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STRATEGIC COST ANALYSIS

EXAM REVISION NOTES

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MODULE I

FOUNDATIONS, SCOPE, AND OBJECTIVES OF COST ACCOUNTING

Foundations, Scope, and Objectives of Cost Accounting: In modern industrial and commercial enterprises, managerial decision-making depends fundamentally on the precision, timeliness, and analytical depth of internal cost information.

Definitional Framework and Nature of Cost Accounting: The academic literature offers authoritative definitions establishing the scope of cost accounting:

- **Chartered Institute of Management Accountants (CIMA), London:** "
- **Eric Kohler:** "
- **Key Conceptual Dimensions:** , historical costing, marginal costing, absorption costing).
- **Cost Accounting:** The formal accounting system that records cost transactions within formal ledgers and journals.
- **Cost Accountancy:** The broader professional application of costing and cost accounting principles, methods, and science to the art of management control and economic optimization.

Tripartite Comparative Analysis: Financial, Cost, and Management Accounting: Enterprise accounting is structured across three interdependent disciplines:

- **Financial Accounting:** Focuses on preparing statutory financial statements (Profit & Loss Account, Balance Sheet, Cash Flow Statement) in accordance with Generally Accepted Accounting Principles (GAAP) and statutory company law, reporting historical enterprise performance to external parties.
- **Cost Accounting:** Focuses on internal cost ascertainment, element-wise expense accumulation, and cost control across products, jobs, and processes, utilizing both historical and prospective data.
- **Management Accounting:** The broadest discipline, synthesizing data from both financial and cost accounting to provide strategic planning, forecasting, performance evaluation, and policy formulation support exclusively to internal management.

Cost Concepts, Elements of Cost & Multidimensional Classification: To design an effective costing system, accountants must establish precise terminological definitions and categorize expenditures across standardized analytical dimensions.

Foundational Cost Terminology: Unit, Center, and Element

- **Cost:** The amount of expenditure (actual or notional) incurred on, or attributable to, a specified thing, activity, or product.
- **Cost Unit:** A unit of product, service, or time (or combination thereof) in relation to which costs may be ascertained or expressed: Automobile Industry: Per vehicle produced.
- **Cement Manufacturing:** Per metric ton or per 50 kg bag.
- **Passenger Transportation:** Per passenger-kilometer.
- **Hospitality Industry:** Per occupied room-night.

Multidimensional Cost Classification Frameworks: Cost accounting classifies expenses across five primary structural frameworks:

- **Production / Manufacturing Overhead:** All indirect costs incurred inside factory gates (factory rent, machine depreciation, power, indirect factory wages).
- **Administrative Overhead:** Costs incurred in general corporate governance, direction, and executive management (office salaries, board audit fees, legal expenses, corporate headquarters lease).
- **Selling Overhead:** Costs incurred to create demand, stimulate sales, and secure customer orders (advertisements, sales commission, showroom expenses, market research).
- **Distribution Overhead:** Costs incurred from the moment finished goods are completed until they reach the customer's delivery destination (warehouse dispatch rent, delivery van fuel, transit insurance, packing cartons).
- **Fixed Costs:** , factory building rent, executive salaries, property insurance).

Sequential Structural Tiers of a Comprehensive Cost Sheet: A complete cost sheet aggregates expenditures across six progressive operational tiers:

- **Direct Materials Consumed:** Formula: Direct Materials Consumed = Opening Stock of Raw Materials + Purchases + Carriage Inward / Freight - Closing Stock of Raw Materials
- **Direct Wages / Productive Labor:** Direct shopfloor wages paid to production operators.
- **Direct / Chargeable Expenses:** Specialized royalties, design fees, or hired equipment specific to the job.
- **Formula:** Prime Cost = Direct Materials Consumed + Direct Wages + Direct Expenses
- **Add:** Factory / Works Overheads (Indirect factory labor, factory power, plant insurance, machine depreciation, factory rent).

Exclusions from Cost Sheets: Pure Financial Items: To preserve analytical costing integrity, cost sheets strictly exclude items of a purely financial or capital nature:

- **Financial Appropriations & Taxes:** Income tax, corporate dividend payouts, transfer to general reserves, proposed dividends.
- **Pure Financial Losses:** Loss on sale of capital fixed assets (plant, land), loss on foreign currency revaluation, discount on debentures, write-offs of goodwill, preliminary expenses, or underwriting commission.
- **Pure Financial Incomes:** Interest earned on bank deposits, dividends received on external investments, capital gain on sale of investments, share transfer fees.

Comprehensive Practical Numerical Illustration: Cost Sheet & Tender Pricing: To master the mathematical application of cost sheet compilation and tender quotation mechanics, consider the following comprehensive industrial scenario:

- **Opening Stock of Raw Materials:** Rs.
- **Direct Wages Paid:** Rs.
- **Factory Overheads:** Rs.
- **Office and Administration Overheads:** Rs.
- Opening Stock of Finished Goods (1,000 units): Rs.

Structural Inadequacies of Traditional Cost Accounting: Academic critiques (notably by Johnson & Kaplan in Relevance Lost: The Rise and Fall of Management Accounting) identify severe systemic flaws in traditional systems:

- **Manufacturing Myopia:** Traditional systems concentrate almost exclusively on factory floor production costs, treating upstream R&D design costs and downstream customer service/distribution as passive period overheads, ignoring up to 80% of a product's lifecycle costs.
- **Distorting Volume-Based Overhead Allocations:** Traditional systems allocate overhead based on simplistic volume drivers (direct labor hours or machine hours).
- **Short-Term Tactical Orientation:** , cutting preventive maintenance or purchasing substandard materials to generate favorable purchase price variances).
- **Internal Focus and Ignorance of Competitor Realities:** Traditional costing stops at the factory gate, failing to analyze the cost structures of external suppliers, distribution channel partners, or competitor cost positions.

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MODULE II

MARGINAL COSTING CONCEPTS, FEATURES & ABSORPTION COSTING

Marginal Costing Concepts, Features & Absorption Costing: In modern industrial accounting, the management of business enterprises requires analytical tools that reveal the precise relationship between operational volume, manufacturing costs, and operating profitability.

Core Characteristics and Operational Assumptions of Marginal Costing: The marginal costing framework operates on fundamental accounting principles:

- **Rigorous Cost Segregation:** All operational costs—manufacturing, administrative, selling, and distribution—must be segregated cleanly into two distinct components: strictly Fixed Costs and strictly Variable Costs.
- **Product Costs versus Period Costs:** Variable production costs attach directly to products and are inventoried on balance sheets.
- **Valuation of Inventories:** Work-in-Progress (WIP) and Finished Goods inventory are valued strictly at Marginal Cost (Prime Cost + Variable Factory Overhead).
- **The Primacy of Contribution:** Selling prices are evaluated based on their ability to generate Contribution (Sales minus Variable Cost) rather than net profit per unit.

Cost-Volume-Profit (CVP) Analysis, Contribution & P/V Ratio: Cost-Volume-Profit (CVP) Analysis is a powerful analytical technique that explores the dynamic financial interactions between operational sales volume, unit selling prices, variable cost structures, fixed overheads, and enterprise operating profit.

The Fundamental Marginal Cost Accounting Equation: All marginal costing and CVP calculations originate from the master mathematical identity:

- **Total Contribution:** C=S−V or C=F+P.
- **Unit Contribution:** C_{unit}=SellingPriceperUnit(s) −VariableCostperUnit(v).
- **Formula:** Sales (S) - Variable Cost (V) = Contribution (C) = Fixed Cost (F) + Profit (P)
- **Formula:** Sales (S) - Variable Cost (V) - Fixed Cost (F) = Profit (P)

Practical Multi-Period CVP Numerical Case Study: To master the mathematical application of CVP equations across shifting operational environments, consider the financial performance of Kerala Precision Instruments Ltd.

- **Quarter 1:** Sales Turnover = Rs.
- **Quarter 2:** Sales Turnover = Rs.
- **1. Computation of Profit-Volume (P/V) Ratio:** Formula: Δ Sales = 10,00,000 - 8,00,000 = ₹2,00,000 Formula: Δ Profit = 1,30,000 - 80,000 = ₹50,000 Formula: P/V Ratio = (Δ Profit / Δ Sales) × 100 = (50,000 / 2,00,000) × 100 = 25%
- **2. Computation of Total Fixed Costs:** For Quarter 1, Contribution=Sales×P/VRatio=8,00,000×25%=Rs.
- **3. Computation of Quarterly Break-Even Sales:** 25) = ₹4,80,000

Mathematical Derivation of the Break-Even Point: The break-even point can be expressed in terms of physical units of output or total monetary sales value:

- **Formula:** BEP (in Units) = (Total Fixed Costs (F) / Contribution per Unit (s - v)) = (F / Cunit)
- **Formula:** BEP (in Rupees/Value) = (Total Fixed Costs (F) / P/V Ratio) = (F × Sales / Sales - Variable Cost)
- **Formula:** Composite P/V Ratio = (∑ Total Contributions / ∑ Total Sales) × 100
- **Formula:** Composite BEP (Value) = (Total Enterprise Fixed Costs / Composite P/V Ratio)

Planning for Target Profits (Pre-Tax and After-Tax): CVP analysis enables executives to calculate the precise sales volume required to generate a targeted dollar profit:

- **Required Sales for Desired Pre-Tax Profit (DP):** Formula: Required Sales (Units) = (Fixed Costs + DP / Contribution per Unit) Formula: Required Sales (Value) = (Fixed Costs + DP / P/V Ratio)
- **Required Sales for Desired After-Tax Profit (DP_{at}) with Corporate Tax Rate (t):** Formula: Required Pre-Tax Target Profit = (DPat / 1 - t) Formula: Required Sales (Value) = (Fixed Costs + (DPat / 1 - t) / P/V Ratio)
- **Formula:** Required Sales (Units) = (Fixed Costs + DP / Contribution per Unit)
- **Formula:** Required Sales (Value) = (Fixed Costs + DP / P/V Ratio)

Marginal Costing for Managerial Decision-Making: The primary strategic value of marginal costing lies in its application to executive decision-making. In the short run, fixed costs are committed and unavoidable.

Make-or-Buy Decisions: Enterprises frequently evaluate whether to manufacture a sub-assembly component internally or outsource procurement to an external commercial supplier:

- **Relevant Cost Decision Rule:** If existing production facilities are idle, fixed overheads will be incurred regardless of the decision (sunk/unavoidable).
- If internal capacity can be redirected to produce an alternative profitable product, the Opportunity Cost (lost contribution of the foregone product) must be added to the internal cost of making.
- **Qualitative Strategic Considerations:** Supplier reliability, component quality assurance, trade secret protection, and dependency risks.

Plant Shutdown and Division Discontinuation Decisions: During economic recessions or severe demand downturns, an enterprise must evaluate whether to continue operating an unprofitable factory or suspend operations temporarily:

- **Shutdown Point:** Even if a plant is temporarily closed, certain fixed costs continue (unavoidable fixed costs: factory lease, security watchmen, machine maintenance).
- **The Shutdown Point Formula:** Formula: Shutdown Point (in Units) = (Avoidable Fixed Costs / Contribution per Unit) = (Total Fixed Costs - Unavoidable Fixed Costs / Contribution per Unit) Formula: Shutdown Point (in Value) = (Avoidable Fixed Costs / P/V Ratio)
- **Decision Rule:** If anticipated operational sales volume exceeds the Shutdown Point, the enterprise loses less money by continuing operations (because the contribution generated covers all avoidable fixed costs and a portion of unavoidable fixed costs).

MODULE III

STANDARD COSTING CONCEPTS, SETUP & STANDARDS ARCHITECTURE

Standard Costing Concepts, Setup & Standards Architecture: In competitive manufacturing environments, historical cost accounting provides retrospective data after financial events have transpired.

Definitional Framework and Theoretical Foundations: Standard costing is defined across management accounting literature with consistent emphasis on scientific predetermination and managerial control:

- **Chartered Institute of Management Accountants (CIMA), London:** "

- **Institute of Cost and Management Accountants of India (ICMAI):** Characterizes standard costing as a method of cost accounting that determines standard costs in advance of production, records transactions at standard cost, compares actual results against standards, and decomposes variances to assign responsibility to cost center managers.
- **The Predictive Nature of Standard Costs:** A standard cost is not a casual average of past expenditures; it is a scientifically calculated engineering and economic estimate reflecting target performance levels achievable under planned equipment utilization, standard raw material qualities, and standard labor efficiencies.

Classification and Hierarchy of Cost Standards: The behavioral impact and practical utility of standard costing depend heavily on the standard of performance adopted by corporate management.

- **Normal Standards:** These represent average performance levels expected over a full multi-year business cycle.

The Principle of Management by Exception and Variance Disposition: Variance analysis operates under the foundational management principle of Management by Exception (MBE). Executives do not review thousands of routine shop-floor transactions; instead, accounting reporting systems filter operational data and illuminate only those operations where actual performance diverges significantly from pre-determined standards.

- **Favorable Variances (F):** Arise when actual costs incurred are lower than standard costs, or actual revenues exceed standard expectations.
- **Unfavorable / Adverse Variances (A):** Occur when actual costs exceed standard benchmarks, indicating excessive resource consumption, operational inefficiencies, or unfavorable market price movements.
- **Materiality Thresholds:** , ± 5% of standard cost or variances exceeding ₹50,000) to trigger detailed engineering investigations, preventing the squandering of managerial time on immaterial random fluctuations.

Material Cost Variances Analysis & Mathematical Formulations: Direct material costs frequently constitute 50% to 70% of total manufacturing expenditures in industrial operations.

Comprehensive Numerical Case Illustration: Multi-Material Production: , which manufactures industrial compound "Zeta-9". The standard specification stipulates that to produce 100 kg of finished Zeta-9, the standard input requires:

- **Chemical Alpha:** 70 kg @ ₹40 per kg = ₹2,800
- **Chemical Beta:** 50 kg @ ₹60 per kg = ₹3,000
- **Total Standard Input:** 120 kg costing ₹5,800.
- **Standard Cost per kg of finished Zeta-9:** (Rs.
- **Chemical Alpha:** 1,500 kg @ ₹44 per kg = ₹66,000

Mathematical Decomposition of Labor Variances: The mathematical taxonomy of labor variance analysis comprises the following standard equations:

- **Formula:** DLCV = Standard Labor Cost for Actual Production - Actual Labor Cost
- **Formula:** DLCV = (SH × SR) - (AH × AR)
- **Formula:** DLRV = AHpaid × (SR - AR)
- **Formula:** DLEV = SR × (SH - AHworked)

Step-by-Step Multi-Grade Labor Case Study: Apex Mechanical Engineering Ltd. manufactures heavy industrial gearboxes.

- **Skilled Machinists:** 30 hours @ ₹150 per hour = ₹4,500
- **Semi-skilled Operators:** 20 hours @ ₹100 per hour = ₹2,000
- **Unskilled Helpers:** 10 hours @ ₹60 per hour = ₹600
- Standard Labor Cost per finished gearbox = 60 hours costing ₹7,100.
- **Skilled Machinists:** 1,600 hours paid @ ₹155 per hour = ₹2,48,000

Variable Overhead Variance Analysis: Variable overheads fluctuate directly with operating activity (machine hours or direct labor hours). The total variance is partitioned into two components:

- **Variable Overhead Cost Variance (VOCV):** Formula: VOCV = Standard Variable Overhead for Actual Output - Actual Variable Overhead Incurred Formula: VOCV = (SH × SVOR) - Actual Variable Overhead Where SVOR is the standard variable overhead rate per hour.
- **Variable Overhead Expenditure / Spending Variance (VOExV):** Formula: VOExV = (AH × SVOR) - Actual Variable Overhead Measures whether more or less was expended per operating hour than standard allowances.
- **Variable Overhead Efficiency Variance (VOEfV):** Formula: VOEfV = SVOR × (SH - AH) Measures the indirect cost consequence of the productive speed of operations.

The Master Operating Statement: Reconciling Budgeted and Actual Profit: The ultimate synthesis of standard costing is the preparation of the corporate Operating Statement. Rather than leaving managers to decipher conflicting accounts, the operating statement systematically reconciles budgeted operational profit to actual realized profit through an explicit cascade of favorable and adverse variances:

MODULE IV

ACTIVITY-BASED COSTING & ACTIVITY-BASED MANAGEMENT

Activity-Based Costing & Activity-Based Management: In modern industrial and service environments characterized by automated manufacturing, diverse product lines, and shrinking direct labor content, traditional volume-based absorption costing has become increasingly obsolete.

The Failure of Traditional Costing & Overhead Cross-Subsidization: Under conventional absorption costing, indirect manufacturing overheads are aggregated into departmental cost centers and absorbed into products using a single blanket rate or departmental rates based on Direct Labor Hours (DLH) or Machine Hours (MH).

- **Managerial Fallouts:** Companies relying on traditional costing often misprice their products.

Cooper's Hierarchy of Manufacturing Activities: To establish rigorous cost pools, ABC organizes organizational activities into four structural levels:

- **Unit-Level Activities:** Performed each time a single unit of product or service is produced.
- **Batch-Level Activities:** Performed each time a batch or lot of goods is produced, regardless of the number of units contained within the batch.
- **Product-Sustaining Activities:** Performed to enable the production and sale of specific individual products or product lines, regardless of the number of batches or units produced.
- **Facility-Sustaining Activities:** Performed to sustain the enterprise's overall operational capacity and physical infrastructure.

Activity-Based Management (ABM): Activity-Based Management (ABM) represents the strategic and operational application of ABC data. ABM operates across two primary domains:

- **Strategic ABM:** Focuses on doing the right things.

Target Costing: Market-Driven Cost Architecture: Originating within the Japanese automotive manufacturing industry (notably Toyota), target costing reverses the traditional cost-plus formula:

- **Market Research & Target Price:** Thorough market analysis determines the functional features desired by target consumers and the maximum competitive price they will pay.
- **Target Profit Determination:** Corporate leadership determines the mandatory long-term Return on Sales (ROS) or Return on Capital Employed (ROCE) required to satisfy investor expectations.
- **Establishing Target Cost:** Subtracting the required target profit margin from the target selling price establishes the maximum allowable unit cost.
- **Estimating Current Feasible Cost:** Engineering and cost accounting teams calculate the Current Estimated Cost of the product using existing technologies and production methods.
- **Identifying the Cost Reduction Gap:** Formula: Cost Gap = Current Estimated Cost - Target Cost

Kaizen Costing: Continuous Shop-Floor Improvement: While target costing focuses on cost reduction during the pre-production product design stage, Kaizen Costing focuses on continuous, incremental cost reductions during the active manufacturing phase of existing commercial products.

- **The Philosophy of Kaizen:** Derived from the Japanese concepts "Kai" (change) and "Zen" (good), Kaizen emphasizes that no process is ever perfect and that small, continuous improvements generated by shop-floor workers yield substantial aggregate cost savings over time.
- **Kaizen Cost Targets:** Unlike standard costing, which establishes a fixed static standard maintained over an annual operating cycle, Kaizen costing sets monthly cost reduction targets.
- **Gemba Kaizen:** Real-world improvements enacted directly on the shop floor (the "Gemba") by machine operators, including minimizing tool change t × , redesigning parts placement to eliminate operator motion, and reducing scrap generation.

Value Chain Analysis & Strategic Cost Drivers: Traditional management accounting views a business enterprise as an isolated entity, analyzing internal costs through departmental ledgers.

Vertical Industry Linkages & Strategic Cost Drivers: Value Chain Analysis emphasizes that competitive advantage rarely stems from optimizing a single department in isolation.

- **Supplier Linkages:** Collaborating with suppliers can significantly lower downstream manufacturing costs.
- **Customer Linkages:** Coordinating shipping schedules and packaging with downstream distributors reduces warehouse handling and returns.
- **Structural Cost Drivers:** Strategic choices regarding an enterprise's economic structure: Scale: Size of capital investment in manufacturing capacity and distribution facilities.
- **Scope:** Degree of vertical integration versus outsourcing.
- **Experience / Learning Curve:** Cumulative historical production volume driving down unit labor hours.

Fixed Budgets versus Flexible Budgets: A fundamental limitation of conventional budgeting is the reliance on a static or fixed budget:

- **Flexible Budget:** A dynamic budget that adjusts automatically to the actual volume of activity achieved.
- **Direct Materials:** Variable (₹50/unit)
- **Direct Labor:** Variable (₹30/unit)
- **Direct Expenses:** Variable (₹10/unit)

Beyond Budgeting and Continuous Rolling Forecasts: In fast-moving contemporary industries, traditional annual budgets become obsolete within weeks of publication due to sudden market shifts, currency swings, and technological disruptions.

- **Rolling Forecasts:** Rather than a static 12-month budget prepared once a year, rolling forecasts maintain a continuous four- to six-quarter horizon.

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