost

MAC Rs. 8,550 - Rs. 8,430 = Rs. 120 (F)

(ii) Material Usage Variallce (MUV)

Calculation of standard quantity for actual output

25

A = -- x 2,400 = 750 kgs

80

35

B - x 2,400

80

40

= 1,050 kgs

C - x 2,400 = 1,200 kgs

80

MUV = SP ( SQ - AQ)

A 4 (750 - 650) =

B 3 (1,050 - 950) =

C = 2 (1,200 - 1,200)

Rs. 400 (F)

Rs. 300 (F)

Nil

Rs. 700 (F)

(iii) Material Mix Variance (MMV) = SP ( RSQ - AQ )

Calculation of Revised Standard Quantity

25

A· = -- x 2,800 = 700 kgs

100

35

B :: -- X 2,800 980 kgs

100

40

C = -- x 2,800 = 1,120 kgs

100

Rs.8,430

Standard Costing and Variance Analysis

MMV = A

B

C

= 4 (700 - 650) =

= 3 (980 - 950) =

= 2 (1.120 - 1,200) =

2oo(F)

90 (F)

160 (A)

Rs. 130 (F)

(iv) Material Yield Variance = Standard Rate (Actual Yield - Standard Yield)

(or)

Where:

SY=

Verification :

285

80

80

100

=

(2,400 - 2,240) =

x 2,800 =

MMV + MYV = MUV

MYV = SC per unit (AY - SY)

Rs. 570 (F)

2,240 kgs

Rs. 130 (F) + Rs. 570 (F) = Rs. 700 (F)

Flexible Budget and Standard Costing

631

Budgets are prepared for different functions of business such as production, sales etc. Actuals results

are compared with the budgets and control is exercised. However, fixed budgets are not suited for cost

control because all costs are related to one level of activity. Flexible budgets are prepared in order to

overcome the limitations, they are recast on the basis of volume of activity. Flexible budgets is as an

effective tool for cost control because costs are analysed by behaviour and variable costs are allowed as per

activity attained. Although budgetary control is concerned with origin of expenditure at functional levels,

in practice flexible budgets are well suited with standard costing. Accordingly when flexible budgetary

control operates with standard costing fixed expenses, variable expenses and semi variable expenses are

computed either on the basis of ratio method or variance method for different levels of activity.

Illustration: 14

The Managing Director of your company has been given the following statement showing the results

for August 2003 :

Master Budget Actual Variance

Units Produced and Sold 10,000 9,000 (1,000)

Rs. Rs. Rs.

Sales 40,000 3,50,000 (5,000)

Rs. Rs. Rs.

Direct Material 10,000 9,200 800

Direct Wages 15,000 13,100 1,900

Variance Overheads 5,000 4,700 300

Fixed Overhead 5,000 4,900 100

Total Cost 35,000 31.900 3,100

Net Profit 5,000 3,100 (1,900)

Figures in parentheses indicate adverse variances.

632 A Textbook of Financial Cost and Management Accounting

The Standard Costs of the product are as follows:

Direct Material (lkg @ Re.I Per kg)

Direct Wages (1 hour @ Re.1.50)

Variable Overhead (l hour @ Re.0.50)

Per unit Rs.

1.00

1.50

0.50

Actual results for the month showed that 9,800 kgs of material were used and 8,800 labour hours were recorded.

Required :

(a) Prepare a flexible budget for the month and compare with actual results and

(b) Calculate the variances which have arisen.

Solution:

Statement Showing Flexible Budget and its Comparison with Actual

Particulars Master Budget Flexible Budget Actual/or Variance

For 10,000 Units (at Standard Cost) 9,000 units

Rs. Per unit For 9,000 Rs. Rs.

Rs. Units Rs.

Sales (A) 40,000 4 36,000 35,000 1,000 (A)

Direct Materials 10,000 I 9,000 9,200 200 (A)

Direct Wages 15,000 1.50 13,500 13,100 400 (F)

Variable Overhead 5,000 0.50 4,500 4,700 200 (A)

Total Variable Cost (B) 30,000 3 27,000 27,000 -

Contribution (A) - (B) 10,000 1 9,000 8,000 1,000 (A)

Less " Fixed Cost 5,000 0.50 5,000 4,900 100 (F)

Net Profit 5,000 0.50 4,000 3,100 900 (A)

Calculation of Variances:

(I) Material Cost Variance = Rs. 9,000 - Rs. 9,200 = Rs. 200 (A)

(2) Material Usage Variance = Rs. 9,000 - Rs. 9,800 = Rs. 800 (A)

(3) Material Price Variance = Rs. 9,800 - Rs. 9,200 = Rs. 600 (F)

(4) Labour Cost Variance = Rs. 13,500 - Rs. 13,100 = Rs. 400 (F)

(5) Labour Efficiency Variance = Rs. 13,500 - Rs. 13,200 = Rs. 300 (F)

(6) Labour Rate Variance = Rs. 13,200 - Rs. 13,100 = Rs. 100 (F)

(7) Fixed Overhead Expenditure Variance = Rs. 5,000 - Rs. 4,900 = Rs. 100 (F)

(8) Variable Overhead Efficiency Variance = Rs. 4,500 - Rs. 4,400 = Rs. 100 (F)

(9) Variable Overhead Expenditure Variance = Rs. 4,400 - Rs. 4,700 = Rs. 300 (A)

(10) Total Variable Overhead Variance = Rs. 4,700 - Rs. 4,500 = Rs. 200 (A)

(11) Sales Margin Value Variance = Rs. 5,000 - Rs. 3,500 = Rs. 1,500 (A)

(12) Sales Margin Volume Variance = Rs. 5,000 - Rs. 4,500 = Rs. 500 (A)

(13) Sales Margin Price Variance = Rs. 4,500 - Rs. 3,500 = Rs. 1,000 (A)

Note : If Fixed Overhead is changed proportionately on volume basis in the Flexible Budget, then Fixed

Overhead at level 9,000 units would be shown as Rs. 4,500 in the budget. In that case the total variance would become

Rs. 400 (A). The break up of the Same would be :

Standard Costing and Variance Analysis

(1) Fixed Overhead Efficiency Variance

(2) Fixed Overhead Capacity Variance

(3) Fixed Overhead Expenditure Variance

Illustration: 15

= Rs. 4,500 - Rs. 4,400 =

= Rs. 4,400 - Rs. 5,000 =

= Rs. 5,000 - Rs. 4,900 =

Rs. 100 (F)

Rs. 600 (A)

Rs. 100 (F)

Rs. 400 (A)

633

P Q R Ltd. uses a comprehensive budgeting process and compares actual results to the budgeted

amount on a monthly basis. The production is upset about the result of October 2003 that are shown below.

He has implemented several cost cutting measures in the manufacturing area and is discouraged by

Adverse Variance in Variable Costs.

Operating Results for the month of October, 2003

Particulars Master Budget Actual Variance

Units Sold 7,500 7,200 300 (A)

Revenues Rs. 18,00,000 Rs. 17,28,000 Rs. 72,000 (A)

Variable Costs Rs. 11,40,000 Rs. 11,70,000 Rs. 30,000 (A)

Contribution Margin Rs. 6,60,000 Rs. 5,58,000 Rs. 1,02,000 (A)

Fixed Overheads 2,70,000 2,70,000 -

Fixed General and

Administration 1,80,000 1,72,500 7,500 (F)

Overheads

Operating Income Rs. 2,10,000 Rs. 1,15,500 Rs. 94,500 (A)

When master budget was being prepared, the Cost Accountant supplied the following unit costs data:

Direct Material

Direct Labour

Variable Overheads

Variable Selling Overheads

Rs.

60

44

36

12

The total variable costs for the month of October, 2003 of Rs. 11,70,000 are comprised of:

Direct Materials

Direct Labour

Variable Overheads

Variable Selling Overheads

Rs.

4,80,000

2.88,000

2,64,000

1,38,000

The Cost Accountant believes that monthly report would be more meaningful to everyone, if the company

adopts flexible budgeting and prepares more detailed analysis.

Required:

Determine the flexible budget variances.

634 A Textbook of Financial Cost and Management Accounting

Solution: Master Budget

Particulars Based on Output Actual Variance

(Actual 7.200 Units)

Per IInit Amollnt (Rs.) Per ullit Amount (Rs.)

Revenue (A) Rs.240 Rs. 17,28,000 Rs.240 Rs. 17,28,000 Nil

Variable Cost :

Direct Material 60 4,32,000 66.67 4,80,000 48,000 (A)

Direct Labour 44 3,16,800 40 2,88,000 '28,800 (F)

Variable Overheads 36 2,59,200 36.67 2,64,000 4,800 (A)

Variable Selling Overheads 12 86,400 19.16 1,38,000 51,600 (A)

Total Variable Cost (B) 152 10,94,400 162.50 11,70,000 75,600 (A)

Contribution (A - B) 88 6,33,600 77.50 5,58,000 75,600 (A)

Fixed Costs :

Fixed Overheads 2,70,000 2,70,000 Nil

Fixed Gen. & Admn. Overheads 1,80,000 1,72,500 7,500 (F)

Total Fixed Cost (C) 4,50,000 4,42,500

Operating Profit 1,83,600 1,15,500 68,100 (A)

(Contribution-Fixed Cost)

I.

(1)

(2)

(3)

(4)

Variances

Material Variances

Material Cost Variance (MCV) =

Material Price Variance (MPV) =

Material Usage Variance (MUV) =

Material Mix Variance (MMV) =

(a) Revised Standard Quantity (RSQ) =

VARIANCE ANALYSIS

Summary of Formulas

Formulas

~

!Sa..

g

~.

(Standard Quantity x Standard Price) - (Actual Quantity x Actual Price) (or) = (SQ x SP) - (AQ x AP) ~

Actual Quantity x (Standard Price - Actual Price) (or) = AQ (SP - AP) ~

Standard Price (Standard Quantity - Actual Quantity) (or) = SP (SQ - AQ) ~-

Standard Price (Standard Quantity - Actual Quantity) (or) = SP (SQ - AQ) ~ :..

Standard Unit Cost (Revised Standard Quantity - Actual Quantity) (or)" = SP (RSQ - AQ) i5

~..,

r;;-

{

Total Weight of Actual Mix

(b) Revised Material Usage Variance = x Standard Cost of Standard Mix

Total Weight of Standard Mix

}-[Standard Cost of Actual Mix]

(5) Materials Yield Variance (MYV) = Standard Rate (Actual Yield - Standard Yield)

Standard Rate

Verification

(1) Material Cost Variance

(2) Material Usage Variance

(3) Material Cost Variance

II. Labour Variances

(1) Labour Cost Variance (LCV)

(2) Labour Rate Variance (LRV)

(3) Labour Efficiency Variance

(4) Labour Idle Time Variance

(5) Labour Mix Variance (LMV)

(a) When Standard &

Actual Time of the

Labour Mix are same

(b) When Standard &

Actual Time of Labour

Mix are different

I

I

=

Standard Cost of Standard Mix

Net Standard Output

= Material Price Variance + Material Usage Variance

= Material Mix Variance + Material Yield Variance

= Material Mix Variance + Material Price Variance + Material Yield Variance

= (Standard Cost of Labour - Actual Cost of Labour)'

(or) (Standard Rate x Standard Time for Actual Output) - (Actual Rate x Actual Time)

= Actual Time Standard Rate - Actual Rate

= Standard Rate Standard Time - Actual Time

= Idle Hours x Standard Rate

= Standard Cost of Standard Labour Mix - Standard Cost of Actunl Labour Mix

= Standard Rate Revised Standard Time - Actual Time

Variances

Revised Standard Time =

Verification

Total Labour Cost Variance =

Total Labour Efficiency Variance =

III. Overhead Variances

Essentials of Certain Terms:

(1) Standard Overhead Rate per unit =

(2) Standard Overhead Rate per hour =

(3) Standard Output for Actual Time =

(4) When Output is measured in Stantard

Hours:

Recorded Overheads =

When Output is measured in units:

Absorbed Overhead =

(5) Budgeted Overhead =

(6) Actual Overhead =

(7) Standard Overhead =

Overhead Variances

Overhead Cost Variance =

(A) Variable Overhead Variances:

(1) Variabe Overhead Cost Variance =

Formulas

Total Actual Time

x Actual Time

Total Standard Time

Labour Rate Variance + Labour Efficiency Variance

Labour Efficiency Variance + Labour Idle Time Variance

Budgeted Overheads

Budgeted Output

Budgeted Overheads

Budgeted Hours

Budgeted Output

Budgeted Hours

x Actual Hours

Standard Rate Per Hour x Standard Hours for Actual Output

;...

i\l I ..a,

f Standard Rate Per Unit x Actual Output in Units ~

Standard Rate Per Unit x Budgeted Output in Units (or) = Standard Rate Per Hour x Budgeted Hours §:

Actual Rate Per Unit x Actual Output in Units (or) = Actual Rate Per Hour x Actual Hours [

Standard Rate Per Unit x Standard Output for Actual Time (or) = Standard Rate Per Hour x Actual

Hours !

~

~ (Actual Output x Standard Overhead Rate per Unit)-Actual Overhead Cost '"

(or) = Standard hours for Actual Output x [Standard Overhead Rate Per Hour-Actual Overhead Cost] i

;...

Standard Variable Overhead for Actual Output-Actual Variable Overhead j

Variances Formulas ~

(2) Variable Overhead Expenditure} =

Variance

§Actual

Time (Standard Variable Overhead Rate per Hour Actual Variable Overhead Rate per Hour) a

(or) = Standard Variable Overheads - Actual Variable Overheads ~

(3) Variable Overhead Efficiency }

Variance =

(B) Fixed Overhead Variances

(1) Fixed Overhead Cost Variance: =

(2) Fixed Overhead Expenditure }

Variance (or) Budget Variance =

(3) Fixed Overhead Volume Variance =

(4) Fixed Overhead Capacity Variance =

Standard Rate per Hour x (Standard Hours for Actual Production - Actual Hours)

Actual Fixed Overhead - Standard Fixed Overhead for Actual Production

(or) = Actual Output Standard Fixed Overhead Rate per Hour - Actual Fixed Overheads

(Budgeted Fixed Overheads) - (Actual Fixed Overheads)

Budgeted Fixed Overheads - Standard Fixed Overheads on Actual Production

Standard Fixed Overheads - Budgeted Fixed Overheads

(or) = Standard Fixed Overhead Rate per Hour x (Actual Hours Worked - Budgeted Hours)

(5) Fixed Overhead Efficiency

Variance } = Standard Fixed Overhead Rate per Hour x (Standard Quantity - Actual Quantity)

(6) Fixed Overhead Calendar Variance= Standard Rate per Hour / per Day x Excess or Deficit Hours or Days Worked

IV. Sales Variances

(A) Sales Value Method Variances

(1) Sales Value Variance

(2) Sales Price Variance

(3) Sales Volume Variance

(4) Sales Mix Variance

(5) Sales Quantity Variance

=

=

=

=

=

Actual Value of Sales - Budgeted Value of Sales

Actual Quantity x (Standard Price - Actual Price)

Standard Price Actual Quantity of Sales - Budgeted Quantity of Sales

(Standard Value of Actual Mix) - (Standard Vaue of Revised Standard Mix)

Standard Selling Price Revised Standard Sales Ql,lantity - Budgeted Sales Quantity

(B) Sales Margin or profit Methad of Variances:

(1) Sales Margin Value Variance = Budgeted Profit - Actual Profit (or)

(2) Sales Margin Volume Variance

(3) Sales Margin Price Variance

(4) Sales Margin Mix Variance

(Budgeted Sales Quantity x Budgeted Profit Per Unit) - (Actual Quantity Sold x Actual Profit per Unit)

= Standard Profit x (Standard Quantity - Actual Quantity)

= Standard Profit - Actual Profit (Or)

Actual Quantity Sold Budgeted per Unit - Actual Profit per Unit

= Standard Profit per Unit Revised standard Quantity - Actual Quantity)

~.

638

QUESTIONS

A Textbook of Financial Cost and Management Accounting

1. Define Standard Costing.

2. What do you understand by Standard Cost and Standard Costing?

3. What are the differences between Standard Costing and Estimated Costing?

4. Briefly explain and compare and contrast between Standard Costing and Budgetary Control.

5. What are the advantages of Standard Costing?

6. Discuss the prelimary steps for determination of Standard Cost.

7. Explain the limitations of Standard Costing.

8. Explain the different types of Standards.

9. What do you understand by Variance Analysis?

10. Explain the different types of variances used in Standard Costing.

I I. Write short notes on :

(a) Material Cost Variance. (b) Labour Mix Variance. (c) Fixed Overhead Cost Variance. (d) Fixed Overhead Calendar

Variance. (e) Sales Margin Volume Variance.

12. Explain the different types of Material Cost Variance.

13. What are the important uses of Variance Analysis?

PRACTICAL PROBLEMS

(1) From the following information, calculate:

(a) Material Cost Variance

(b) Material Price Variance

(c) Material Usage Variance

Quantity of materials purchased 3,000 units

Value of material purchased Rs. 9,000

Standard quantity of material required per tone of finished product = 25 units

Standard rate of materials Rs. 2 per unit

Opening stock of materials Nil

Closing stock of materials 500 units

Finished production during the year 800 tons

[Ans : Material Cost Variance Rs. 3,500 (A) ; Material Price Variance Rs. 2,500 (A) ; Material Usage Variance Rs.

1,000 (A)].

(2) From the following details, calculate (a) Material Cost Variance (b) Material Price Variance

(c) Material Usage Variance (d) Material Mix Variance and (el Material Yield Variance:

Materials Standard Actual

Qty. Rate Qty. Rate

A 8,000 1.05 7,500 1.20

B 3,000 2.15 3,300 2.30

C 2,000 3.30 2,400 3.50

[Ans: (a) Rs. 3.540 (A) ; (b) Rs. 2,100 (A) ; (c) Rs. 1,440 (A) (d) Rs. 1,110 (A) ; (e) Cannot be Calculated]

(3) Calculate labour variances from the following information standard hours for manufacturing a product X - 7,800 hours:

Actual Hours Worked = 8,050 hours

Actual Wages paid during the period Rs. 16,100

Standard Wages Rs. 15,600

[Ans : (a) Labour Cost Variance = Rs. 500 (A) ; (b) Labour Rate Variance = Nil ; (c) Labour Efficiency = Rs. 500 (A) ]

(4) From the following data, calculate labour variances: The budgeted labour force for producing product A is :

20 Semi-Skilled workers @ Re. 0.75 per hour for 50 hours

10 Skilled workers @ Rs. 1.25 per hour for 50 hours

The actual labour force employed for producing A is :

22 Semi-Skilled workers @ Re. 0.80 per hour for 50 hours

8 Skilled workers @ Rs. 1.20 per hour for 50 hours

[Ans: (a) Labour Co~t Variance = Rs. 15 (F)

(b) Labour Rate Variance = Rs. 35 (A)

(cl Labour Efficiency Van,mee Rs. 50 (F)

(e) Labour Mix Variance = Rs. 50 (F)]

Standard Costing and Variance Analysis

(5) From the following data, calculate Overhead Variances:

Output 15,000 units

Number of working days

Fixed Overheads

Variable Overheads

There was in increase of 5% in capacity

Budgeted

16,000 units

25

Rs.30,000

Rs.45,000

[Ans : (I) Total Overhead Cost Variance Rs. 2,500 (F)

(2) Variable Overhead Expenditure Variance Rs. 1,000 (F)

(3) Fixed Overhead Variance Rs. 1,500 (F)

(4) Expenditure Variance Rs. 500 (A)

Actual

27

Rs.30,500

Rs.47,000

(5) Volume Variance Rs. 2.000 (F)

(6) Capacity Variance Rs. 1.620 (F)

(7) Calendar Variance Rs. 2,400 (F)

(8) Efficiency Variance Rs. 2,020 (A)].

639

(6) From the following information, calculate: (I) Overhead Budget Variance (2) Volume Variance

(3) Efficiency Variance (4) Capacity Variance (5) Total Overhead Cost Variance:

Normal Overhead Rate Rs. 3

Actual hours worked 20,000

Allowed hours for actual production 21,000

Allowed overheads for budgeted hours Rs. 70,000

Actual overheads Rs. 72,000

[Ans: (I) Overhead Budget Variance Rs. 2,000 (A) (4) Capacity Variance Rs. 10,000 (A)

(2) Volume Variance Rs. 7,000 (A) (5) Total Overhead Cost Variance Rs. 9,000 (A)

(3) Efficiency Variance Rs. 3,000 (F)

(7) From the following informations calculate (a) Calendar Variance (b) Capacity Variance

(c) Efficiency Variance and (d) Volume Variance:

Actual Overheads Rs. 1,800

Budgeted Overheads Rs. 2,000

Budgeted period 4,000 labour hours

Standard hours per unit 10 labour hours

Budgeted number of days 20

Standard overhead per hour Re. 0.50

Actual number of days 22

Actual hours 4,300

Actual production 425 units.

[Ans : (a) Calendar Variance Rs. 200 (F) ;

Volume Variance Rs. 125 (F)].

(b) Capacity Variance Rs. 150 (F) (c) Efficiency Variance Rs. 25 (A) ; (d)

(8) The budgeted and actual sales of a concern manufacturing a single product are given below:

Sales as budgeted : 10,000 units at Rs. 3 per unit Rs. 30,000 ; Actual Sales.

5,000 units at Rs. 3 per unit Rs. 15.000

8,000 units at Rs. 2.50 per unit Rs. 20,000

Ascertain Sales Price Variance and Sales Volume Variance

[Ans : Sales Value Variance Rs. 5,000 (F); Sales Price Variance Rs. 4,000 (A) Sales Volume Variance Rs. 9,000 (F)]

(9) From the following information relating to the month of Jan. 2002, you are required to compute Sales Margin Variances:

Budgeted Sales Actllal Sales

Product Qty. Price Value Qty. Price Value

Rs. Rs. Rs. Rs.

X 2,500 4 10,000 2,000 4 8,000

600 3.75 2,250

Y 3,000 2 6,000 2,500 2 5,000

350 1.80 630

5,500 16,000 4,500 15,880

950

Budgeted Costs: X Rs. 3 per unit

Y Rs. 1.50 per unit

640 A Textbook of Financial Cost and Management Accounting

Calculate Sales Margin Variance :

[Ans : (1) Total Sales Margin Variance X Rs.50 (A) : Y Rs.145 (A)

(2) Sales Margin Price Variance X Rs.150 (A) ; Y Rs.70 (A)

(3) Sales Margin Volume Variance X Rs.100 (F) ; Y Rs.75 (A)

(4) Sales Margin Quantity Variance X Rs.15.63 (F) ; Y Rs.9.37 (F)

(5) Sales Margin Mix Variance X Rs.84.37 (F) ; Y Rs.84.37 (A)]

(10) From the following information, calculate Labour Variances for the two departments.

Actual Gross Wages

Standard Hours Produced

Standard Rate per hour

Actual Hours Worked

Department X

Rs.2,ooo

8,000

80 Paise

8,200

[Ans : Labour Cost Variance X Rs.400 (F) ; Y Rs.300 (F)

Labour Rate Variance X Rs.460 (F) ; Y Rs.230 (F)

Labour Efficiency Variance X Rs.60 (A); Y Rs.70 (F)].

Department Y

Rs. 1,800

6,000

35 Paise

5,800

(11) The standard materials required to produce 100 units is 120 kgs. A standard price of 0.50 paise per kg is fixed and

2,40,000 units were produced during the period. Actual materials purchased were 3,00,000 kgs at a cost of Rs. 1,65,000. Calculate

material variance.

[Ans: material cost variance Rs. 21,000 unfavourable; material price variance Rs. 15,000 unfavourable; materials usage

variance Rs. 6,000 unfavourable]

(12) The standard cost of a certain chemical mixture is:

Material P - 40% at Rs. 20 per tonne

Material Q - 60% at Rs. 30 per tonne

A standard loss of 10% as expected in production. During a period there is used :

90 tonnes material P at the cost of Rs. 18 per tonne; 110 tonnes material Q at the cost of Rs. 354 per tonne.

The weight produced is 182 tonnes of good production. Calculate: (a) material cost variance, (b) material price

variance, (c) material mix variance and (d) material yield variance.

[Ans: material cost variance Rs. 102:22 Adverse

Material price variance Rs. 260 Adverse

Material usage variance Rs. 157.78 Favourable

Material mix variance Rs. 100 Favourable

Material yield variance Rs. 57.78 Favourable]

(13) The following figures have been extracted from the cost books of a factory for the month of January 2003 :

Number of units produced

Cap,acity

Number of days worked

Variable overheads

Fixed overheads

Analyse the total overhead variance in to:

(a) Expenditure

(b) Capacity

(c) Calendar

(d) Efficiency variance.

[Ans: Expenditure variance Rs. 300 (A)

Efficiency variance Rs. 800 (F)

Total variable overheard variance Rs. 500(F)

Fixed overhead variance Rs. 1,500 (F)

Fixed expenditure variance Rs. 1,500 (A)

Fixed volume variance Rs. 3,000 (F)

Capacity variance Rs. 1,800 (F)

Efficiency variance Rs. 1,200(F)

Calendar variance Rs. 1,800 (F)]

Standard Rs. Actnal Rs.

30,000

100%

25

60,000

90,000

32,000

100%

26

63,000

93,000

Standard Costing and Variance Analysis

(14) RR& Co. Ltd. manufacture a simple product the standard mix of which is:

Material x 60% at Rs. 20 per kg

Material x 40% at Rs. 10 per kg

641

Normal loss in production is 20% of input. Due to shortage of material X, the standard mix was changed. Actual results

for March 2003 were :

Materials X 105 Kg at Pro 20 per Kg

Materials Y 95 Kg at Pro 3 per Kg

Input 200 Kg

Loss 35 Kg

Output 165 Kg

Calculate:

(1) Material price variance

(2) Material usage variance

(3) Material mix variance and

(4) Material yield variance.

[Ans : Material price variance X Nil ; Y Rs. 95 (F)

Material usage variance X Rs. 375 (F) ; Y Rs. 125(F)

Material mix variance X Rs. 300 (F) ; Y Rs. 150 (A)

Material yield variance Rs. 100 (F)]

(15) A gang of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hours rates as under:

Men

Women

Boys

Re. 0.80

Re. 0.60

Re. 0.40

In a normal week of 40 hours, the gang is expected to produce 2000 units of output. During the weekend 31" December

2003, the gang consisted of 40 men, 10 women and 5 boys. The actual wages paid were @Re. 0.70, Re. 0.65 and

Re. 0.30 respectively. 4 hours were lost due to abnormal idle time and 1600 units were produced.

Calculate: (1) Wage variance (2) Wage rate variance (3) Labour efficiency variance (4) Gang composition variance

(i.e., Labour mix variance) and (5) Labour idle time variance.

[Ans : Labour cost variance Rs. 256 (A)

Labour rate variance Rs. 160 (F)

Labour efficiency variance Rs. 416 (A)

Labour mix variance Rs. 108 (A)

Labour idle Time variance Rs. 160 (A)l.

000

Meaning

CHAPTER 29

Capital Budgeting

The term Capital Budgeting refers to the long-term planning for proposed capital outlays or

expenditure for the purpose of maximizing return on investments. The capital expenditure may be :

(1) Cost of mechanization, automation and replacement.

(2) Cost of acquisition of fixed assets. e.g., land, building and machinery etc.

(3) Investment on research and development.

(4) Cost of development and expansion of existing and new projects.

DEFINITION OF CAPITAL BUDGETING

Capital Budget is also known as "Investment Decision Making or Capital Expenditure Decisions" or

"Planning Capital Expenditure" etc. Normally such decisions where investment of money and expected

benefits arising therefrom are spread over more than one year, it includes both raising of long-term funds

as well as their utilization. Charles T. Horngnen has defined capital budgeting as "Capital Budgeting is longterm

planning for making and financing proposed capital outlays."

In other words, capital budgeting is the decision making process by which a firm evaluates the purchase

of major fixed assets including building, machinery and equipment. According to Hamption, John. 1.,

"Capital budgeting is concerned with the firm's formal process for the acquisition and investment of capital."

From the above definitions, it may be concluded that capital budgeting relates to the evaluation of

several alternative capital projects for the purpose of assessing those which have the highest rate of return

on investment.

Importance of Capital Budgeting

Capital budgeting is important because of the following reasons :

(1) Capital budgeting decisions involve long-term implication for the firm, and influence its risk

complexion.

(2) Capital budgeting involves commitment of large amount of funds.

Capital Budgeting 643

(3) Capital decisions are required to assessment of future events which are uncertain.

(4) Wrong sale forcast ; may lead to over or under investment of resources.

(5) In most cases, capital budgeting decisions are irreversible. This is because it is very difficult to

find a market for the capital goods. The only alternative available is to scrap the asset, and incur

heavy loss.

(6) Capital budgeting ensures the selection of right source of finance at the right time.

(7) Many firms fail, because they have too much or too little capital equipment.

(8) Investment decision taken by individual concern is of national importance because it determines

employment, economic activities and economic growth.

Objectives of Capital Budgeting

The following are the .important objectives of capital budgeting:

(1) To ensure the selection of the possible profitable capital projects.

(2) To ensure the effective control of capital expenditure in order to achieve by forecasting the

long-term financial requirements.

(3) To make estimation of capital expenditure during the budget period and to see that the benefits

and costs may be measured in terms of cash flow.

(4) Determining the required quantum takes place as per authorization and sanctions.

(5) To facilitate co-ordination of inter-departmental project funds among the competing capital

projects.

(6) To ensure maximization of profit by allocating the available investible.

Principles or Factors of Capital BUdgeting Decisions

A decision regarding investment or a capital budgeting decision involves the following principles or

factors:

(1) A careful estimate of the amount to be invested.

(2) Creative search for profitable opportunities.

(3) A careful estimates of revenues to be earned and costs to be incurred in future in respect of the

project under consideration.

(4) A listing and consideration of non-monetary factors influencing the decisions.

(5) Evaluation of various proposals in order of priority having regard to the amount available for

investment.

(6) Proposals should be controlled in order to avoid costly delays and cost over-runs.

(7) Evaluation of actual results achieved against those budget.

(8) Care should be taken to think all the implication of long range capital investment and working

capital requirements.

(9) It should recognize the fact that bigger benefits are preferable to smaller ones and early benefits

are preferable to latter benefits.

644 A Textbook of Financial Cost and Management Accounting

Capital Budgeting Process

The following procedure may be considered in the process of capital budgeting decisions :

(1) Identification of profitable investment proposals.

(2) Screening and selection of right proposals.

(3) Evaluation of measures of investment worth on the basis of profitability and uncertainty or risk.

(4) Establishing priorities, i.e., uneconomical or unprofitable proposals may be rejected.

(5) Final approval and preparation of capital expenditure budget.

(6) Implementing proposal, i.e., project execution.

(7) Review the performance of projects.

Types of Capital Expenditure

Capital Expenditure can be of two types :

(1) Capital expenditure increases revenue.

(2) Capital expenditure reduces costs.

(1) Capital Expenditure Increases Revenue: It is the expenditure which brings more revenue to the

firm either by expanding the existing production facilities or development of new production line.

(2) Capital Expenditure Reduces Costs: Such a capital expenditure reduces the cost of present product

and thereby increases the profitability of existing operations. It can be done by replacement of old machine by

a new one.

Types of Capital Budgeting Proposals

A firm may have several investment proposals for its consideration. It may adopt after considering

the merits and demerits of each one of them. For this purpose capital expenditure proposals may be

classified into :

(1) Independent Proposals

(2) Dependent Proposals or Contingent Proposals

(3) Mutually Excusive Proposals

(1) Independent Proposals: These proposals are said be to economically independent which are accepted

or rejected on the basis of minimum return on investment required. Independent proposals do not depend

upon each other.

(2) Dependent Proposals or Contingent Proposals: In this case, when the acceptance of one proposal

is contingent upon the acceptance of other proposals. it is called as "Dependent or Contingent Proposals." For

example, construction of new building on account of installation of new plant and machinery.

(3) Mutually Exclusive Proposals: Mutually Exclusive Proposals refer to the acceptance of one proposal

results in the automatic rejection of the other proposal. Then the two investments are mutually exclusive. In

other words, one can be rejected and the other can be accepted. It is easier for a firm to take capital budgeting

decisions on such projects.

Capital Budgeting 645

Methods of Evaluating Capital Investment Proposals

There are number of appraisal methods which may be recommended for evaluating the capital

investment proposals. We shall discuss the most widely accepted methods. These methods can be grouped

into the following categories :

I. Traditional Methods:

Traditional methods are grouped in to the following :

(1) Pay-back period method or Payout method.

(2) Improvement of Traditional Approach to Pay-back Period Method.

(a) Post Pay-back profitability Method.

(b) Discounted Pay-back Period Method.

(c) Reciprocal Pay-back Period Method.

(3) Rate of Return Method or Accounting Rate of Return Method.

II. Time Adjusted Method or Discounted Cash Flow Method

Time Adjusted Method further classified into:

(1) Net Present Value Method.

(2) Internal Rate of Return Method.

(3) Profitability Index Method.

I. Traditional Methods

(1) Pay-back Period Method : Pay-back period is also termed as "Pay-out period" or Pay-off

period. Payout Period Method is one of the most popular and widely recognized traditional method of

evaluating investment proposals. It is defined as the number of years required to recover the initial

investment in full with the help of the stream of annual cash flows generated by the project.

Calculation of Pay-back Period: Pay-back period can be calculated into the following two different

situations :

(a) In the case of constant annual cash inflows.

(b) In the case of uneven or unequal cash inflows.

(a) In the case of constant annual cash inflows : If the project generates constant cash flow the

Pay-back period can be computed by dividing cash outlays (original investment) by annual cash inflows.

The following formula can be used to ascertain pay-back period :

Cash Outlays (Initial Investment)

Pay-back Period =

Annual Cash Inflows

Illustration: 1

A project requires initial investment of Rs. 40,000 and it will generate an annual cash inflows of

Rs. 10,000 for 6 years. You are required to find out pay-back period.

646

Solution:

Calculation of Pay-back period :

Pay-back Period =

=

A Textbook of Financial Cost and Management Accouming

Cash Outlays (Initial Investment)

Annual Cash Inflows

Rs. 40,000

Rs. 10,000

= 4 Years

Pay-back period is 4 years, i.e., the investment is fully recovered in 4 years.

(b) In the case of Uneven or Unequal Cash Inflows: In the case of uneven or unequal cash

inflows, the Pay-back period is determined with the help of cumulative cash inflow. It can be calculated

by adding up the cash inflows until the total is equal to the initial investment.

Illustration: 2

From the following information you are required to calculate pay-back period :

A project requires initial investment of Rs. 40,000 and generate cash inflows of Rs. 16,000,

Rs. 14,000, Rs. 8,000 and Rs. 6,000 in the first, second, third, and fourth year respectively.

Solution:

Calculation Pay-back Period with the help of "Cumulative Cash Inflows"

Year

1

2

3

4

Annual Cash Inflows

Rs.

16,000

14,000

8,000

6,000

Cumulative Cash Inflows

Rs.

16,000

30,000

38,000

44,000

The above table shows that at the end of 4th years the cumulative cash inflows exceeds the investment of Rs.

40,000. Thus the pay-back period is as follows :

Pay-back Period = 3 Years +

= 3 Years +

= 3.33 Years

Illustration : 3

40,000 - 38,000

6,000

Rs.2,000

Rs. 6,000

Rahave Ltd. is producing articles mostly by manual labour and is considering to replace it by a new

machine. There are two alternative models X and Y of the new machine. Prepare a statement of

profitability showing the pay~back period from the following information :

Estimate life of the Machine

Cost of machine

Estimated savings in scrap

Machine

X

4 Years

Rs. 1,80,000

Rs. 10,000

Machine

Y

5 Years

Rs. 3,60,000

Rs. 16,000

Capital Budgeting

Estimated savings in direct wages

Additional cost of maintenance

Additional cost of supervision

Solution:

Rs. 1,20,000

Rs. 16,000

Rs. 24,000

Calculation of Annual Cash Inflows

Particulars Machine X

Rs.

Estimated saving in scrap 10,000

Add: Estimated saving in direct wages 1,20,000

Total saving (A) 1,30,000

Additional cost of maintenance 16,000

Additional cost of supervision 24,000

Total additional cost (B) 40,000

Net Cash Inflows (A) - (B) 90,000

Pay-back Period

Original Investment = Annual Average Cash Inflows

Rs.l,80,000

Machine X = = 2 Years

Rs.90,000

Rs.3,60,000

Machine Y = = 3 Years

Rs.l,20,000

Machine X should be preferred because it has a shorter pay-back period.

Illustration: 4

Rs. 1,60,000

Rs. 20,000

Rs. 36,000

Machine Y

Rs.

16,000

1,60,000

1,76,000

20,000

36,000

56,000

1.20,000

647

From the following information advise the management as to which project is preferable based on

pay-back period. Two projects X and Y, each project requires an investment of Rs. 30,000. The standard

cut off period for the company is 5 years.

(Net profit before depreciation and after tax)

Solution:

Years

I st

II nd

III rd

IV th

Vth

Calculation of Pay-back Period

Project X =

Project Y =

Project X

Rs.

10,000

10,000

4,000

6,000

8,000

Project Y

Rs.

8,000

8,000

12,000

6,000

7,000

Rs. 10,000 + Rs. 10,000 + Rs. 4,000 + Rs. 6,000

Rs. 30,000 is recovered in 4th year

Rs. 8,000 + Rs. 8,000 + Rs. 12,000

Rs. 30,000 is recovered in 3rd year

The Pay-back period of project X and Yare 4 years and 3 years respectively and thus project Y should be

preferred because it has a shorter pay-back period.

.648 A Textbook of Financial Cost and Management Accounting

Accept or Reject Criterion

Investment decisions based on pay-back period used by many firms to accept or reject an investment proposal.

Among the mutually exclusive or alternative projects whose pay-back periods are lower than the cut off period. the

project would be accepted. if not it would be rejected.

Advantages of Pay-back Period Method

(1) It is an important guide to investment policy

(2) It is simple to understand and easy to calculate

(3) It facilitates to determine the liquidity and solvency of a firm

(4) It helps to measure the profitable internal investment opportunities

(5) It enables the firm to select an investment which yields a quick return on cash funds

(6) It used as a method of ranking competitive projects

(7) It ensures reduction of cost of capital expenditure.

Disadvantages of Pay-back Period Method

(1) It does not measure the profitability of a project

(2) It does not value projects of different economic lives

(3) This method does not consider income beyond the pay-back period

(4) It does not give proper weight to timing of cash flows

(5) It does not indicate how to maximize value and ignores the relative profitability of the project

(6) It does not consider cost of capital and interest factor which are very important factors in taking sound

investment decisions.

2. Improvement of Traditional Approach to Pay-back Period

The demerits of the pay-back period method may be eliminated in the following ways:

(a) Post Pay-back Profitability Method: One of the limitations of the pay-back period method is that

it ignores the post pay-back returns of project. To rectify the defect, post pay-back period method considers

the amount of profits earned after the pay-back period. This method is also known as Surplus Life Over Payback

Method. According to this method, pay-back profitability is calculated by annual cash inflows in each of

the year, after the pay-back period. This can be expressed in percentage of investment.

Post Pay-back Profitability = Annual Cash Inflow x (Estimated Life - Pay-back Period)

The post pay-back profitability index can be determined by the following equation :

Post Pay-back Profits Post Pay-back Profitability Index = x 100

Initial Investments

(b) Discounted Pay-back Method: This method is designed to overcome the limitation of the payback

period method. When savings are not levelled, it is better to calculate the pay-back period by taking into

consideration the present value of cash inflows. Discounted pay-back method helps to measure the present

value of all cash inflows and outflows at an appropriate discount rate. The time period at which the cumulated

present value of cash inflows equals the present value of cash outflows is known as discounted pay-back period.

(c) Reciprocal Pay-back Period Method: This methods helps to measure the expected rate of return

of income generated by a project. Reciprocal pay-back period method is a close approximation of the Time

Capital Budgeting 649

Adjusted Rate of Return, if the earnings are levelled and the estimated life of the project is somewhat more

than twice the pay-back period. This can be calculated by the following formula:

Annual Cash Inflows

Reciprocal Pay-back Period = x 100

Total Investment

Illustration: 5

The company is considering investment of Rs. 1,00,000 in a project. The following are the income

forecasts, after depreciation and tax, 1st year Rs. 10,000, 2nd year Rs. 40,000, 3rd year Rs. 60,000, 4th

year Rs. 20,000 and 5th year Rs. Nil.

From the above information you are required to calculate: (1) Pay-back Period (2) Discounted Pay-back Period

at 10% interest factor.

Solution:

(1) Calculation of Pay-back Period

Year

1

2

3

4

5

Annual Cash Inflows

Rs.

10,000

40,000

60,000

20,000

Cumulative Cash Inflows

Rs.

10,000

50,000

1,10,000

1,30,000

1,30,000

The above table shows that at the end of 3rd year the Cumulative Cash Inflows exceeds the investment of Rs.

1,00,000. Thus the Pay-back Period is as follows:

Pay-back Period = 2 Years +

= 2 Years +

1,00,000 - 50,000

60,000

Rs.50,000

Rs.60,000

= 2 Years + 0.833 = 2.833 Years

(2) Calculation of Discounted Pay-back Period 10% Interest Rate:

Year Cash Inflows Discounting Present Present Value of

Value Factor at 10% Cash Inflows (2 x3)

I 2 3 4

Rs. Rs. Rs.

1 10,000 0.9091 9,091

2 40,000 0.8265 33,060

3 60,000 0.7513 45,078

4 20,000 0.6830 13,660

5 - 0.6209 -

Cumulative Value of

Cash Inflows

Rs.

9,091

42,151

87,229

1,00,889

1,00,889

From the above table, it is observed that upto the 4th year Rs. 1,00,000 is recovered. Because the Discounting

Cumulative Cash Inflows exceeds the original cash outlays of Rs. 1,00,000. Thus the Discounted Pay-back Period is

calculated as follows :

650

Pay-back Period = 3 Years +

= 3 Years +

A Textbook of Financial Cost and Management Accounting

1,00,000 - 87,229

13,660

12,771

13,660

= 3 Years + 0.935 = 3.935 Years

(3) Average Rate of Return Method (ARR) or Accounting Rate of Return Method: Average Rate of Return

Method is also termed as Accounting Rate of Return Method. This method focuses on the average net income generated

in a project in relation to the project's average investment outlay. This method involves accounting profits not cash flows

and is similar to the pelformance measure of return on capital employed. The average rate of returr. can be determined by

the following equation:

Average Rate of Return (ARR)

Average Income

= -------- x 100

Average Investments

(or)

Cash Flow - (After Depreciation and Tax)

= ---------------------

Original Investments

No. of Projects

= x 100

No. of Years

Where,

Average investment would be equal to the Original investment plus salvage value divided by Two

Average Investment =

Original Investment

2

(or)

Original Investment - Scrap Value of the Project

= 2

Advantages

(1) It considers all the years involved in the life of a project rather than only pay-back years.

(2) It applies accounting profit as a criterion of measurement and not cash flow.

Disadvantages

(1) It applies profit as a measure of yardstick not cash flow.

(2) The time value of money is ignored in this method.

(3) Yearly profit determination may be a difficult task.

Illustration: 6

From the following information you are required to find out Average Rate of Return :

An investment with expenditure of Rs.lD,OO,OOO is expected to produce the following profits (after

deducting depreciation)

1st Year

2nd Year

3rd Year

4th Year

Rs. 80,000

Rs. 1,60,000

Rs. 1,80,000

Rs. 60,000

Capital Budgeting

Solution:

Calculation of Accounting Rate of Return

Average Rate of Return

Average Annual Profits - Depreciation and Taxes

= ---------------------------------------- x 100 Average Investments

80,000 + 1,60,000 + 1,80,000 + 60,000

Average Annual Profits = ------------------------------

4

=

4,80,000

4

= Rs. 1,20,000

Average Investments (Assuming Nil Scrap Value) =

=

Average Rate of Return =

Investment at

beginning +

2

10,00,000 + 0

2

1,20,000 + 0

5,00,000

Investment

at the end

= Rs. 5,00,000

x 100 = 24%

65/

The percentage is compared with those of other projects in order that the investment yielding the highest rate of

return can be selected.

Illustration: 7

Calculate the Average Rate of Return for project' A' and 'B' from the following information:

Investments (Rs.)

Expected Life (in years)

Net earnings

(After Depreciation & Taxes) :

1st Year

2nd Year

3rd Year

4th Year

5th Year

Project A

25,000

4

Rs.

2,500

1,875

1,875

1,250

7,500

If the desired rate of return is 12%, which project should be selected?

Project B

37,000

5

Rs.

3,750

3,750

2,500

1,250

1,250

12,500

652

Solution:

A Textbook of Financial Cost and Management Accounting

Calculation of Accounting Rate of Return

Average Rate of Return =

Average Annual Profit - Depreciation and Taxes

------------------------------------ x 100

~verage Investments

Annual Average Profits :

7,500

Project A =

4

= Rs. 1,875

12,500 = Rs. 2,500

5

Project B =

Average Investments :

Investment at Investment

beginning + at the end

=

2

25,000 + 0

Project A = Rs.12,500

2

37,500 + 0

= = Rs.18,750

2

Project B

Average Rate of Return

Average Annual Profit - Depreciation and Taxes = Average Investments

1,875

Project A = x 100 = 15%

Project B

12,500

2,500 = x 100 = 13.33 %

18,750

x 100

Both the project satisfy the minimum required rate of return. The percentage is compared with those of other

project in order that the investment yielding the highest rate of return can be selected. Project A will be selected as its

ARR is higher than Project B.

Illustration: 8

A project costs Rs. 5,00,000 and has a scrap value of 1,00.000 after 5 years. The net profit before

depreciation and taxes for the five years period are expected to be Rs. 1,00.000. Rs. 1,20,000. Rs.

1.40,000, Rs. 1,60.000 and Rs. 2.00,000. You are required to calculate the Accounting Rate of Return,

assuming 50% rate of tax and depreciation on straight line method.

Capital Budgeting 653

Solution:

Calculation of Accounting Rate of Return

Years

Particulars 1 2 3 4 5 Average

Rs. Rs. Rs. Rs. Rs. Rs.

Net Income before :}

Depreciation and Taxes 1,00,000 1,20,000 1,40,000 1,60,000 2,00,000 1,44,000

Less: Depreciation

{5,00,000; 1,00,00Q.}

80,000 80,000 80,000 80,000 80,000 80,000

Net Profit before Taxes 20,000 40,000 60,000 80,000 1,20,000 64,000

Less : Taxes @ 50% 10,000 20,000 30,000 40,000 60,000 32,000

Net Profit After Tax 10,000 20,000 30,000 40,000 60,000 32,000

Accounting Rate of Return =

Average Annual Profits - Depreciation and Taxes

------------------------------------- x 100

Average Investment

Average Annual Profits After Depreciation and Taxes = Rs. 32,000

Average Investments

Original Investments - Scrap Value

=

2

5,00,000 - 1,00,000 4,00,000

= =

2 2

= Rs. 2,00,000

32,000

Accounting Rate of Return = x 100 = 16%

2,00,000

The percentage is compared with those of other projects in order that the investment yielding the highest rate of

return can be selected.

Discounted Cash Flow Method (or) Time Adjusted Method: Discount cash flow is a method of capital investment

appraisal which takes into account both the overall profitability of projects and also the timing of return. Discounted cash

flow method helps to measure the cash inflow and outflow of a project as if they occurred at a single point in time so that

they can be compared in an appropriate way. This method recognizes that the use of money has a cost, i.e., interest foregone.

In this method risk can be incorporated into Discounted Cash Flow computations by adjusting the discount rate or cut off

rate.

Disadvantages

The following are some of the limitations of Discounted Pay-back Period Method:

(1) There may be difficulty in accurately establishing rates of interest over the cash flow period.

(2) Lack of adequate expertise in order to properly apply the techniques and interpret results.

(3) These techniques are based on cash flows, whereas reported earnings are based on profits. The inclusion

of Discounted Cash Flow Analysis may cause projected earnings to fluctuate considerably and thus have

an adverse on share prices.

Net Present Value Method (NPV) : This is one of the Discounted Cash Flow technique which explicitly recognizes

the time value of money. In this method all cash inflows and outflows are converted into present value (i.e., value at the

present time) applying an appropriate rate of interest (usually cost of capital).

654 A Textbook of Financial Cost and Management Accounting

In other words, Net Present Value Method discount inflows and outflows to their present value at the appropriate

cost of capital and set the present value of cash inflow against the present value of outflow to calculate Net Present

Value. Thus, the Net Present Value is obtained by subtracting the present value of cash outflows from the present value

of cash inflows.

Equation for Calculating Net Present Value:

(1) In the case of conventional cash flows. i.e., all cash outflows are entirely initial and all cash inflows are in

future years, NPV may be represented as follows:

NPV + +

(2) In the case of non-conventional cash inflows, i.e., where there are a series of cash inflows as well as cash

outflows the equation for calculating NPV is as :

NPV= I 10+--- + --- + --- + --- ~ R

(1 + K), +-(-I-:-

2

K-)-2 + -(-I-:....;.3K-), + (1 :"K).j - [

II 12 13 In J

(1 + K)I (1 + K)2 (1 + K)3 (1 + K)n

Where:

NPV

R

K =

Net Present Value

Future Cash Inflows at different times

Cost of Capital or Cut-off rate or Discounting Rate

Cash outflows at different times

Rules of Acceptance: If the rate of return from a project is greater than the return from an equivalent risk investment

in securities traded in the financial market, the Net Present Value will be positive. Alternatively, if the rate of return is

lower, the Net Present Value will be negative.

In other words, if a project has a positive Net Present Value it is considered to be viable because the present

value of the inflows exceeds the present value of the outflows. If the projects are to be ranked or the decision is to

select one or another. the project with the greatest Net Present Value should be chosen

Symbolically the accept or reject criterion can be expressed as follows:

Where

NPV > Zero Accept the proposal

NPV < Zero Reject the Proposal

Advantages of Net Present Value Method

(1) It recognizes the time value of money and is thus scientific in its approach.

(2) All the cash flows spreadover the entire life of the project are used for calculations.

(3) It is consistent with the objectives of maximizing the welfare of the owners as it depicts the positive or

otherwise present value of the proposals.

Disadvantages

(1) This method is comparatively difficult to understand or use.

(2) When the projects in consideration involve different amounts of investment, the Net Present Value Method

may not give satisfactory results.

Capital Budgeting

Illustration: 9

655

Calculate the Net Present Value of the following project requiring an initial cash outlays of Rs.

20,000 and has a no scrap value after 6 years. The net profits after depreciation and taxes for each year of

Rs. 6,000 for six years. Assume the present value of an annuity of Re.1 for 6 years at 8% p.a. interest is

Rs.4.623.

Solution:

Calculation of Net Present Value

Initial Cash Outlays

Present Value of Cash Inflows

Net Present Value (NPV)

Net Present Value (NPV)

Illustration: 10

=

=

=

=

=

=

=

Rs.20,OOO

Rs. 6,000 x Rs. 4,263

Rs.27,738

Present Value of Cash Inflows - Value of Cash Outflows

Rs. 27,738 - Rs. 20,000

Rs.7,738

Rs.7,738

A project cost Rs. 25,000 and it generates cash inflows through a period of five years Rs. 9,000,

Rs. 8,000, Rs. 7,000, Rs. 6,000 and Rs. 5,000. the required rate of return is assumed to be 10%. Find out

the Net Present Value of the project.

Solution:

The following table gives us the Net Present Value of the Project:

Calculation of Net Present Value

Year Cash inflows Discounted Factor Present Value of Cash Inflows

1 2

Rs.

1 9,000

2 8,000

3 7,000

4 6,000

5 5,000

Net Present Value =

=

3 (2 x 3) = 4

Rs. Rs.

0.9091 8,181

0.8264 6,608

0.7513 5,257

0.6830 4,098

0.6209 3,100

Net Present Value of Cash Inflows 27,244

Present Value of Cash Inflows - Value of Cash Outflow

Rs. 27,244 - 25,000 = Rs. 2,244

Now the NPV of the project is positive and it can be accepted for investment.

Illustration: 11

A project costing Rs. 5.00,000 has a life of 10 years at the end of which its scrap value is likely to be

Rs. 50,000. The firm cut-off rate is 12%. The project is expected to yield an annual profit after tax of Rs.

1,00,000 depreciation being charged on straight line basis. At 12% P.A. the present value of the rupee

received annually for 10 years is Rs. 5.65 and the value of one rupee received at the end of 10th year is Re.

0.322. Ascertain the Net Present Value of the project.

656

Solution:

A Textbook of Financial Cost and Management Accounting

Calculation of Net Present Value:

Annual Profit after Tax

[

Rs. 5,00,000 ]

Add : Depreciation 5

Cash flows after tax (for year 1 to 10)

Present value factor for 10 years}

at 1~ % - 5.65

Total Present Value (1,50,000 x 5.65)

Cash flow in 10th year (scrap value) 50,000 }

Present value factor in 10th years 0.322

(50,000 x 0.322)

Present value of cash inflow in 10th year

Less: Present value of cash outflows

Net Present Value (NPV) =

Rs.

1,00,000

50,000

1,50,000

8,47,500

16,100

8,63,600

5,00,000

3,63,600

Now the Net Present Value of the project is positive and it can be accepted for investment.

Illustration: 12

MIs. Pandey Ltd. is contemplating to purchase a machine A and B each costing of Rs.5,OO,OOO.

Profits before depreciation are expected as follows :

Year Cash Inflows Discounted Factor

1 Machine A Machine B 10%

Rs. Rs.

1 1,50,000 50,000 0.9092

2 2,00,000 1,50,000 0.8264

3 2,50,000 2,00,000 0.7513

4 1,50,000 3,00,000 0.6830

5 1,00,000 2,00,000 0.6209

Using a 10% discounted rate indicate which of the machine would be profitable using the Net Present Value

(NPV) method.

Solution:

Year Discounted Machine A Machine B

1 Factor 10% Cash Flow Present Value Cash Flow Present Value

Rs. Rs. Rs. Rs.

0 1.0000 (-)5,00,000 (-)5,00,000 (-)5,00,000 (-)5,00,000

1 0.9091 1,50,000 1,36,365 50,000 45,455

2 0.8264 2,00,000 1,65,280 1,50,000 1.23,960

3 0.7513 2,50,000 1,87,825 2,00,000 1,50,260

4 0.6830 1,50,000 1,02,450 3,00,000 2,04,900

5 0.6209 1,00,000 62,090 2,00,000 1,24,180

8,50,000 6,54,010 9,00,000 6,48,755

Capital Budgeting 657

Net Present Value =

Machine A = Rs. 6,54,010 - 5,00,000 = Rs. 1,54,010

Machine B = Rs. 6,48,755 - 5,00,000 = Rs. 1,48,755

From the above table, we obsserved that the Net Present Value of Machine A is higher than that of Machine B.

Hence Machine A is preferable.

(2) Internal Rate of Return Method (IRR) : Internal Rate of Return Method is also called as "Time Adjusted

Rate of Return Method." It is defined as the rate which equates the present value of each cash inflows with the present

value of cash outflows of an investment. In other words, it is the rate at which the net present value of the investment is

zero.

Horngren and Foster define Internal Rate of Return as the rate of interest at which the present value of

expected cash inflows from a project equals the present value of expected cash outflows of the project.

The Internal Rate of Return can be found out by Trial and Error Method. First, compute the present value of the

cash flow from an investment, using an arbitrarily selected interest rate, for example 10%. Then compare the present

value so obtained with the investment cost.

If the present value is higher than the cost of capital, try a higher interest rate and go through the procedure

again. On the other hand if the calculated present value of the expected cash inflows is lower than the present value of

cash outflows, a lower rate should be tried. This process will be repeated until and unless the Net Present Value

becomes zero. The interest rate that brings about this equality is defined as the Internal Rate of Return.

Alternatively, the internal rate can be obtained by Interpolation Method when we come across 2 rates. One with

positive Net Present Value and other with negative Net Present Value. The IRR is considered as the highest rate of

interest which a business is able to pay on the funds borrowed to finance the project out of cash inflows generated by

the project.

The Interpolation formula can be used to measure the Internal Rate of Return as follows :

NPV of Lower Rate

Lower Interest Rate +

NPV Lower Rate (-) NPV Higher Rate

x (Higher Rate - Lower Rate)

Evaluation

A popular discounted cash flow method, the internal rate of return criterion has several virtues :

(I) It takes into account the time value of money.

(2) It considers the cash flows over the entire life of the project.

(3) It makes more meaningful and acceptable to users because it satisfies them in terms of the rate of return on

capital.

Limitations

(1) The internal rate of return may not be uniquely defined.

(2) The IRR is difficult to understand and involves complicated computational problems.

(3) The internal rate of return figure cannot distinguish between lending and borrowings and hence high

internal rate of return need not necessarily be a desirable feature.

Illustration: 13

The cost of a project is Rs. 32,400. It is expected to generate cash inflows of Rs. 16,000, Rs. 14,000 and

Rs. 12,000 through it three year life period. Calculate the Internal Rate of Return of the Project.

658

Solution:

A Textbook of Financial Cost and Management Accounting

Calculation of Internal Rate of Return (IRR)

To begin with let us try a rate of 20% and calculate the present value of cash inflows on this rate. The following

table will give the calculations:

Year Cash inflows Discounted Factor Present Value of Cash Inflows

1 2 at 20% (2 x 3) = 4

Rs. 3 Rs.

1 16,000 0.833 13,328

2 14,000 0.694 9,716

3 12,000 0.579 6,948

Total Present Value of Cash Inflows = Rs.29,992

Net Present Value = Present Value of Cash Inflows - Value of Cash Outlays

= Rs. 29,992 - Rs. 32,400 = (-) Rs. 2408

Net Present Value (NPV) = - Rs. 2408

The Net Present Value in this case is negative indicating that 20% is the higher rate and so a lower

rate should be tried. Let us try 18%, 16% and 14% respectively. On these rates we will get the following results:

Year Cash Discounted

1 Inflows Factor

2 18%

3

Rs.

1 16,000 0.847

2 14,000 0.718

3 12,000 0.609

Present Value of Cash Inflows

Less: Value of Cash Outflows

Net Present Value (NPV) = (-)

Present

Value

(2 x 3)

4

Rs.

13,552

10,052

7,308

30,912 .

32,400

1,488

Discount

Factor

16%

5

0.862

0.743

0.641

Present

Value

(2 x 5)

6

Rs.

13.792

10,402

7,692

31,886

32,400

(-) 514

Discount

Factor

14%

7

0.877

0.769

0.675

Present

Value

(2 x 7)

8

Rs.

14.032

10,766

8,100

31,898

32,400

(-) 498

From the above table of Calculation is can be observed that the real rate lies in between 14% and 16%.

Therefore let us select 15% as the internal rate to ascrtain its applicability.

Year

1

1

2

3

Cash inflows Discounted Factor

2

Rs.

16,000

14,000

12,000

Present Value of Cash Inflows

Less: Value of Cash Outflow

Net Present Value

15%

3

0.870

0.756

0.658

=

Present Value of Cash Inflows

(2 x 3) 4

Rs.

13,920

10,584

7,896

32,400

32,400

o

Thus, the Net Present Value at 15% rate is zero. It indicates that the present value of cash inflows is equal to the

present value of cash outflows. Thus internal rate of return 15% for the project under review.

Capital Budgeting 659

Illustration: 14

The cash flows of projects C and D are reproduced below :

Project Cash Flows

Co C1 C2 CJ NVP at 10% IRR

C - Rs.IO,OOO + 2,000 + 4,000 + 12,000 + Rs. 4,139 26.5%

D - Rs.IO,OOO + 10,000 + 3,000 + 30,000 + Rs. 3,823 37.6%

(i) Why there is a conflict of ranking?

(ii) Why should you recommend Project C in spite of lower internal rate of return?

TIme I 2 3

Period

PVIF 0.10 t 0.909 0.8264 0.7513

PVIF 0.14 t 0.8772 0.7695 0.6750

PVIF 0.15 t 0.8696 0.7561 0.6575

PVIF 0.30 t 0.7692 0.5917 0.4552

PVIF 0.40 t 0.7143 0.5102 0.3644 rCA, May, 2002J

Solution:

(i) Suppose the discount rates are 0%, 10%, 15%, 30%, and 40%. The Net Present Value for each of the

project is given below:

Discount Net Present Value (NVP)

Rate (%) C D

0 8,000 6,000

10 4,139 3,823

15 2,660 2,942

30 - 634 831

40 - 2164 - 238

The conflict in ranking arises because of skewness in cash flows. In case of project C, cash flows occur later in

the life and in case of project D, cash flows are skewed towards the beginning.

At lower discount rate, project C's NPV will be higher than that of project D.

As the discount rate increases, project C's NPV will fall at a faster rate, due to compounding effect. After breakeven

discount rate (14%) project D has higher NPV as well as higher IRR.

(ii) If the opportunity cost of funds is 10%, project C should be accepted because the firm's wealth will be

more by Rs.316 (Rs.4139 - Rs.3823)

The incremental analysis will substantiate this point :

Project Cash Flows (Rs.)

C C1 C2 CJ NVPat 10% IRR 0

C - D 0 - 8,000 + 1,000 + 9,000 Rs.316 12.5%

Thus Project C should be accepted, when opportunity cost of fund is 10%.

660 A Textbook of Financial Cost and Management Accounting

(3) Profitability Index Method

Profitability Index is also known as Benefit Cost Ratio. It gives the present value of future benefits, computed

at the required rate of return on the initial investment. Profitability Index may either be Gross Profitability Index or

Net Profitability Index. Net Profitability Index is the Gross Profitability Index minus one. The Profitability Index can

be calculated by the following equation:

Present Value of Cash Inflows

Profitability Index =

Initial Cash Outlays

Rule of Acceptance: As per the Benefit Cost Ratio or Profitability Index a project with Profitability Index greater

than one should be accepted as it will have Positive Net Present Value. Likewise if Profitability Index is less than one the

project is not beneficial and should not be accepted.

Advantages of Profitability Index:

(1) It duly recognizes the time value of money.

(2) For calculations when compared with internal rate of return method it requires less time.

(3) It helps in ranking the project for investment decisions.

(4) As this method is capable of calculating incremental benefit cost ratio, it can be used to choose between

mutually exclusive projects.

Illustration: 15

A project is in the consideration of a firm. The initial outlay of the project is Rs. 10,000 and it is

expected to generate cash inflows of Rs. 4,000, Rs. 3,000, Rs. 5,000 and Rs. 2,000 in four years to follow.

Assuming 10% rate of discount, calculate the Net Present Value and Benefit Cost Ratio of the project.

Solution:

Profitability Index

Year Cash inflows Discounted Factor Present Value of Cash Inflows

1 2 10% (2 x 3) 4

Rs. 3 Rs.

1 4,000 0.909 3,636

2 3,000 0.826 2,478

3 5,000 0.751 3,755

4 2,000 0.683 1,366

Net Present Value of Cash Inflows = 11,235

Net Present Value (NPV)

Net Present Value

Gross Profitability Index

Net Profitability Index

= Present Value of Cash Inflows - Value of Cash Outflows

Rs.11,235 - 10,000 = Rs.l,235

= Rs.1235

=

Present Value of Cash Inflows

Initial Cash Outlays

Rs. 11,235 = 1.1235

Rs.IO,OOO

= Gross Profitability Index - 1.0

= 1.1235 - 1.0

= 0.1235

The Profitability Index indicates less than one, the project is not beneficial and should not be accepted.

Capital Budgeting

Illustration: 16

661

There are two mutually exclusive projects under active consideration of a company. Both the

projects have a life of 5 years and have initial cash outlays of Rs. 1,00,000 each. The company pays tax at

50% rate and the maximum required rate of the company has been given as 10%. The straight line method

of depreciation will be charged on the projects. The projects are expected to generate a net cash inflow

before taxes as follows :

Year Project X Project Y

Rs. Rs.

1 40.000 60,000

2 40,000 30,000

3 40,000 20,000

4 40,000 50,000

5 40,000 50,000

With the help of the above given information you are required to calculate:

(a) The Pay-back Period of each project

(b) The Average Rate of Return for each project

(c) The Net Present Value and Profitability Index for each project

(d) The Internal Rate of Return for each project

On the basis of your calculations advise the company which project it should accept giving reasons.

Solution:

Calculation of Net Income and Net Cash Flows after Taxes

Project Cash Flows Depreciation Income before Taxes 50% Net Net Cash

before Taxes Taxes Income Inflow after Taxes

Rs. Rs. Rs. Rs. Rs. Rs.

X 40,000 20,000 20,000 10,000 10,000 30,000

40,000 20,000 20,000 10,000 10,000 30,000

40,000 20,000 20,000 10,000 10,000 30,000

40,000 20,000 20,000 10,000 10,000 30,000

40,000 20,000 20,000 10,000 10,000 30,000

Y 60,000 20,000 40,000 20,000 20,000 40,000

30,000 20,000 10,000 5,000 5,000 25,000

20,000 20,000 0 0 0 20,000

50,000 20,000 30,000 15,000 15.000 35,000

50,000 20,000 30,000 15,000 15,000 35,000

(a) Calculation of Pay-back Period:

Pay-back Period

Cash Outlays =-------- Annual Cash Inflows

Rs.l,OO,OOO

Project X = = 3 years 4 months

Rs.30,000

Project Y = Rs. 40,000 + 25,000 + 20,000 = Rs. 85,000 for 3 years and the remaining amount of Rs.

15,000 (i.e., Rs. 1,00,000 - Rs. 85,000) will be recovered during the fourth year. The total

amount realized during the 4th year is Rs. 35,000. Therefore the amount of Rs. 15,000 can

be recovered in 5 months and 4 days

Thus, the pay-back period of project Y will be 3 years 5 months and 4 days.

662 A Textbook of Financial Cost and Management Accounting

(b) Calculation of Average Rate of Return (ARR):

In this method we need an average income of the two projects and their average investment outlays:

Average Income of Project X =

=

=

Average Income of Project Y =

=

Total Income of 5 years

5

Rs. 10,000 + 10,000 + 10,000 + 10,000 + 10,000

Rs.50,000

5

= Rs. 10,000

5

Rs. 20,000 + 5,000 + 0 + 15,000 + 15,000

Rs.55,000

5

5

= Rs.ll,ooo

Average Investment for both Project X and Project Y

Rs. 1,00,000

= - Rs.50,000

2

The Average Rate of Return for

Rs. 10,000

Project X = =20%

Rs.50,000

Rs. 11,000

Project Y = = 22%

Rs.50,000

From the above analysis it follows that project Y is superior to project X as it gives 22% average rate of return

ItS against only 20% average rate of return from project X.

(c) Calculation of Net Present Value (NPV) :

Project X

The Present value of one rupee of an annuity for 5 years at 10% rate of interest is 3.791.

Thus, present value of an annuity of Rs.30,000 for 5 years at 10% rate is Rs.30,000 x 3,791 =

Less,' Cash Out lays

Net Present Value

Profitability Index

Project Y

Net Cash Flow

1

Rs.

40,000

25,000

20,000

35,000

35,000

=

=

Rs. 1,13,730

Rs. 1,00,000

Rs. 13,730

Rs. 1,13,730 = = 1.137

Rs. 1,00,000

Present Value Factor

at 10%

2

0.909

0.826

0.751

0.683

0.621

Present Value

(1 x 2)

3

36,630

20,650

15,020

23,905

21,735

Capital Budgeting

Total Present Value

Less : Cash Outlays

Net Present Value (NPV)

Profitability Index

=

Rs.I,17,670 = = 1.177

Rs.l,OO,OOO

(d) Calculation of Internal Rate of Return (IRR):

1,17,670

1,00,000

17,670

663

IRR is the rate which when applied to discount the cash flow makes the Net Present Value equal to zero. So IRR

of the project X will be :

Project X : There is constant cash inflow of Rs. 30,000 for 5 years. The nearest discount factor for this flow can

be obtained by dividing the cash outlays of Rs. 1,00,000 by Rs. 30,000 which comes to 3.33

(Le., Rs. 1,00,000 + Rs. 30,000).

Referring to the present value of annuity table in the annexure (Table A - 4). We find that the nearest discount

factor on the 5 year row is 3.352 which corresponds to a discount rate of 15%. But since 3.333 is lower than 3.352,

the actual rate should be between 15% and 16%. To obtain the actual rate of discount, the interpretation will be done

as follows:

Present value required

Present value at 15% for }

Rs.30,ooo (Le., 3.352 x 30,000)

Present value @ 16 % for }

Rs.30,ooo (Le., 3274 x 30,000)

The actual rate of discount in this way will be :

= 15%=[t%X

Rs. 1,00,000

1,00,560

98,220

560 ]

2,340

= 15% + 0.24 = 15.24%

Differences

Rs.560 }

Rs.2,340

1%

Project Y : In the case of project Y the cash inflow stream is uneven and so the trial and error'method wiII be

used to find out the actual rate of discount.

Let us begin with 16% rate of discount. The present value will be

Cash Flow

1

Rs.

40,000

25,000

20,000

35,000

35,000

Present Value

Factor at 16%

2

0.862

0.743

0.641

0.552

0.476

Total Present Value =

Present Value

(1 x 2) = 3

Rs.

34,480

18,580

12,820

19,320

16,660

Rs. 1,01,860

So the total present value is higher than the cash outlay, therefore to make it equal to Rs. 1,00,000, higher rate

of discount should be used. Therefore let us calculate the present value at 18% discount rate which read as follows:

664 A Textbook of Financial Cost and Management Accounting

Cash Flow

1

Rs.

40,000

25,000

20,000

35,000

35,000

Present Value

Factor at 18%

2

0.847

0.718

0.609

0.516

0.437

Total Present Value =

Present Value

(1 x 2) = 3

Rs.

33,880

17,950

12,180

18,060

15,090

Rs.97,16O

The amount of total value at 18% discount rate is, thus, lower than the cash outlay and therefore a rate lower

than 18% is needed to make the NPV equal to Zero. This actual rate can be now, determined with the help of the

process of interpolation as follows :

Rs. Difference

Present value required 1,00,000

1,860 J Present value at 16% 1,01,860 2%

4,700

Present Value at 18% 97,160

In this way the actual rate of discount will be :

[

= 1,86OJ 16% = + 2% x ---

4,700

= 16% + 0.79 = 16.79%

The Internal Rate of Return Project X has been found out to be 15.24% whereas the IRR of Project Y is 16.79%.

Thus, Project Y should be accepted and project X rejected.

Precisely Project Y is recommended by the IRR method, NPV method, PI method and IRR method. Project X

is recommended by Pay-back Period Method. However, it should be noted that Pay-back Period Method is not

theoretically sound method.

QUESTIONS

I. I. What do you understand by Capital Budgeting?

2. Discuss briefly the principles and characteristics of capital budgeting.

3. State the different techniques of selecting capital budgeting proposals.

4. What do you mean by Average Rate of Return?

5. What is Pay-back Method? State its advantages and limitations.

Write Short Notes on :

(a) Net Present Value Method

(b) Profitability Index

(c) Internal Rate of Return

(d) Discounted Pay-back Period Method

(e) Average Rate of Return

(f) Reciprocal Pay-back Period Method

6. What is the importance of Capital Budgeting?

7. State the objectives of Capital Budgeting.

8. Explain the process of Capital Budgeting.

9. Explain the different types of Capital Budgeting Proposals.

10. What do you understand by Net Present Value Method? State its advantages and disadvantages.

II. Chose the Correct Answer :

I. Fixed Assets are those which are of a

(a) Fixed (b) Current

nature

(c) Acid (d) Liquid

Capital Budgeting

2. The simplest capital budgeting technique is

(a) Net Present Value Method

(b) Pay-back Period Method

(c) Internal Rate of Return Method

(d) Average Rate of Return Method

665

3. is the rate which equates the present value of expected future cash flows with the cost of the investment.

(a) Average Rate of Return

(b) Discounted Rate of Return

(c) Internal Rate of Return

(d) Time Adjusted Rate of Return

4. is the relationship that exists between the present value of net cash inflows and the present values of cash

outflows.

(a) Profitability Index

(b) Distribution of Capital

(c) Discounted Benefit-Cost Ratio

(d) Cut-off Point

5. While evaluating capital investment proposals, the time value of money is considered in the case of

(a) Pay-back method (b) Discount Cash Flow Method

(c) Accounting Rate of Return Method (d) Net Present Value Method

6. The return after the pay-off period is not considered in case of

(a) Internal rate of Return Method (b) Net Present Value Method

(c) Pay-back Period Method (d) Accounting Rate of Return Method

7. Depreciation is included in cost in case of

(a) Average Rate of Return Method (b) Accounting Rate of Return Method

(c) Pay-back Period Method (d) Present Value Index Method

8. The Cash flows on account of operations are presumed to have been reinvested at the cut-off rate in case of ----

(a) Net Present Value Method (b) Pay-back Period Method

(c) Internal Rate of Return Method (d) Discounted Cash Flow Method

9. The technique of long-term planning for proposed capital outlays, and their financing is termed as ----

(a) Capital Budgeting (b) Cash Budgeting

(c) Sales Budgeting (d) Revenue Budgeting

10. The Minimum Rate of Return expected of a capital investment project is termed as -----

(a) Single Point Rate (b) Cut-off Rate

(c) Normal Rate (d) Both a and b

11. is the annual average yield on a project

(a) Internal Rate of Return (b) Cut-off Rate

(c) Accounting Rate of Return (d) None of the above

12. Capital budgeting is also known as ----

(a) Investment Decision Making (b) Planning Capital Expenditure

(c) Capital Expenditure Decisions (d) All the above

13. Capital Investment Decisions are generally ----

(a) Irreversible (b) Reversible (c) Recurring (d) Constant

14. Profitability index is also termed as -----

(a) Benefit Cost Ratio (b) Liquidity Ratio

(c) Turnover Ratio (d) Solvency Ratio

15. Internal Rate of Return and ---are the same

(a) Time Adjusted Rate of Return (b) Average Rate of Return

(c) Accounting Rate of Return (d) Profitability Index

[Ans: (I) Fixed (2) Pay-back Period Method (3) Internal Rate of Return (4) Profitability Index (5) Discounted Cash flow

Method (6) Pay-back Period Method (7) Accounting Rate of Return Method (8) Discounted Cash Flow Method (9)

Capital Budgeting (10) Both a and b (11) Accounting Rate of Return (12) All the above (13) Irreversible (14) Benefit

Cost Ratio (15) Time Adjusted Rate of Return)

PRACTICAL PROBLEMS

(1) Calculate the pay-back periods of the following projects each requiring a cash outlays of Rs.I,OO,OOO. Suggest which

projects are acceptable if the standard pay-back period is 5 years:

666

Year

1

2

3

4

5

Project A

30,000

30,000

30,000

30,000

30,000

Cash Inflows

A Textbook of Financial Cost and Managemelll Accoullling

Project B

30,000

40,000

20,000

10,000

5,000

[Ans : Pay-back period: Project A - 3.33 years, Project B - 4 years. Both Project A and Project B are acceptable]

(2) From the following data calculate: (1) Net Present Value (2) Internal Rate of Return and (3) Pay-back Period for the

following projects. Assume a required rate of return of 10% and a 50% tax rate. Firm has a policy of charging depreciation on

diminishing balance method. No capital gain taxes are assumed:

M N

Initial Cash outlay Rs. 1,00,000 Rs. 1,40,000

Salvage Value Nil 20,000

Earning before Depreciation and Taxes :

Year

1 25,000 40,000

2 25,000 40,000

3 25,000 40,000

4 25,000 40,000

5 25,000 40,000

Expected Life 5 years 5 years

(3) A company has to choose one of the following mutually exclusive projects. Both the projects will be depreciated on a

straight line basis. The firm's cost of capital is 10% and the tax rate is 50%. The before tax cash flows are:

(4)

0 J 2 3 4 5

X - Rs. 20,0004,200 4,800 7,000 8,000 2,000

Y - Rs. 15,0004,200 4,500 4,000 5,000 1,000

Which project should the firm accept, if the following criteria are used?

(a) Pay-back Period (b) Internal Rate of Return

(c) Net Present Value (d) Profitability Index

The cash flow streams for four alternative investment A, B, C, and Dare:

Year A B C

0 2,00,000 3,00,000 2,10,000

I 40,000 40,000 80,000

2 40,000 40,000 60,000

3 40,000 40,000 80,000

4 40,000 40,000 60,000

5 40,000 40,000 80,000

6 40,000 30,000 60,000

7 40,000 30,000 40,000

8 40,000 20,000 40,000

9 40,000 20,000 40,000

10 40,.QOO 20,000 40,000

Calculate the (a) Pay-back Period (b) Net Present Value

(d) Profitability Index.

D

3,20,000

2,00,000

20,000

2,00,000

50,000

(c) Internal Rate of Return and

(5) Atlanda Footwear is considering the purchase of a new leather stitching machine to replace an existing machine. The

existing machine has a book value of Rs. 20,000 and a salvage value of Rs. 30,000. It can be used for 5 more years at the end of which

its salvage value would be nil. The new machine cost Rs. 80,000. It is expected to bring an annual saving of Rs. 30,000 in operating

costs. The depreciation rate on both the machines will be 33 113 % on the written down value method. The new machine will fetch a

salvage value of Rs.50,OOO after 5 years. The tax rate for the firm is 60%.

What is the Internal Rate of Return of the replacement proposal?

(6) AVS Ltd is considering the purchase of a new machine for Rs. 1,20,000. It has a life of 4 years and an estimated scrap

value of Rs. 20,000. The machine will generate an extra revenue of Rs. 4,00,000 P.A. and have additional operating cost of Rs.

3,20,000 P.A. The company cost of capital is 20% and tax rate 50%. Should the machine be purchased?

[Ans : Yes, NPV Rs. 23,486]

Capital Budgeting 667

(7) William & Co. has to choose one of the two alternative machines. Calculate the Pay-back Period and suggest the

profitable machine;

Machine X Machine Y

Cost of Machine Rs. 2,00,000 2,50,000

Working Life years 5 5

Profit before tax :

1st Year 60,000 80,000

2nd Year 70,000 1,00,000

3rd Year 80,000 80,000

4th Year 60,000 70,000

5th Year 40,000 60,000

Rate of Income Tax 50% 50%

[Ans : Pay-back period, Machine x - 2.69 years, Y - 2.67 years, Machine y is better]

(8) Following data relate to five independent investment projects :

Projects Initial Outlay Annual Cash Inflows

P 10,00,000 2,50,000

Q 2,40,000 24,000

R 1,84,000 30,000

S 11,500 4,000

T 80,000 12,000

Life in Years

8

15

20

5

10

Assume a 10% required rate of return and a 50% tax rate. Rank these five investment projects according to each of the

following criteria :

(1) Pay-back Period

(2) Accounting Rate of Return

(3) Net Present Value Index

(4) Internal Rate of Return

(9) X Y Z Ltd. Company is considering the purchase of a machine. Two machines P and Q, each costing Rs.50,ooO, are

available. Earning after taxes are expected to be as under:

Year Machine Machine Discount Factor

P Q at /0%

Rs. Rs. Rs.

I 15,000 5,000 0.9091

2 20,000 15,000 0.8264

3 25,000 20,000 0.7513

4 15,000 30,000 0.6830

5 10,000 20,000 0.6209

Evaluate the two alternatives according to NPV method (a discount of 10% is to be used). Which machine should be

selected? Why?

[Ans: Pay-back period P - 2'6 years; Q - 3.33 years; NPV - P - Rs. 15,385; Q 14,865; profitability Index - P - 1,308; Q

- 1,297; P is better.)

(10) (a) A project of Rs. 40,00,000 yielded annually a profit of Rs. 6,00,000 after depreciation) 12~% and is subject to

income tax @ 50%, you are required to calculate pay-back period. (b) No-Project is acceptable unless the yield is 10% cash inflow~

of a certain project along with cash outflows are given below:

Year Outflows

o

I

2

3

4

5

Rs.

3,00,000

60,000

You are required to calculate Net-Present value

[Ans : (a) Pay-back period 5 years. (b) Net present value 17,772.]

Inflows

Rs.

40,000

60,000

1,20,000

1,60,000

60,000

80,000 (being salvage value

at the end of 5 years)

668 A Textbook of Financial Cost and Management Accounting

(11) SS & Co. Ltd. is considering investing in a project requiring a capital outlay of Rs. 2,00,000. Forecast for annual

income after deprecialion but before tax is as follows :

Year Rs.

1 1,00,000

2 1,00,000

3 8,0000

4 80,000

5 40,000

Depreciation may be taken as 20% on original cost and taxation at 50% of net income. You are required to evaluate the

project according to each of the following methods :

a) Pay-back method

b) Rate of Return on Original Investment method

c) Discounted Cash Flow Method taking cost of capital as 10%

d) Net Present Value Index Method and

e) Internal Rate of Return Method

[Ans : (a) Pay-back period is 2.25 years

(b) Rate of return on original investment Method 20%

(c) Rate of return on average investment method 40%

(d) Discounted cash flow method Rs. 1.08,130

(e) Net present value index 154%

(f) Internal rate of return method 2.5]

(12) AVS & Co. Ltd. is contemplating the purchase of machine. Two machines P and Q are available; each machine costing

Rs. 5,00,000. In comparing the profitability of the machines, a discount rate of 10% is to be used. Earnings after taxation are expected

to be as under :

Year

1

2

3

4

5

Machine P

Rs.

1,50,000

2,00,000

2,50,000

1,50,000

1,00,000

Cashjlow

Machine Q

Rs.

50,000

1,50,000

2,00,000

3,00,000

2,00,000

Indicate which machine would be more profitable investment using the various methods of ranking investment

proposals.

[Ans: (I) Pay-back period P - 2 'Is years, Q - 3 '/' years; machine P is better.

(2) Return on Investment method

Machine P - 28% : Q - 32%; Machine Q is better

(3) Net Present Value method

Machine P - Rs 1,53,850; Q - Rs. 1,48,650; Machine P is better.)

(13) The life of a machine which costs Rs. 1,20.000 is estimated 5 years. Its salvage value is estimated at Rs. 20,000 at the

end of the fifth year. The earnings after taxes (before depreciation) are estimated as given below;

Year Rs.

1

2

3

4

5

Calculate: (a) Rate of Return on Original Investments

(b) Earnings per (Rupee) unit of investment

(c) Average Rate of Return on Original Investments

(d) Average Rate of Return on Average Investments

[Ans: (a) 158% (b) Rs. 158% (c) 31%

10,000

60,000

90,000

80,000

70,000

(d) 76%]

Capital Budgeting 669

(14) A company has an investment opportunity cashing Rs. 40,000 with the following expected net cash flow (Le., after tax

and before deprecation) :

Year

1

2

3

4

5

6

7

8

9

10

Net· cash flow Rs.

7,000

7,000

7,000

7,000

7,000

8,000

10,000

15,000

10,000

4,000

Using 10% as the cost of capital (rate of discount) determine the following:

(a) Pay-back period

(b) Net present value at 10% discounting factor

(c) Profitability Index at 10% discounting factor

(d) Internal rate of return with the help of 10% discounting factor and 15% discounting factor

[Ans: (a) 5.62 years (b) Rs. 8,961 (c) 1.22 (d) 14.70%]

(IS) Calculate the Pay-back period, Average Rate of Return and Net Present Value for a Project which requires an initial

outlays of Rs. 10,000 and generates year ending cash flows of Rs. 6,000; Rs. 3,000; Rs. 2,000 and Rs. 5,000; and Rs.

5,000 from the end of the first year to the end of fifth year. The required rate of return is 10% and pays tax at 50% rate.

The project has a life of five years and depredated on straight line basis:

Year

1

2

3

4

5

Discounting factor at /0%

0.909

0.826

0.751

0.683

0.621

[Ans: Pay-back period - 3.43 years; ARR - 22%; NPV - 1,768].

000

CHAPTER 30

Cost Audit

Meaning

Cost Audit is the verification of the cost accounts and of the adherence to the cost accounting plan.

That is, it not only involves the examination of cost accounts but also the fact that plan prepared in this

connection has been duly executed. The Indian Companies Act has made provisions to perform cost audit

to certain categories of companies engaged in the production processing, manufacturing and mining

activities under section 209 and 233 B. It has however not been made compulsory for all the companies.

The duties and powers of the Auditor are set out under section 227 of the said Act. Cost Auditor will not

submit his report to the members of the company but will have to submit to the Company Law Board.

Definition

Cost Audit may be defined as "the verification of cost records and accounts and a check on the

adherence to the prescribed cost accounting procedures and the continuing relevance of such procedures."

Difference between Financial Audit and Cost Audit

Financial Audit

(1) It is statutority compulsory under Companies

Act.

(2) It covers all the financial transactions recorded

in financial books and financial records.

(3) It aims to examine that the business

transactions have been recorded correctly.

(4) It is concerned with the past and historical in

nature.

(5) Reporting the true and fair view of the

company's earnings and state of affairs.

Cost Audit

(1) It is not compulsory except in certain cases as

provided under section 233B.

(2) It covers only cost records and cost accounts.

(3) It aims to verification of cost accounts and

ensures the plan prepared in this connection has

been duly executed.

(4) It concerned with forward looking approach.

(5) Cost Auditor is required to report to the

management except statutory audit.

Cost Audit

Financial Audit

(6) Financial aspect of the accounts is a matter

of concern.

671

Cost Audit

(6) Cost aspect of account is of main concern.

(7) It is concerned with the scrutiny of

reliability or otherwise of transactions.

(7) It is concerned with the propriety and efficiency

of the transactions.

Proposes or Objectives of Cost Audit

The purpose of Cost Audit is to examine whether the methods laid down for ascertaining costs and

other decisions are being properly implemented and whether the cost accounting plan is being adhered to

or not. The purposes can, therefore, be classified under two heads, namely :

(1) Protective

(2) Constructive

(1) Protective Purpose: Under protective purpose, it aims to examine that there is no undue wastage or

losses and costing system brings out the correct and realistic cost of production or processing.

(2) Constructive Purpose: Cost Audit has a constructive purpose as well. Cost Audit plays a constructive

role by providing management of the company with information useful in regulating production, choosing

economical methods of operation, reducing operation costs and reformulating plans etc. on the basis of his

findings during the course of Cost Audit.

Circumstances Under Which Cost Audit is Desirable

The following are the circumstances under which cost audit is ordered :

(1) Price Fixation

(2) Cost variation within the industry

(3) Inefficient Management

(4) Tax Assessment

(5) Trade Disputes

Types of Cost Audit

The following are the important types of Cost Audit:

(1) Efficiency Audit

(2) Propriety Audit

(3) Statutory Audit

(1) Efficiency Audit: Efficiency Audit is directed towards the measurement of whether corporate plans

have been effectively executed. It is concerned with the utilization of resources in economic and most

remunerative manner to achieve the objectives of the concern. For example, the effective utilization of capital

in an organization can be gauged by determining return on capital employed.

(2) Propriety Audit: Propriety Audit is concerned with executive actions and plans be~ring on the

finance and expenditure of the company. The auditor has to judge whether the planned expenditure is designed

to give optimum results.

672 A Textbook of Financial Cost and Management Accounting

(3) Statutory Audit: This type of audit is conducted in accordance with the provisions of Section 233B

of the Companies Act 1956. It is the compulsory audit which required to maintain the related books and accounts

of specified establishments. The chief aims of this types of audit is that the government wants to ascertain the

relationship of costs and prices.

Advantages or Usefulness of Cost Audit

Besides the chief merit of detecting and preventing errors and frauds as in the case of audit in

general. cost audit secures the following advantages to the management. shareholders and Government.

I. Usefulness to the Management:

(1) It ensures effective internal control.

(2) It provides necessary information for prompt decision making.

(3) It facilitates inter firm comparison.

(4) It helps to increase the overall efficiency of productivity.

(5) Inefficiency can be eliminated by suitable corrective actions.

(6) Errors. omission, fraud and mistakes can be detected and prevented due to effective auditing of

Cost Accounts.

(7) It facilitates cost control and cost reduction.

(8) It creates cost consciousness among employer and employees.

(9) It assists in valuation of stock of materials. work in progress and finished goods.

(10) It ensures maximum utilization of available resources.

II. Usefulness to the Government:

(1) Cost Audit helps in fixing contract price in cost plus contract.

(2) Helps in fixing of selling price for essential commodities.

(3) Enables Government to focus attention on inefficient work.

(4) Enables Government to give protection to certain industries.

(5) Facilitates settlement of trade disputes.

(6) It imposes an automatic check on inflation.

III. Usefulness to the Shareholders:

(1) It ensures more profit and high return to the shareholders.

(2) It creates an image of creditworthiness of the concern.

(3) It reflects a high degree of reliability to cost data.

(4) It ensures efficient management in utilization of plant and machinery, land and building, worker

and employees etc.

Cost Audit Programme

A suitable programme for cost audit should be drawn out in detail. specifying each item of audit

work to be carried out. An audit programme is a written plan prepared by the Cost Auditor showing the

following salient features :

Cost Audit 673

how much work is to be done?

who is going to do a particular portion of work?

and what is the duration of time by which the work is to be finished?

Prof. Meig defines "An audit programme is the detailed plan of auditing work to be performed

specifying the procedures to be followed in verification of each item in the financial statements and giving

the estimated time required."

Areas of Cost Audit Programme is Carried Out

The areas which a cost audit programme should include are as below :

(1) Inventory of stores and work in progress

(2) Labour

(3) Overheads

(4) Selling, Distribution, Office and Administrative expenses

(5) Capital expenditure

(6) Utilization of capacity, plant and equipments

Advantages of Cost Audit Programme

The following advantages will accrue, if a cost audit is carried out with the help of a cost audit

programme:

(1) It helps the auditor to know about the progress of audit.

(2) It increases the efficiency of the cost audit associates.

(3) It facilitates the uniformity in work.

(4) It helps to safeguard against omission.

(5) It guides for proper distribution of works and fixing responsibility.

(6) It serves as a defense against charge of negligence.

(7) It serves as a reference for the future audit of the same concern.

Disadvantages of Cost Audit Programme

There are certain disadvantages, if the cost audit work is carried out with the help of cost audit

programme. They are as follows:

(1) For small concern, it would be unnecessary to prepare a programme.

(2) Audit associates have no interest and initative since, they perform their work mechanically.

(3) As each business has its own problems and procedures, a rigid audit programme cannot be laid

for all types of business.

Cost Accounting Records

The areas of activity in respect of which cost accounting records are to be maintained under Cost

Accounting Record Rules are :

674 A Textbook of Financial Cost and Management Accounting

(1) Raw Materials, Components, Stores and Spare Parts

(2) Salaries and Wages

(3) Service Department Expenses

(4) Utilities

(5) Depreciation

(6) Other Overheads

(7) Conversion Cost

(8) Research and Development Expenses

(9) Interest

(10) Joint Products and By-products

(11) Work in Progress and Finished Goods Stock

(12) Cost Statements

(13) Records of Physical Verification

(14) Packing

(15) Production Records

QUESTIONS

1. Define Cost Audit. Explain the purposes of Cost Audit.

2. Explain the types of Cost Audit.

3. What are the advantages of Cost Audit?

4. What do you understand by Cost Audit Programme?

5. Explain the difference between Financial Audit and Cost Audit.

6. Mention the areas of activity in respect of which cost accounting records are to be maintained.

7. What are the circumstances under which cost audit is ordered?

DOD

CHAPTER 31

Reporting to Management

Introduction

The success or otherwise of any business undertaking depends primarily on earning revenue that

would generate sufficient resources for sound growth. To achieve this objective, the management should

discharge its functions efficiently and effectively. The reporting systems are highly useful to the

management for effective planning and control. A regular system of reporting is considered as a better

guidance for prompt decision making. Hence, it is necessary to have a good management reporting system.

DEFINITION OF MANAGEMENT REPORTING

According to Kohler reporting refers to "A body of information organized for presentation or

transmission to others. It often includes interpretations, recommendations and findings with supporting

evidence in the form of other reports."

,

'Management Reporting' may be defined as "A system of communication, normally in the written

form, of facts which should be brought to the attention of various levels of management who use them to

take suitable action." In other words the process of providing information to the management is known as

Management Reporting. The word "Information" refers to the data processed or evaluated for a specific

purpose.

Dr. Maheshwari has also defined Management reporting system as "an organized method of

providing each manager with all the data and only those data which he needs for his decisions, when he

needs them and in a form which aids his understanding and stimulates his action."

Objectives of Management Reporting

(1) To obtain the required information relating to the business to discharge its managerial functions of

planning. organizing, controlling. directing, and decision making etc. efficiently and effectively.

(2) To ensure the operational efficiency of the concern.

(3) To facilitate the maximum utilization of resources.

676 A Textbook of Financial Cost and Management Accounting

(4) To secure industrial understanding among people who are engaged in various aspects of work

of enterprise.

(5) To enable to motivating improving discipline and morale.

(6) To help the management for effective decision making.

Essentials of Good Reporting System

The following are the essentials of a good management reporting system :

(1) Proper Form: A good report should have a comprehensive form with suggestive title, heading,

sub heading and number of paragraphs as and where necessary for easy and quick reference.

(2) Contents : Simplicity is one of the requisites of reporting in relation to the contents of a report.

Further the contents should follow a logical sequence. Wherever necessary the contents should be

represented in the form of visual aids such as charts and diagrams etc.

(3) Promptness : It means that the system should ensure the preparation and submission of report at

the proper time. It facilitates business executives to make suitable decisions based on quick reports without

delay.

(4) Accuracy: Information conveyed should be accurate. This means that the person responsible for

reporting should have sufficient care in preparing the report as correctly as possible within the parameters

of possible accuracy in this regard.

(5) Comparability : In order to ensure that the furnished information is useful, it is essential that

reports are also meant for comparison. The report should provide information about both the actual and the

budgeted performance of the budget period. So that meaningful comparison can be made to find out the

deviations and to initiate appropriate action.

(6) Consistency : In order to make a meaningful and useful comparison, uniform accounting

principles and procedures should be followed on consistent basis over a period of time for collection,

classification and presentation of accounting information.

(7) Relevancy : The report should be presented with relevant data to disclose the fact in

unambiguous terms. Because, inclusion of both the relevant and the irrelevant data in the management

reports may result in faulty decisions. Therefore, the contents expressed therein should reveal the

reporter's greater consciousness of expression with reference to length and time in particular.

(8) Simplicity : The report should be as far as possible in simple form. In other words, the report

should avoid technical jargons, duplication of work and presented in a simple style.

(9) Flexibility: The system should be capable of being adjusted according to the requirement of the

users.

(10) Cost-Benefit Analysis: Cost-Benefit Analysis should be made and the cost of reporting should

commensurate with the expenditure involved.

(11) Principle of Exception : Since the time and effort of managerial personel are precious, the

principle of management by exception has become the rule of the day instead of exception. It is necessary

therefore to draw the attention of management, through reports, only towards exceptional matters.

(12) Controllability : It is necessary that every report should be addressed to a responsibility centre

and analysed the factors into controllable and uncontrollable separately. So that the head of the

responsibility centre can be held responsible only for controllable variance but not for variances which are

beyond his control.

Reporting to Management 677

Further, in order to assist the management to imitate remedial measures, probable reasons for the

factors of uncontrollable should also be incorporated in the reports.

Classification of Management Reporting

Basically, there are two ways to report to the management. They are (1) Oral Report and (2) Written

Report. The Written Reports may be classified into number of ways. The following are the important

types:

I. According to Objects:

(A) External Reports

(B) Internal Reports

(1) Reports Meant for Top Management

(2) Reports Meant for Middle Level Management

(3) Reports Meant for Junior Level Management

II. According to Period:

(1) Routine Reports

(2) Special Reports

III. According to Functions:

(A) Operating Reports

(1) Control Reports

(2) Information Reports

(3) Venture Measurement Reports

(B) Financial Reports

(1) Static Reports

(2) Dynamic Reports

The following chart explains this more about the types of reporting :

Types of Management Reporting

t

t t Oral Reports Written Reports

t

J

According to Objects According to Period According to Functions

External Reports Internal Reports Routine Reports Special Reports Operating Reports Financial Reports

To the Top

Management

J

To the Middle

Level Management

To the Junior

Level Management

Control

Reports

J

Information

Reports

!

Venture

Measurement

Reports

Static

Reports

Dynamic

Reports

Reporting to Management 679

According to Object or Purposes

(A) External Reports: These reports prepared for persons outside the business such as Government.

shareholders. bankers. investors and financial institutions etc. External Reports usually represent published

annual reports. Annual Reports of Trading. Profit and Loss Accounts and Balance Sheet of the Indian

Companies are to be prepared in terms of Schedule VI of the Indian Companies Act of 1956.

(8) Internal Reports : Internal Reports are those which are prepared for internal uses of different

level of management. It is also called as Management Reports. These reports are not meant for disclosure

to those who are outsiders to the business. They do not have to comply with any statutory requirements.

From the managerial point of view the reports can be classified into the following categories :

(1) Report Meant for the Top Level of Management

(2) Report Meant for the Middle Level of Management

(3) Report Meant for the Junior Level of Management

(1) Report Meant for the Top Level of Management

Top Level Management is concerned with the formulating policies planning and setting goals and

objectives. This level of management consisting of the Board of Directors including Chairman. Managing

Directors. General Manager or any other chief executive as the case may be. The report to this level of

management should be specifically summarized with all aspects of operating performance together with a

comparison of actuals with budgeted performance. The usual reports sent to this level of management are:

(a) Reports on budgeted and actual profit

(b) Reports on sales and production

(c) Capital budget

(d) Master budget

(e) Periodical financial reports

(f) Plant utilization report

(g) Machine and labour utilization report

(h) Reports on research and development activities

(i) Project evaluation report

G) Report on stock of raw materials, work in progress and finished goods

(k) Overhead cost absorption and efficiency reports

(I) Reports on selling and distribution overhead.

(2) Reports Meant for Middle Level Management

The Middle Management is constituted of the heads of all departments such as production department

headed by production manager. marketing department headed by marketing manager and so on. This level

of management is concerned with the functioning and control of their departments. They act mainly as coordinating

executives to administer policies directly through operating supervisors and evaluate their

performance. Hence. they may require more detailed information about their departments and at frequent

intervals. Generally. the middle level management should receive the following reports at different intervals:

680 A Textbook of Financial Cost and Management Accounting

(a) Purchase Manager:

(1) Reports on material price and usage variance

(2) Reports on material carrying cost, loss of material in the storage etc.

(3) Reports on trends in the pertaining of various items of materials.

(b) Materials Manager:

(1) Reports on stock of raw materials, work in progress and finished goods

(2) Reports on material wastage and losses

(3) Reports on stock of materials planning and control

(4) Reports on level of materials stock at the stores

(5) Reports on surplus and deficiency report.

(c) Production Manager:

(1) Reports on budgeted and actual production

(2) Reports on overtime work and ideal time

(3) Reports on labour utilization statement

(4) Reports on machine utilization statement

(5) Reports on scrap production cost

(6) Reports on any accident causing dislocation of activity.

(d) Sales Manager:

(1) Reports on budgeted and actual sales

(2) Reports on sales efficiency

(3) Reports on orders received and orders executed

(4) Reports on cash sales and credit sales

(5) Reports on stock of finished goods

(6) Reports on market share and market potential

(7) Reports on sales promotion efficiency.

(3) Reports Meant for Junior Level Management

The lower level management is directly responsible for executing various policies assigned by top

management. This level of management is constituted of Foremen, Supervisors and sectional in charges

etc. They are in touch with the day-to-day performance of their section. The report meant for this level are

mainly in terms of physical units. The usual reports sent to this level are :

(1 ) Reports on labour efficiency variance

(2) Reports on ideal time, overtime and machine utilization

(3) Reports on materials usage variance

(4) Reports on credit collections and outstanding