Skillshort

Self-Study Preparation Pack

CMA INTERMEDIATE

Paper 8: Cost Accounting (CA)

Chapter-wise Detailed Notes

For the December 2026 term (Wed 16 Dec 2026, 2–5 pm) and June 2027 · ICMAI Syllabus 2022 · Cost Accounting Standards 1–24 as amended up to 31 May 2026 · Every worked example verified in Python

100 marks · 3 hours | Q1: 15 MCQs × 2 = 30 | Any 5 of Q2–Q8 × 14 = 70 | ≈ 80% numerical

Contents

How to use these notes	2	Chapter 1: Introduction to Cost Accounting	3
Chapter 2: Preparation of Cost Sheet and Ascertainment of Profit	5	Chapter 3: Material Costs (CAS 6)	6
Chapter 4: Employee Costs (CAS 7) and Direct Expenses (CAS 10)	8	Chapter 5: Overheads – Collection, Apportionment and Absorption (CAS 3, 11, 15)	10
Chapter 6: Cost Accounting Standards (CAS 1 to CAS 24)	12	Chapter 7: Cost Book-Keeping – Non-integrated, Integrated and Reconciliation	14
Chapter 8: Unit and Batch Costing	15	Chapter 9: Job Costing	16
Chapter 10: Contract Costing	17	Chapter 11: Process Costing – Losses, Equivalent Production and Inter-process Profit	18
Chapter 12: Joint Products and By-products (CAS 19)	19	Chapter 13: Operating (Service) Costing – Transport, Hotel and Healthcare	20
Chapter 14: Marginal Costing and CVP Analysis	22	Chapter 15: Standard Costing – Material and Labour Variances	23
Chapter 16: Budgets and Budgetary Control	25	Formula and number sheet	27
Common mistakes in answers	28		

This subject pack has 6 parts

1 Chapter-wise notes

2 Important topics & weightage

3 Past papers: trends & links

4 Mock tests + solutions

5 Chapter practice questions

6 Last-week plan & strategy

Prepared by Skillshort for self-study. Original explanations and questions; not an official ICAI/ICMAI/ICSI publication. Items marked VERIFY should be checked against the latest official material.

How to use these notes

These notes follow the **ICMAI Syllabus 2022 module order** (6 modules in 3 sections). Each chapter gives the concepts examined as theory, every **formula**, a **worked example** verified in Python, and the traps that cost marks. Cost Accounting Standards (CAS) are summarised in Chapter 6 and referred to in the element chapters.

Paper at a glance

Item	Detail
Marks / time	100 marks, 3 hours, offline, 2:00–5:00 pm
Section A (paper)	Q1 – **15 MCQs × 2 marks = 30** (concepts, CAS numbers, short numericals)
Section B (paper)	**Any 5 of Q2–Q8**, 14 marks each = 70; Q8 is short theory (three parts)
ICMAI study weightage	A Introduction **5%** · Elements of cost **15%** · CAS 1–24 **10%** · Cost bookkeeping **10%** · B Methods of costing **30%** · C Techniques (marginal costing, standard costing – **material and labour variances only**, budgets) **30%**
Typical Section B order	Q2 cost sheet / materials · Q3 overheads / reconciliation or integrated accounts · Q4 operating + contract costing · Q5 process costing + variances · Q6 marginal costing · Q7 budgets + CAS · Q8 theory

Chapter 1: Introduction to Cost Accounting

1.1 Objectives, scope and users

- **Cost accounting** – the application of costing and cost accounting principles, methods and techniques to the ascertainment of costs and the analysis of savings/excesses against standards. **Management accounting** – the application of accounting information to planning, control and decision making.
- **Objectives:** ascertainment of cost; determination of selling price; **cost control and cost reduction**; ascertainment of profit of each activity; assisting management in decision making (make or buy, shut down, pricing); valuation of inventory.
- **Users:** management (pricing, budgeting, performance), employees and unions (bonus, wage negotiations), Government (price fixation, cost audit), investors and lenders, consumers.
- **Relationship:** financial accounting – historical, statutory, whole business; cost accounting – product/department-wise, both historical and estimated, mostly internal; management accounting – uses both for decisions; **financial management** – procurement and use of funds.

1.2 Cost terms and concepts

Term	Meaning
Cost object	Anything for which a cost is measured – product, service, customer, project, department
Cost unit	Unit of product/service in which cost is expressed – per tonne (steel), per km (transport), per patient-day (hospital), per kWh (power), per 1,000 bricks
Cost centre	Location, person or item of equipment for which costs are ascertained – production/service, personal/impersonal, operation/process centres
Responsibility centre	Cost centre (cost), revenue centre (revenue), **profit centre** (revenue and cost), **investment centre** (profit and capital employed – ROI, residual income)
Cost driver	The factor that causes a change in cost (number of set-ups, machine hours, orders)
Opportunity cost	Value of the next best alternative foregone
Sunk cost	Historical cost already incurred – **irrelevant** for decisions
Relevant cost	Future cost that **differs** between alternatives
Differential / incremental cost	Change in total cost between two alternatives
Imputed (notional) cost	Cost not actually incurred, e.g. notional rent of own building, interest on own capital – used in cost accounts, not financial accounts
Out-of-pocket cost	Cost involving cash outflow
Discretionary cost	Fixed costs set by management decision (advertising, R&D)
Engineered cost	Cost with a definite physical relationship to output (material per unit)
Explicit / implicit cost	Paid out vs. notional

1.3 Cost control vs cost reduction

Basis	Cost control	Cost reduction
Aim	Achieve the **target/standard** cost	**Real and permanent reduction** in unit cost below standard
Nature	Preventive, ends when standards are achieved	Corrective; continuous; challenges the standards
Techniques	Budgetary control, standard costing	Value analysis, work study, quality improvement
Assumption	Standards are correct	Standards can be improved

1.4 Elements and classification of cost

- **Elements:** material, employee (labour) and expenses – each **direct** or **indirect**; indirect ones form **overheads** (production, administration, selling, distribution).

- **By behaviour: fixed** (constant in total, falls per unit as output rises), **variable** (constant per unit), **semi-variable** (part fixed, part variable – telephone, power), **step** costs (fixed within a range, jump beyond – supervisor salaries).
- **Separating semi-variable costs:** (i) **high–low (range) method**, (ii) analytical/comparison method, (iii) scattergraph, (iv) least squares.

Variable cost per unit (high–low) = (Cost at high level − cost at low level) ÷ (High output − low output)

Fixed cost = Total cost at any level − (variable cost per unit × output at that level)

WORKED EXAMPLE **High–low method**

At 6,000 units, power cost is ₹70,000; at 10,000 units, ₹90,000. Variable cost = 20,000 ÷ 4,000 = **₹5 per unit**; fixed cost = 70,000 − 6,000 × 5 = **₹40,000**. Estimated cost at 8,000 units = 40,000 + 40,000 = **₹80,000**.

- **Methods of costing:** job, batch, contract, **unit/single output**, process, operating/service, multiple. **Techniques:** historical, **standard costing**, **marginal costing**, **budgetary control**, uniform costing.

1.5 Installation of a costing system and digital costing

- **Points to consider:** nature of business and product; organisational structure; existing records; size and layout; cost of the system (should not exceed its benefits); co-operation of staff; level of detail needed; methods of maintaining accounts (integral/non-integral).
- **Practical difficulties:** lack of management support; resistance from staff; non-co-operation at other levels; shortage of trained staff; heavy cost of installation. Overcome by **training, involvement** and showing benefits.
- **Digital costing** (new syllabus): use of **ERP systems** (integrated modules for procurement, inventory, production and costing), **Government e-Marketplace (GeM)** for public procurement, data analytics, AI-assisted machine use, cloud-based cost databases and job-cost cards.
- **Cost Accounting Standards (CAS)** – issued by the ICMAI's Cost Accounting Standards Board; Companies (Cost Records and Audit) Rules, 2014 require specified companies to maintain cost records (s. 148, Companies Act).

Chapter 2: Preparation of Cost Sheet and Ascertainment of Profit

2.1 Format (manufacturing)

```
Direct materials consumed (opening + purchases + carriage inward - closing - returns - sale of scrap)
xxx
Direct employee (labour) cost                                                                    xxx
Direct expenses                                                                                  xxx
PRIME COST                                                                                       xxx
Add: Works/factory overheads                                                                      xxx
GROSS WORKS COST                                                                                 xxx
Add: Opening WIP  Less: Closing WIP                                                              xxx
WORKS / FACTORY COST                                                                             xxx
Add: Quality control cost, R&D (production), administration overheads relating to production     xxx
Less: Credit for recoveries / scrap / by-products / saleable waste                              (xx)
Add: Primary packing cost                                                                        xxx
COST OF PRODUCTION                                                                               xxx
Add: Opening stock of finished goods  Less: Closing stock of finished goods                      xxx
COST OF GOODS SOLD                                                                               xxx
Add: Administration overheads (general), selling and distribution overheads                      xxx
COST OF SALES                                                                                    xxx
Profit / (Loss)                                                                                  xxx
SALES                                                                                            xxx
```

2.2 Treatment of special items

Item	Treatment in cost sheet
Interest on borrowings, dividends, income tax, donations, fines, penalties, loss on sale of assets, goodwill written off, preliminary expenses	**Excluded** – pure financial items
Abnormal losses (fire, strikes, abnormal idle time, abnormal scrap)	**Excluded** – costing P&L
Cash discount allowed	Excluded (finance) – or selling overhead as per study-material illustration if stated
Notional rent/interest on own capital	Included (imputed cost) if cost accounts are to reflect them
Bad debts (normal)	Selling overhead
Primary packing	Cost of production; secondary – distribution
Subsidy from Government for production	Reduce the related cost (if specific) VERIFY
Wages for idle time during a **lockdown** (abnormal)	Costing P&L
Royalty on production	Direct expense; royalty on sales – selling overhead

- **Service-sector cost sheet:** direct material (if any), direct employee cost, direct expenses, overheads (service-related), administration, selling → **total cost per unit of service** (per patient-day, per passenger-km, per room-day).

Chapter 3: Material Costs (CAS 6)

3.1 Procurement and valuation of receipts

- **Purchase procedure:** purchase requisition (by storekeeper/user department) → selection of supplier (quotations, tenders, **GeM** for Government buyers) → **purchase order** → receipt and inspection (**goods received note**, inspection report) → checking and passing of invoice → payment.
- **Bill of materials (BOM):** a schedule of the standard quantities of materials for a job/product – used by **purchase** (planning purchases), **production** (issuing material), **stores** (preparing for issue) and **costing** (comparing actual vs standard; job cost estimate). **Material requisition note** – authority to the storekeeper to issue.
- **Valuation of receipts (CAS-6):** purchase price + duties and taxes (**excluding those for which credit is available**, e.g. GST ITC) + freight inward, insurance, other expenditure directly attributable – **trade discounts, rebates**, duty drawback, **refundable taxes**. **Cash discount** is **not deducted** (finance item). Demurrage/detention charges, penalties – **not** material cost (charged to costing P&L). Normal loss is absorbed (raises unit cost); abnormal loss is written off.

3.2 Stock levels

Re-order level (ROL) = Maximum consumption × Maximum lead time [or Safety stock + lead-time consumption]

Minimum level = ROL – (Normal/average consumption × Normal/average lead time)

Maximum level = ROL + ROQ – (Minimum consumption × Minimum lead time)

Average stock level = ½ (Minimum level + Maximum level) [or Minimum level + ½ ROQ]

Danger level = Normal (or minimum) consumption × Lead time for emergency purchases

Safety stock = Annual demand ÷ 365 × (Maximum lead time – Normal lead time) [or (max usage × max LT) – (avg usage × avg LT)]

WORKED EXAMPLE Stock levels (verified)

Consumption per week – maximum 600, normal 450, minimum 300 units; lead time – maximum 6, normal 4, minimum 2 weeks; ROQ 2,000 units.

ROL = 600 × 6 = **3,600**; minimum = 3,600 – 450 × 4 = **1,800**; maximum = 3,600 + 2,000 – 300 × 2 = **5,000**; average = ½ (1,800 + 5,000) = **3,400** (alternatively 1,800 + ½ × 2,000 = 2,800).

3.3 Economic order quantity (EOQ)

EOQ = √(2 × A × O ÷ C) A = annual demand (units), O = ordering cost per order, C = carrying cost per unit per year

At EOQ, **annual ordering cost = annual carrying cost**. Total inventory cost = purchase cost + (A ÷ Q) × O + (Q ÷ 2) × C. With **quantity discounts**, compare the total cost at EOQ with the total cost at each discount break-point and choose the lowest.

WORKED EXAMPLE EOQ and a discount offer (verified)

A = 20,000 units; O = ₹250; C = ₹10 per unit per year; price ₹100.

EOQ = √(2 × 20,000 × 250 ÷ 10) = **1,000 units**; orders = 20; ordering cost 5,000 = carrying cost 5,000; total = 20,00,000 + 10,000 = **₹20,10,000**. If the supplier offers 1% discount for orders of 4,000 units: purchase 19,80,000 + ordering 5 × 250 = 1,250 + carrying 2,000 × 10 = 20,000 → **₹20,01,250** – accept the discount (saves ₹8,750).

3.4 Inventory control techniques

- **ABC analysis** (always-better control): A items – about **10% of items, 70% of value** – tight control, frequent review; B – 20% items, 20% value; C – 70% items, 10% value – simple control. **VED** (vital, essential, desirable – spares); **FSN** (fast, slow, non-moving); **HML** (high, medium, low unit price); **SDE** (scarce, difficult, easy availability); **perpetual inventory system** with **continuous stock-taking**; **JIT** – a **demand-pull** system: produce/buy only when demanded; principles – (i) produce only what is required, (ii) eliminate waste; zero inventory, small lots, reliable suppliers.

Inventory turnover ratio = Cost of materials consumed ÷ Average stock of materials (days = 365 ÷ ratio)

3.5 Pricing of issues

Method	Issue price	Effect when prices rise
FIFO	Earliest lots first	Issues at old (low) cost; closing stock at current prices; higher profit
LIFO	Latest lots first	Issues at current cost; closing stock undervalued (not permitted by AS 2/Ind AS 2)
Simple average	Average of prices in stock (ignoring quantities)	Rough
Weighted average	Total cost ÷ total units in stock, recomputed after each receipt	Smooths fluctuations; allowed by AS 2
Standard / inflated / replacement price	Pre-set or current	For control or special cases

Returns: materials returned to the **supplier** are shown at their purchase price (as an issue); **returns from production** (excess issues) are taken back at the **price of the original issue** – under FIFO treated as a fresh receipt at that price or adjusted to the next issue as per study-material illustration. **Shortage** found on stock-taking: normal – absorbed in the issue price (inflated price); abnormal – written off to costing P&L.

3.6 Material losses

Loss	Nature	Treatment
Waste	Unavoidable, no value	Normal – absorbed in good units; abnormal – costing P&L
Scrap	Small realisable value	Normal: credit realised value to the job/process or to overheads; abnormal: costing P&L
Spoilage	Damaged units that cannot be rectified	Normal: cost borne by good units; abnormal: costing P&L
Defectives	Can be rectified at extra cost	Normal: rectification cost charged to job/overhead; abnormal: costing P&L

3.7 Physical verification; slow-moving and non-moving stock

- **Physical verification** – **periodic** (all items counted at the year end, work stopped) or **continuous** (a few items counted every day by a stock-verification team, so every item is checked several times a year without stopping work). Continuous verification detects discrepancies early and acts as a moral check.
- **Discrepancies: normal** (evaporation, breaking of bulk, absorption of moisture) – absorbed in the cost of good units (inflate the issue price) or charged to overheads; **abnormal** (theft, fire, carelessness) – charged to the **Costing Profit and Loss A/c** (CAS 6).
- **Slow-moving and non-moving stock** – identified through the **inventory turnover ratio** = cost of materials consumed ÷ average stock (higher is better) and **inventory days** = 365 ÷ turnover ratio. **FSN analysis** classifies items as fast, slow and non-moving. Remedies: stop purchases, use in substitution, sell or scrap; provision for obsolescence is a financial item, not a cost (CAS 6).

Chapter 4: Employee Costs (CAS 7) and Direct Expenses (CAS 10)

4.1 Employee cost (CAS-7)

- **Includes:** wages/salary, overtime (at normal rate), bonus, incentives, employer's PF/ESI contributions, gratuity, leave pay, welfare costs, perquisites. **Excludes:** penalties, abnormal idle time, cost of strikes (charged to costing P&L).
- **Departments involved:** personnel/HR (recruitment, records), engineering and work study (job evaluation, standards), **time-keeping** (attendance – gate cards, biometric), **time-booking** (job cards – time spent on each job), payroll, cost accounting.

Effective hourly cost = Total annual employee cost ÷ Effective productive hours (excluding leave, holidays and normal idle time)

4.2 Idle time and overtime

Item	Normal (unavoidable)	Abnormal (avoidable)
Idle time – power failure, waiting for work, breakdown	Included in the labour rate / treated as production overhead	Charged to **costing P&L**
Overtime premium	(i) general pressure of work – production overhead; (ii) at customer's request – charged to that **job**	Due to bad planning/abnormal causes – **costing P&L**

4.3 Remuneration and incentive schemes

Halsey premium = Time allowed (TA), time taken (TT), rate R: Earnings = TT × R + 50% × (TA − TT) × R

Rowan premium = Earnings = TT × R + [(TA − TT) ÷ TA] × TT × R

Emerson efficiency = Below 66⅔% – time wage; 66⅔%–100% – bonus rising to 20%; above 100% – 20% + 1% for each 1% above 100%

Taylor differential piece rate = 83% of piece rate below standard; 125% of piece rate at/above standard

Merrick's multiple piece rate = Up to 83% efficiency – normal rate; 83%–100% – 110%; above 100% – 120% of the normal rate

Gantt task bonus = Below standard – time rate (guaranteed); at standard – time rate + bonus (usually 20%); above standard – high piece rate

WORKED EXAMPLE **Halsey vs Rowan (verified)**

Time allowed 10 hours; time taken 8 hours; rate ₹50 per hour. **Halsey:** 8 × 50 + 50% × 2 × 50 = **₹450** (₹56.25 per hour). **Rowan:** 8 × 50 + (2 ÷ 10) × 8 × 50 = **₹480** (₹60 per hour). Rowan pays more when time saved is **below 50%** of time allowed; both pay the same at 50% saving; Halsey pays more above that.

- **Features of a good incentive scheme:** simple and easy to understand; fair to workers and management; **gains shared** (not all to workers – Halsey/Rowan); quality maintained (tie bonus to output **meeting quality standards**); guaranteed minimum wage; prompt payment; acceptable to unions. **Group schemes:** Priestman's, Scanlon, Rucker, Towne gain-sharing; **budgeted expenses bonus**, **cost efficiency bonus**.

4.4 Labour turnover

Separation method = Number of separations ÷ Average number of workers × 100

Replacement method = Number replaced ÷ Average number of workers × 100

Flux method = (Separations + Replacements) ÷ Average workers × 100 [with new accessions: (Separations + Accessions) ÷ Average workers × 100]

WORKED EXAMPLE Labour turnover (verified)

Workers at the start 380, at the end 420 (average 400). Separations 30; replacements 24; new recruits for expansion 12. Separation **7.5%**; replacement **6%**; flux (separations + replacements) **13.5%**; flux including all accessions (30 + 36) **16.5%**.

- **Causes:** personal (marriage, health), unavoidable (retirement, death), **avoidable** (low pay, poor conditions, lack of promotion, bad relations). **Costs: preventive** (welfare, personnel department) and **replacement** (recruitment, training, lower output of new workers, scrap, tool breakage).

4.5 Direct expenses (CAS-10)

Expenses other than material and employee cost that can be **identified** with a cost object – royalty based on production, hire charges for special equipment, cost of special designs/patterns for a job, sub-contract (job work) charges, **software development cost for a specific product**. Measured at invoice price/actual cost net of recoverable taxes.

4.6 Time keeping, time booking and payroll

Function	Purpose	Methods
Time keeping	Record attendance – arrival and departure – for wage calculation and discipline	Attendance register; metal disc/token method; **clock cards** (time-recording clock); biometric and smart-card systems
Time booking	Record how the time at work was **spent** – on which job, process or idle	**Job cards** (one per job or one per worker), daily/weekly **time sheets**
Payroll	Compute and pay wages; deductions (PF, ESI, TDS); cost allocation	Wage sheet (payroll), pay slips, wage abstract that analyses wages by cost centre

Reconciliation of clock-card hours (attendance) with job-card hours (booked) gives **idle time**. Employee cost reporting (CAS 7) covers wages, bonus, perquisites, compensated absences and employer's contributions.

Chapter 5: Overheads – Collection, Apportionment and Absorption (CAS 3, 11, 15)

5.1 Classification and steps

- **Functions:** production (factory), administration, selling, distribution, research and development. **Behaviour:** fixed, variable, semi-variable. **Steps:** collection → **allocation** (wholly to one cost centre) → **apportionment** (shared on a fair basis) → **re-apportionment** of service departments (secondary distribution) → **absorption** into products.

Overhead	Basis of apportionment
Rent, rates, building insurance, lighting (if no meters), heating	**Floor area**
Power	Horse power × machine hours (or kWh)
Depreciation and insurance of plant	**Capital value** of plant
Canteen, welfare, supervision, personnel	**Number of employees**
Stores overhead	Value or number of material requisitions
Lighting	Number of light points
Repairs	Machine hours or capital value

5.2 Secondary distribution

Method	When used
Direct re-distribution	Service departments' costs go only to production departments (ignores inter-service work)
Step (non-reciprocal) method	Service department serving the largest number of departments closed first; no return of cost
Repeated distribution	Reciprocal services – distribute repeatedly until amounts become negligible
Trial and error / simultaneous equations	Reciprocal services – solve X = S1 + share of Y; Y = S2 + share of X

WORKED EXAMPLE Simultaneous equations (verified)

Primary totals: P1 ₹2,00,000, P2 ₹1,60,000, P3 ₹1,40,000, S1 ₹55,000, S2 ₹38,000. S1 serves P1 40%, P2 30%, P3 10%, S2 20%; S2 serves P1 30%, P2 40%, P3 20%, S1 10%.

X = 55,000 + 0.10Y; Y = 38,000 + 0.20X → X = **₹60,000**, Y = **₹50,000**.

P1 = 2,00,000 + 24,000 + 15,000 = **₹2,39,000**; P2 = 1,60,000 + 18,000 + 20,000 = **₹1,98,000**; P3 = 1,40,000 + 6,000 + 10,000 = **₹1,56,000** (total ₹5,93,000 = all primary overheads).

5.3 Absorption

- **Methods:** percentage of direct material cost, prime cost or direct wages; **direct labour hour rate**; **machine hour rate**; rate per unit of production.
- **Blanket rate** (single rate for the whole factory) vs **departmental rates** – departmental rates are preferred where products spend **different times** in departments.

Machine hour rate = Overheads of the machine (standing + running charges) ÷ Productive machine hours

WORKED EXAMPLE **Machine hour rate (verified)**

Machine cost ₹9,60,000, scrap value ₹60,000, life 10 years; working hours 2,000 a year including 200 hours for maintenance; repairs ₹36,000 p.a.; rent and insurance share ₹54,000 p.a.; supervision share ₹72,000 p.a.; power 12 units per running hour at ₹10.

Standing charges = depreciation 90,000 + repairs 36,000 + rent/insurance 54,000 + supervision 72,000 = 2,52,000 ÷ 1,800 productive hours = ₹140; power ₹120 per hour → **MHR = ₹260**.

5.4 Under- and over-absorption

Pre-determined rate = Budgeted overheads ÷ Budgeted base (hours/units)

- Causes: error in estimating overheads or base; seasonal variation; idle capacity; change in methods.
- **Treatment:** (i) small amounts – **costing P&L**; (ii) large amounts due to wrong estimates – **supplementary rate** to cost of sales, finished goods and WIP (in the ratio of overheads absorbed or units); (iii) due to abnormal factors (idle capacity, strikes) – **costing P&L**; (iv) carried forward in seasonal businesses.
- **Entries:** overheads absorbed – Dr WIP, Cr Overhead control; under-absorption – Dr Costing P&L, Cr Overhead control; over-absorption – Dr Overhead control, Cr Costing P&L.

5.5 Administration, selling and distribution overheads

Administration – usually absorbed as % of works cost, or treated as period cost; **selling** – % of sales or per unit; **distribution** – per unit. **R&D:** basic research – period cost; applied/development for a product – charged to that product (amortised). **Packing:** primary packing – direct material; **secondary packing** for transport – distribution overhead; fancy packing – selling overhead.

Chapter 6: Cost Accounting Standards (CAS 1 to CAS 24)

6.1 Background

The **Cost Accounting Standards Board (CASB)** of the Institute of Cost Accountants of India issues CAS. Under **s. 148** of the Companies Act, 2013 and **Rule 5 of the Companies (Cost Records and Audit) Rules, 2014**, companies required to maintain cost records must follow the **Generally Accepted Cost Accounting Principles and CAS** issued by the Institute (as recognised by the Central Government). Each CAS has the same structure: introduction, **objective**, **scope**, definitions, **principles of measurement**, **assignment of costs**, **presentation** and **disclosures**.

6.2 List of CAS

CAS	Title	CAS	Title
1	Classification of Cost	13	Cost of Service Cost Centre
2	Capacity Determination	14	Pollution Control Cost
3	Production and Operation Overheads	15	Selling and Distribution Overheads
4	Cost of Production for Captive Consumption	16	Depreciation and Amortisation
5	Average (Equalized) Cost of Transportation	17	Interest and Financing Charges
6	Material Cost	18	Research and Development Costs
7	Employee Cost	19	Joint Costs
8	Cost of Utilities	20	Royalty and Technical Know-how Fee
9	Packing Material Cost	21	Quality Control
10	Direct Expenses	22	Manufacturing Cost
11	Administrative Overheads	23	Overburden Removal Cost
12	Repairs and Maintenance Cost	24	Treatment of Revenue in Cost Statements

6.3 Key principles of the most-asked standards

CAS	Key principles
CAS 1	Classification by nature (material, employee, expenses), function (production, administration, S&D, R&D), **direct/indirect**, behaviour (fixed, variable, semi-variable), normality, controllability, time (historical/pre-determined), decision making (marginal, differential, opportunity cost)
CAS 2	Capacity = installed (maximum, after maintenance), **normal** (average over periods under normal conditions – used for absorbing fixed overheads), actual and idle capacity; abnormal idle capacity cost is not part of product cost
CAS 3	Production overheads are absorbed on the basis of **normal capacity**; unabsorbed overheads due to abnormal idle capacity go to the costing P&L; disclosures of overheads incurred and absorbed
CAS 4	Captive consumption – goods used within the organisation are valued at **cost of production**: materials, employee cost, direct expenses, production overheads, administrative overheads relating to production, quality control, R&D and packing relating to production, less credits for scrap and by-products; **finance costs and selling and distribution overheads are excluded** VERIFY
CAS 5	Equalised transportation cost – average cost of transporting goods from the factory to the depot/destination; excludes abnormal costs and penalties
CAS 6	Material cost = purchase price + duties and taxes (less recoverable credits) + freight inwards + insurance + other directly attributable costs, **less** trade discounts, rebates and recoverable taxes; issues by FIFO, weighted average or other systematic method; normal loss absorbed, abnormal loss excluded; **finance costs excluded**
CAS 7	Employee cost includes wages, salaries, bonus, perquisites, employer's contributions, gratuity, leave encashment; idle time cost due to abnormal reasons excluded; overtime premium is direct if job-specific
CAS 8	Utilities – power, steam, water, compressed air: cost of generation (or purchase) assigned on actual consumption
CAS 10	Direct expenses – expenses other than material and employee cost **directly traceable** to a cost object (royalty on production, job-specific hire charges, design charges, sub-contract work); measured at invoice value less discounts plus incidental costs; assigned directly

CAS	Key principles
CAS 11	Administrative overheads – absorbed on a rational basis; **abnormal** administrative costs (e.g. heavy penalties, abnormal legal costs) are **excluded** from cost
CAS 12	Repairs and maintenance – the cost of materials, employees, and services used for repairs; assigned to the cost objects benefited; capitalised repairs are excluded
CAS 15	Selling and distribution overheads – selling (promotion, sales staff, commission) and distribution (warehousing, transport to customers); absorbed on the basis of sales value or quantity; excluded from inventory valuation
CAS 16	Depreciation on the basis of useful life; amortisation of intangibles; not on idle assets unless relevant
CAS 19	Joint costs are apportioned to joint products on physical units, **NRV/sales value at split-off**, or other rational basis; by-products are valued at NRV and credited to the joint cost
CAS 20	Royalty and technical know-how fee linked to production are **direct expenses** of the product; lump-sum know-how fees are amortised
CAS 22	Manufacturing cost = direct materials + direct employee + direct expenses + manufacturing overheads (based on normal capacity) + ... less credits for scrap and by-products
CAS 24	Revenue in cost statements is the value of sales **net of** discounts, rebates and taxes; excludes non-operating income

EXAM TIP **Answering a CAS question**

Write the **objective** (one sentence), the **scope** (to whom and for what it applies), three or four **principles of measurement**, and the main **disclosures**. Examiners asked CAS 3, 5, 8 and 10 in the last four papers.

Chapter 7: Cost Book-Keeping – Non-integrated, Integrated and Reconciliation

7.1 Non-integrated (cost control accounts)

Separate cost ledgers: **Cost Ledger Control A/c** (General Ledger Adjustment A/c) records items from the financial books; Stores Ledger Control, WIP Control, Finished Goods Control, Overhead Control A/cs, Cost of Sales A/c, Costing P&L A/c.

Transaction	Entry (non-integrated)
Purchase of materials	Stores Ledger Control Dr / Cost Ledger Control Cr
Issue of direct materials	WIP Control Dr / Stores Ledger Control Cr
Wages paid	Wages Control Dr / Cost Ledger Control Cr
Direct wages charged	WIP Control Dr / Wages Control Cr
Overheads incurred	Overhead Control Dr / Cost Ledger Control Cr
Overheads absorbed	WIP Control Dr / Overhead Control Cr
Finished goods	Finished Goods Control Dr / WIP Control Cr
Cost of sales	Cost of Sales Dr / Finished Goods Control Cr
Sales	Cost Ledger Control Dr / Costing P&L Cr

7.2 Integrated accounts

A single set of books for both purposes – no Cost Ledger Control A/c; real and personal accounts (bank, debtors, creditors) are kept. **Advantages:** no reconciliation, saving in effort, prompt data. **Pre-requisites:** clear policy on the extent of integration, suitable coding, centralised control, agreement on treatment of notional items.

7.3 Reconciliation of cost and financial profits

Reasons: items only in financial accounts (interest/dividend received, rent received, profit/loss on sale of assets, fines, donations, income tax, preliminary expenses, goodwill written off); items only in cost accounts (**notional rent, interest on own capital**); **under/over-absorption** of overheads; **different stock valuations** (opening and closing stock of materials, WIP, finished goods); different depreciation methods.

WORKED EXAMPLE **Reconciliation (verified)**

Profit as per cost accounts ₹5,00,000. Items: dividend received ₹20,000 (only in financial accounts); preliminary expenses written off ₹15,000; overheads under-absorbed in cost accounts ₹30,000; closing stock valued ₹12,000 higher in financial accounts; interest on loan ₹8,000 (only in financial accounts); notional rent charged in cost accounts ₹25,000.

Profit as per financial accounts = 5,00,000 + 20,000 − 15,000 − 30,000 + 12,000 − 8,000 + 25,000 = **₹5,04,000**.

Rule: start with cost profit → **add** incomes only in financial books, over-absorption, notional costs, higher closing stock (or lower opening stock) in financial books → **deduct** expenses only in financial books, under-absorption, lower closing stock (or higher opening stock) in financial books. A **memorandum reconciliation account** may be prepared instead.

Chapter 8: Unit and Batch Costing

- **Unit (single/output) costing:** one product or a few grades; cost per unit = total cost ÷ units (cost sheet). Industries: bricks, cement, steel, mining, dairy, paper.
- **Batch costing:** a batch of identical units is the cost unit (pharma, toys, garments, components). **Economic batch quantity (EBQ):**

EBQ = √(2 × D × S ÷ C) D = annual demand, S = set-up cost per batch, C = carrying cost per unit per year

WORKED EXAMPLE **EBQ (verified)**

D = 60,000 units; set-up cost ₹600 per batch; carrying cost ₹2 per unit per year → EBQ = √(2 × 60,000 × 600 ÷ 2) = **6,000 units**; 10 batches a year.

Chapter 9: Job Costing

- Each **job** is a cost unit (printing, furniture, repairs, interior decoration). **Job cost card/sheet** – records material (requisitions), labour (job cards), overheads (absorbed), and computes profit/price. **Databases** of past jobs help estimation and quotations.
- **Work-in-progress** – the cost of incomplete jobs at the period end. **Profit on incomplete jobs** – not credited.
- **Advantages:** profitability of each job; basis for estimating future jobs and quotations; control of spoilage and defectives by job; helps in price fixation; identifies efficient and inefficient jobs. **Limitations:** clerical work; costs are historical; difficulties with jobs of short duration.
- **Defective work:** normal defectives – charged to general overhead (if common to all jobs) or the specific job; abnormal – costing P&L.

Chapter 10: Contract Costing

10.1 Features and terms

A **contract** is a large job, usually lasting more than one year and executed at the customer's site (construction, shipbuilding). Each contract is a **cost unit** with its own Contract A/c. Most costs are **direct** (materials, wages, plant, sub-contract, site expenses).

Term	Meaning
Work certified	Value of work completed and certified by the architect/engineer (at contract price)
Work uncertified	Work done but not yet certified – valued at **cost**
Retention money	Part of the certified amount withheld by the contractee as security (certified – cash received)
Notional profit	(Work certified + work uncertified) – cost of work to date
Escalation clause	Allows the contract price to be raised if prices of materials/labour rise beyond an agreed level
Cost-plus contract	Price = cost + an agreed percentage of profit (government and defence contracts)
Plant at site	Charged by depreciation (or plant A/c debited at cost and credited at WDV at the end)

10.2 Profit to be credited to the Costing P&L on incomplete contracts

Stage of completion (work certified ÷ contract price)	Profit to be recognised
Less than 25%	**Nil**
25% to less than 50%	**1/3 × notional profit × cash received ÷ work certified**
50% to less than 90%	**2/3 × notional profit × cash received ÷ work certified**
90% or more (nearly complete)	**Estimated total profit × work certified ÷ contract price** (or × cash received ÷ contract price)

A **loss** on a contract is charged to the costing P&L in full. The balance of notional profit is carried as a **reserve** and deducted from work-in-progress in the balance sheet.

WORKED EXAMPLE Profit on an incomplete contract (verified)

Contract price ₹50,00,000. Cost to date ₹30,00,000; work certified ₹35,00,000; work uncertified (at cost) ₹2,00,000; cash received 80% of work certified = ₹28,00,000.

Notional profit = 35,00,000 + 2,00,000 − 30,00,000 = **₹7,00,000**. Stage = 35/50 = 70% → profit = 2/3 × 7,00,000 × 28,00,000 ÷ 35,00,000 = **₹3,73,333**. Reserve = ₹3,26,667. WIP in the balance sheet = 37,00,000 − 3,26,667 − cash 28,00,000 = ₹5,73,333.

10.3 Accounting standard note

For financial reporting, revenue on construction contracts follows **AS 7 / Ind AS 115** (percentage-of-completion or over-time recognition); the cost-accounting rule of thumb above is used in examination problems unless the question asks otherwise.

Chapter 11: Process Costing – Losses, Equivalent Production and Inter-process Profit

11.1 Process losses

- **Normal loss** – expected; its cost is borne by good units; scrap value credited to the process.
- **Abnormal loss** – excess of actual loss over normal; valued like good units; transferred to **Abnormal Loss A/c** (credited with its scrap value; balance to costing P&L).
- **Abnormal gain** – actual loss less than normal; valued like good units; debited to the process; Abnormal Gain A/c is debited with the scrap value foregone; balance credited to costing P&L.

Cost per unit of normal output = (Total process cost – scrap value of normal loss) ÷ (Input units – normal loss units)

WORKED EXAMPLE Normal and abnormal loss (verified)

Input 10,000 units at ₹20 = 2,00,000; labour ₹60,000; overheads ₹46,500; normal loss 5% (scrap ₹5 per unit); output 9,200 units.

Normal loss 500 units (scrap 2,500); abnormal loss = 10,000 – 500 – 9,200 = 300 units. Cost per unit = (3,06,500 – 2,500) ÷ 9,500 = **₹32**. Output 9,200 × 32 = **₹2,94,400**; abnormal loss 300 × 32 = **₹9,600** (net loss to costing P&L after scrap 1,500 = **₹8,100**).

11.2 Equivalent production

- **FIFO:** opening WIP completed first – EU = opening WIP × (1 – degree of completion) + units started and completed + closing WIP × degree. **Weighted average:** EU = units completed + closing WIP × degree (opening WIP cost added to current cost).

WORKED EXAMPLE FIFO equivalent units (verified)

Opening WIP 2,000 units (materials 100%, conversion 60%); introduced 18,000; closing WIP 3,000 (materials 100%, conversion 40%); completed 17,000. Current costs: materials ₹3,60,000; conversion ₹3,40,000.

EU materials = 15,000 + 3,000 = **18,000** → ₹20; EU conversion = 2,000 × 40% + 15,000 + 3,000 × 40% = 800 + 15,000 + 1,200 = **17,000** → ₹20.

- **Operation costing** – cost per operation (component manufacture); **process vs job costing** – continuous homogeneous output vs specific orders.

11.3 Inter-process profit

Where output is transferred from one process to the next at **cost plus a profit** (market or transfer price), each process account shows cost, profit and transfer price columns. The profit included in **closing stock** of a later process is **unrealised** and must be removed (stock reserve).

Unrealised profit in closing stock = Closing stock × (profit content of the process's total debits ÷ total debits at transfer-price value)

WORKED EXAMPLE Stock reserve (verified)

Process II receives transfers from Process I of ₹60,000 (cost to Process I ₹50,000) and incurs its own cost of ₹40,000. Total ₹1,00,000, of which unrealised profit is ₹10,000 (10%). Closing stock of Process II ₹24,000 → stock reserve = **₹2,400**; the stock is shown at ₹21,600 in the balance sheet.

Chapter 12: Joint Products and By-products (CAS 19)

- **Joint products:** two or more products of **significant value** produced simultaneously from the same input (petrol, diesel, kerosene). **By-product:** small value, incidental (molasses in sugar). **Split-off point** – where products become separately identifiable.
- **Apportionment of joint costs:** (i) **physical units**, (ii) **average unit cost**, (iii) survey/points, (iv) **sales value at split-off**, (v) **net realisable value** (final sales value – further processing – selling costs), (vi) contribution margin.

WORKED EXAMPLE Sales value at split-off (verified)

Joint cost ₹3,00,000. A: 4,000 units at ₹50 = 2,00,000; B: 6,000 at ₹30 = 1,80,000; C: 2,000 at ₹60 = 1,20,000 (total 5,00,000). Joint cost: A **₹1,20,000**, B **₹1,08,000**, C **₹72,000**.

- **By-product accounting:** (i) realisation credited to costing P&L as other income (small value); (ii) credited to the **cost of the main product** (NRV deducted from joint cost); (iii) **reverse cost method** – sales – profit – selling – further processing cost = cost at split-off; (iv) replacement/opportunity cost (when used internally).
- **Further processing decision:** process further only if **incremental revenue > incremental cost** (joint costs are irrelevant).

Chapter 13: Operating (Service) Costing – Transport, Hotel and Healthcare

13.1 Concept and cost units

Operating costing ascertains the cost of **services** rather than products. Costs are grouped into **standing (fixed) charges**, **running (variable) charges** and **maintenance charges**, and divided by a **composite cost unit**.

Industry	Cost unit
Goods transport	**Tonne-km** (absolute or commercial)
Passenger transport	**Passenger-km**
Hotel	**Room-day** (room-night), bed-night
Hospital / healthcare	**Patient-day**, bed-day, per test/operation
Power	kWh
Canteen	Per meal

13.2 Transport costing

Absolute tonne-km = Σ (distance of each leg × load carried on that leg)

Commercial tonne-km = Total distance × average load (simple average of the loads on all legs, including empty legs)

WORKED EXAMPLE Absolute and commercial tonne-km (verified)

A truck goes X → A (120 km) with 8 tonnes; unloads 3 tonnes at A and goes A → B (80 km) with 5 tonnes; returns B → X (200 km) empty. Absolute = 120 × 8 + 80 × 5 = **1,360 tonne-km**. Commercial = 400 km × (8 + 5 + 0) ÷ 3 = **1,733.33 tonne-km**.

- **Standing charges:** garage rent, insurance, road tax, driver's and cleaner's salary, interest, supervision, depreciation (time-based).
- **Running charges:** fuel, oil, tyres and tubes, depreciation (use-based), driver's trip allowance.
- **Maintenance:** repairs, overhaul, spares.
- Passenger-km = vehicles × seats × occupancy % × distance × trips × days. Fare = cost per passenger-km + profit + passenger tax (if any).

13.3 Hotel costing

Cost per **room-day** = total cost ÷ room-days occupied. Where room types differ in rent, convert to **equivalent room-days**; seasonal occupancy is computed season by season.

WORKED EXAMPLE Room rent with two room types (verified)

60 single and 40 double rooms; the double room rent is 125% of the single. Occupancy 75% for 360 days. Total annual cost ₹1,48,50,000. Desired profit **20% on rent**.

Equivalent single room-days = 360 × 75% × (60 + 40 × 1.25) = **29,700**. Cost per equivalent room-day = ₹500. Rent = 500 ÷ 0.80 = **₹625 (single)** and **₹781.25 (double)**.

13.4 Hospital (healthcare) costing

Costs are collected by departments (wards, OT, radiology, pathology, kitchen) and divided by **patient-days** or service units. Fixed costs relate to capacity (beds); variable costs relate to patient-days.

WORKED EXAMPLE **Cost per patient-day (verified)**

A 100-bed hospital; average occupancy 80% for 365 days → **29,200 patient-days**. Fixed costs ₹58,40,000 a year; variable cost ₹200 per patient-day. Cost per patient-day = 58,40,000 ÷ 29,200 + 200 = **₹400**.

Chapter 14: Marginal Costing and CVP Analysis

14.1 Concepts and formulas

- Only **variable costs** are charged to products; fixed costs are **period costs**. Stock valued at variable cost. **Absorption vs marginal profit:** differ by the fixed overhead in the change in stock – if closing stock > opening stock, **absorption profit is higher**.

Contribution = Sales – Variable cost = Fixed cost + Profit

P/V ratio = Contribution ÷ Sales × 100 = Change in profit ÷ Change in sales × 100

Break-even point (units) = Fixed cost ÷ Contribution per unit; BEP (₹) := Fixed cost ÷ P/V ratio

Margin of safety = Actual sales – BE sales = Profit ÷ P/V ratio

Sales for target profit = (Fixed cost + Target profit) ÷ P/V ratio

Angle of incidence = Angle between the sales line and total cost line at BEP – a wide angle shows high profit after BEP

Cash break-even = (Fixed cost – non-cash fixed costs) ÷ Contribution per unit

Composite BEP (multi-product) = Fixed cost ÷ Composite P/V ratio (weighted by sales mix)

WORKED EXAMPLE CVP (verified)

Selling price ₹100; variable cost ₹60; fixed cost ₹4,00,000; sales 15,000 units. P/V = **40%**; BEP = 10,000 units (**₹10,00,000**); MOS = ₹5,00,000 (**33.33%**); profit = **₹2,00,000** (= MOS × P/V). Sales for profit of ₹2,00,000 = 6,00,000 ÷ 40% = **₹15,00,000**.

14.2 Decision making

Decision	Rule
Key (limiting) factor	Rank products by **contribution per unit of the key factor** (per machine hour, per kg)
Make or buy	Buy if purchase price < **variable cost** + avoidable fixed cost + opportunity cost of capacity
Accept a special order	Accept if price > variable cost (and no effect on regular price/capacity)
Shut down / discontinue	Discontinue if contribution < **avoidable fixed costs**
Shut-down point	Avoidable fixed cost ÷ contribution per unit
Export at lower price	Accept if contribution positive and spare capacity
Sales mix	Choose the mix with the **highest total contribution**

Chapter 15: Standard Costing – Material and Labour Variances

15.1 Concepts

- **Standard cost** – a pre-determined cost under efficient conditions. Types of standards: **ideal**, **normal**, **basic** (unchanged base), **current/attainable** (most useful). **Variance analysis** – difference between standard cost of actual output and actual cost, analysed by cause; **management by exception**.
- **Advantages:** cost control, performance measurement, inventory valuation, simplifies records, motivation. **Limitations:** difficult to set standards; rapid technological change; volatile prices.

15.2 Variance formulas

Material cost variance = SQ × SP − AQ × AP = price variance + usage variance

Material price variance = (SP − AP) × AQ

Material usage variance = (SQ − AQ) × SP = mix variance + yield variance

Material mix variance = (Revised SQ − AQ) × SP [RSQ = total AQ in standard ratio]

Material yield variance = (SQ − RSQ) × SP

Labour cost variance = SH × SR − AH paid × AR = rate + efficiency + idle time

Labour rate variance = (SR − AR) × AH paid

Labour efficiency variance = (SH − AH worked) × SR

Idle time variance = (AH paid − AH worked) × SR (always adverse)

WORKED EXAMPLE Material and labour variances (verified)

Output 10,000 units. Standard: 2 kg at ₹50; 3 hours at ₹40. Actual: 21,000 kg at ₹48; 31,000 hours paid at ₹42, of which 29,000 worked.

MPV = (50 − 48) × 21,000 = **₹42,000 (F)**; MUV = (20,000 − 21,000) × 50 = **₹50,000 (A)**; MCV = 10,00,000 − 10,08,000 = **₹8,000 (A)**.

LRV = (40 − 42) × 31,000 = **₹62,000 (A)**; LEV = (30,000 − 29,000) × 40 = **₹40,000 (F)**; idle time = 2,000 × 40 = **₹80,000 (A)**; LCV = 12,00,000 − 13,02,000 = **₹1,02,000 (A)**.

- **Reconciliation** of budgeted/standard profit with actual profit by adding favourable and deducting adverse variances. **Responsibility:** price – purchase manager; usage – production; rate – personnel/HR; efficiency – production supervisor; idle time – production planning/maintenance; sales variances – sales manager.

15.3 Material mix and yield – worked example

WORKED EXAMPLE Two-material mix (verified)

Standard: 60 kg of P at ₹20 and 40 kg of Q at ₹30 give 90 kg of output (10% loss). Actual: 650 kg of P at ₹21 and 380 kg of Q at ₹28 gave **900 kg**. SQ for 900 kg = 1,000 kg input → P 600, Q 400. Revised SQ (1,030 kg in 60:40) → P 618, Q 412.

Variance	P	Q	Total
Price (SP − AP) × AQ	650 (A)	760 (F)	**110 (F)**
Mix (RSQ − AQ) × SP	640 (A)	960 (F)	**320 (F)**
Yield (SQ − RSQ) × SP	360 (A)	360 (A)	**720 (A)**
Usage = mix + yield	1,000 (A)	600 (F)	**400 (A)**

MCV = 24,000 − 24,290 = **₹290 (A)** = price 110 (F) + usage 400 (A).

15.4 Labour mix (gang composition) and sub-efficiency

Labour mix (gang) variance = (Revised SH − AH worked) × SR [RSH = total AH worked in the standard gang ratio]

Labour yield (sub-efficiency) variance = (SH − RSH) × SR; efficiency variance = mix + sub-efficiency

WORKED EXAMPLE Gang of skilled and unskilled workers (verified)

Standard gang for a 40-hour week: 10 skilled at ₹50/hour and 5 unskilled at ₹30/hour; standard output 1,000 units per week. Actual week: 8 skilled at ₹52 and 8 unskilled at ₹30, all paid 40 hours, with 2 hours of idle time each; output **960 units**.

SH for 960 units: skilled 384, unskilled 192 (standard cost ₹24,960). Hours paid 320 each (actual cost ₹26,240); hours worked 304 each. RSH (608 hours in 2:1) – skilled 405.33, unskilled 202.67.

Variance	Skilled	Unskilled	Total
Rate (SR − AR) × AH paid	640 (A)	–	**640 (A)**
Idle time (AH paid − AH worked) × SR	800 (A)	480 (A)	**1,280 (A)**
Mix (RSH − AH worked) × SR	5,066.67 (F)	3,040 (A)	**2,026.67 (F)**
Sub-efficiency (SH − RSH) × SR	1,066.67 (A)	320 (A)	**1,386.67 (A)**
Efficiency = mix + sub-efficiency	4,000 (F)	3,360 (A)	**640 (F)**

LCV = 24,960 − 26,240 = ₹1,280 (A) = rate 640 (A) + idle 1,280 (A) + efficiency 640 (F).

NOTE Syllabus scope

The ICMAI syllabus for this paper covers **material and labour variances only**; overhead and sales variances are examined at the Final level.

Chapter 16: Budgets and Budgetary Control

16.1 Concepts

- **Budget** – a quantitative plan for a future period; **budgetary control** – setting budgets, comparing actual with budget and taking corrective action. **Components of a budgetary control system:** (i) budget centres and **budget manual**; (ii) **budget committee** and budget officer; (iii) **budget period** and **key/principal budget factor** (limiting factor such as sales demand, material, capacity); (iv) comparison of actual with budget, **variance analysis** and corrective action (follow-up).
- **Types:** functional (sales, production, materials, labour, overheads, cash, capital expenditure) and **master budget**; **fixed vs flexible** (prepared for different activity levels – separates fixed, variable, semi-variable costs); **zero-based budgeting** (every item justified afresh – decision packages); **performance budgeting** (programmes, activities, results – Government); **rolling (continuous) budgets**; **activity-based budgeting**.

Production budget (units) = Budgeted sales + Closing stock of finished goods − Opening stock of finished goods

Material purchase budget = Material required for production + Closing stock of material − Opening stock of material

- **Flexible budget** – total cost at level x = fixed cost + variable cost per unit × x (+ semi-variable cost: fixed part + variable part). Semi-variable costs split by the high–low method.

16.2 Flexible budget – worked example

WORKED EXAMPLE Flexible budget (verified)

At 60% capacity (6,000 units): variable cost ₹40 per unit; semi-variable cost ₹50,000 (40% fixed); fixed cost ₹1,00,000.

Item	60% (6,000)	80% (8,000)	100% (10,000)
Variable cost @ ₹40	2,40,000	3,20,000	4,00,000
Semi-variable – fixed part	20,000	20,000	20,000
Semi-variable – variable part @ ₹5	30,000	40,000	50,000
Fixed cost	1,00,000	1,00,000	1,00,000
Total cost	**3,90,000**	**4,80,000**	**5,70,000**
Cost per unit	65	60	57

16.3 Cash budget – worked example

WORKED EXAMPLE **Cash budget for April–June (verified)**

Sales: Feb ₹80,000, Mar ₹90,000, Apr ₹1,00,000, May ₹1,20,000, Jun ₹1,50,000 – 20% cash, 50% collected next month, 30% in the second month. Purchases = 60% of the month's sales, paid next month. Wages ₹15,000 and overheads ₹10,000 (including depreciation ₹2,000) a month, paid in the month. Machinery ₹50,000 bought in May. Opening cash 1 April ₹25,000.

Item	April	May	June
Opening balance	25,000	37,000	5,000
Receipts from sales	89,000	1,01,000	1,20,000
Payments to creditors	54,000	60,000	72,000
Wages + cash overheads	23,000	23,000	23,000
Machinery	–	50,000	–
Closing balance	**37,000**	**5,000**	**30,000**

Depreciation is excluded – it is not a cash outflow.

Formula and number sheet

Topic	Formula / number
EOQ / EBQ	√(2AO ÷ C) / √(2DS ÷ C); at EOQ ordering cost = carrying cost
Stock levels	ROL = max usage × max LT; Min = ROL – avg usage × avg LT; Max = ROL + ROQ – min usage × min LT
Halsey / Rowan	TT × R + 50% × saving × R / TT × R + (saving ÷ TA) × TT × R
Labour turnover	Separation ÷ avg; replacement ÷ avg; flux (sep + rep) ÷ avg
MHR	(standing charges ÷ productive hours) + running cost per hour
Process	Cost per unit = (cost – scrap of normal loss) ÷ (input – normal loss)
Variances	MCV = MPV + MUV (MUV = mix + yield); LCV = LRV + LEV + idle time (LEV = mix + yield/sub-efficiency)
CVP	P/V = C ÷ S; BEP = F ÷ (P/V); MOS = profit ÷ (P/V); target sales = (F + target) ÷ (P/V)
Budgets	Production = sales + closing FG – opening FG; purchases = usage + closing RM – opening RM
Inventory turnover	Materials consumed ÷ average stock
Contract profit	< 25% nil; 25–50% ⅓ × NP × cash/certified; 50–90% ⅔ × NP × cash/certified; ≥ 90% estimated profit × certified/price
Operating costing	Absolute tkm = Σ distance × load; commercial tkm = total distance × average load; hotel – room-days; hospital – patient-days

Common mistakes in answers

1. Including **cash discount, interest, income tax, penalties or abnormal losses** in the cost sheet.
2. Valuing **abnormal loss/gain** at scrap value instead of the normal cost per unit.
3. Using **AH worked** in the labour rate variance – the rate variance uses **hours paid**; idle time is valued at the standard rate.
4. Forgetting **(F)/(A)** labels, or reconciling variances that do not add up to the total.
5. In secondary distribution, ignoring **reciprocal services** when the question says departments serve each other.
6. In key-factor questions, ranking by **contribution per unit** instead of **per unit of the limiting factor**.
7. In joint-product decisions, allocating **joint costs** when deciding about further processing (they are irrelevant).
8. In EOQ with discounts, comparing only purchase price, not **total cost** (purchase + ordering + carrying).
9. In process costing (FIFO), adding opening WIP cost to current costs before computing the rate.
10. Not stating **assumptions** (e.g. 52 weeks, 8-hour day, 365 days) in machine-hour and service-costing questions.
11. In contract costing, crediting the **full notional profit** – apply the ⅓/⅔ rule and the cash ratio.
12. Using absolute tonne-km when the question asks for **commercial** tonne-km (or the reverse).