



CMA INTERMEDIATE • PAPER 12 • MANAGEMENT ACCOUNTING

Student Notes

Chapter 3 • Marginal Costing



6 Topics • 6 Examined • 118 Classified Questions

ICMAI Study Material, Syllabus 2022 • Shuchita Scanner, 2026 July Edition

How to use this booklet

For each topic, first read the Study Material paragraphs named in the “Read first” line. Then prepare level by level — each level tells you what kind of mastery the examiner expects, and lists the exact Scanner questions to practise at that level.

Question lines show: **label • source & exam • question reference • category • marks • Scanner page**, then the **category** again in the column beside it and the **difficulty** of the question.

The category — **OQ** objective, **SN** short note, **DB** distinguish between, **DESC** descriptive, **CSQ** case scenario — is the **Scanner’s own**, printed in the book. A **{C}** after the exam reference means the question was **compulsory** in that paper.

The heading above each group names the **skill the question calls for** — **OBJECTIVE, REMEMBERING, UNDERSTANDING, APPLYING, ANALYSING, EVALUATING, CREATING, and PRACTICE** for a model question set by the Scanner rather than taken from a past paper. It is assigned by the SITS rubric from the directive verb and the question type. **ICMAI publishes no skill-assessment grid** for the Intermediate papers, so no weighting is implied here on the Institute’s behalf.

STUDY PRIORITY GUIDE

Chapter 3 at a Glance

This chapter carries 118 classified Scanner questions across 6 declared topics, 6 of which the examiner has actually asked. The table below breaks the chapter down by the skill each question calls for, and by the marks that skill is worth.

SKILL REQUIRED Chapter 3 • share of the chapter's 348 marks

Recall — objective questions	30.2% 105 of 348 marks • 72 questions
Remembering	8.9% 31 of 348 marks • 7 questions
Understanding	18.1% 63 of 348 marks • 14 questions
Applying	31.6% 110 of 348 marks • 20 questions
Analysing	7.2% 25 of 348 marks • 4 questions
Evaluating	4.0% 14 of 348 marks • 1 question

Recalling and explaining **57.2%** • applying, analysing and judging **42.8%** — this chapter reads **weighted towards recall and explanation**

57% of this chapter's marks are earned by recalling and explaining, and 43% by applying, analysing and judging. Across Paper 12 as a whole the split is 40% and 60%. More of this chapter's marks are earned by recalling and explaining than the paper's own balance would suggest. Reading carries further here than in most of the paper, but do not stop at reading — the application marks that remain are the ones students lose.

Every band is assigned by the SITS rubric v1-CMA and weighted on the marks printed in the Scanner. ICAI publishes no skill-assessment grid for the Intermediate papers, so the comparison is against this paper's own profile drawn from the Scanner, and no weighting is implied on the Institute's behalf.

SKILL REQUIRED	WHAT THE EXAMINER ASKS FOR	QUESTIONS
Recall — objective questions	recognise the right answer — Section A of the Scanner, 1 and 2 marks	72
Remembering	recall and reproduce	7
Understanding	explain with reasons	14
Applying	take the provision to the facts	20
Analysing	break down and compare	4
Evaluating	judge and justify	1

The Scanner's own categories for this chapter: 72 objective, 37 practical, 5 short note, 2 category not printed, 1 descriptive, 1 distinguish.

The band on each question line is SITS-assigned by written rubric. ICAI publishes no skill-assessment grid for the Intermediate papers, so no institute weighting is implied. The category beside it — OQ, SN, DB, DESC, PRAC — is the Scanner's own: OQ, SN, DB and DESC are printed in the book, and PRAC marks a question the Scanner sets under PRACTICAL QUESTIONS.

CHAPTER 3

Marginal Costing

Topic 1: Concept

CMAL2P12-C3-T01

Read first Read §3.1 Concept, ICAI Study Material Module 3, pages 99–106 — the definitions of marginal costing and of marginal cost with the cost build-up on pages 99 and 100, Illustration 1 and the conclusions drawn from it on pages 100 and 101, the seven features and the five assumptions on page 102, the advantages on pages 102 and 103, the limitations on pages 103 and 104, and contribution with the key factor measure on pages 105 and 106.

NOTES

Marginal costing, defined: the practice of charging all marginal costs to operations, processes or products and deducting all fixed costs against the profits of the period in which they arise — ‘the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs’. **J. Batty** calls it ‘a technique of cost accounting [which] pays special attention to the behaviour of costs with changes in the volume of output’. It is **not a method of costing** like job, batch, contract or process costing but a **technique** applied to those methods, and the same technique goes under the names **direct costing, variable costing, differential costing** and **out-of-pocket costing**.

Marginal cost: the amount at any given volume of output by which aggregate costs are changed if the volume of output is increased or decreased by one unit — the variable cost of one unit of a product or service, a cost that would be avoided if that unit were not produced or provided.

Marginal cost = variable cost = direct material + direct labour + direct expenses + variable overheads; the answer is an **amount in ₹, per unit**. Built out in full, the marginal cost of a period is raw material cost, direct labour cost, direct expenses, variable manufacturing expenses, the variable portion of administration expenses and the variable portion of selling and distribution expenses.

Marginal cost statement — the line	How it is built
Sales	Units sold × selling price per unit
Variable production cost	Units produced × variable production cost per unit
Add: opening inventory	Units in opening stock × the previous period's variable production cost per unit

Less: closing inventory at marginal cost	Units in closing stock × variable production cost per unit
Variable cost of sales	Variable production cost, adjusted for the two stocks
Contribution	Sales – variable cost of sales
Less: fixed costs	Charged in full against the period — production, administration, selling and distribution together
Profit	Contribution – fixed costs

Contribution: $C = S - V$, and equally $C = F + P$, where **C** is contribution, **S** sales or selling price, **V** variable cost, **F** fixed cost and **P** profit; the answer is an **amount in ₹**, taken per unit or in total. Putting the two together gives the **fundamental equation of marginal costing**, $S - V = F + P$, which holds only in total. Contribution is the amount recovered towards **fixed cost and profit** — it is not profit, and it is also called **marginal income** or **gross margin**.

The three conclusions Illustration 1 is built to draw: on 20,000 units produced at a variable cost of ₹6 against a price of ₹10, with fixed costs of ₹45,000, sales of 10,000, 15,000 and 20,000 units give contributions of ₹40,000, ₹60,000 and ₹80,000 and a loss of ₹5,000 followed by profits of ₹15,000 and ₹35,000. **Profit per unit varies** with the level of sales, because the average fixed overhead per unit changes with volume; **contribution per unit is constant** at every level, so total contribution moves in direct proportion to the volume sold; and closing inventory is valued at **marginal production cost** alone. Where total contribution exceeds fixed cost there is a profit, where it exactly equals fixed cost there is neither profit nor loss, and where it falls short there is a loss.

The measure of profitability when a factor is short: with no limitation on any input, the product carrying the **larger contribution** is the more profitable — on prices of ₹100, ₹150 and ₹200 against variable costs of ₹50, ₹70 and ₹100, contributions of ₹50, ₹80 and ₹100 rank C first. Where one input is limited, profitability is **contribution per unit ÷ the units of the limited factor the product consumes**; the same three products taking 1 kg, 2 kg and 5 kg of a scarce material return ₹50, ₹40 and ₹20 a kilogram, and A now ranks first. The limited factor is called the **key factor**, and equally the scarce, governing, limiting or constraining factor.

Seven features: marginal costing shows the impact of variable cost on the volume of output; **break-even analysis is an integral part of it**; the contribution of each product or department is the foundation for judging its profitability; **variable cost plus contribution equals selling price**, contribution being fixed cost plus profit, so that selling price is variable cost + fixed cost + profit — the Study Material's item (d) on page 102 reads **addition of variable cost and profit to contribution is equal to selling price**, which counts the profit twice and does not hold; it is the basis on which finished stock and work in progress are valued; **fixed cost is recovered from contribution while variable cost is charged to production**; and costs are classified as fixed or

variable only, semi-fixed costs being split between the two.

Five assumptions: all elements of cost — production, administration, and selling and distribution — can be segregated into fixed and variable components; **variable cost per unit is constant** at every level of output, so total variable cost moves in direct proportion to volume; **selling price per unit is constant** at all levels of activity; **fixed cost is constant** for the entire volume of production; and the **volume of output is the only factor influencing costs**.

The advantages worth carrying: the technique is simple to operate and the statements are uncomplicated because fixed costs are kept out of unit cost; it avoids the varying charge per unit that comes of absorbing fixed overhead, and with it the whole business of allocation, apportionment and **under- or over-absorption of fixed overheads**; marginal cost per unit stays the same at every level of activity, which helps production planning; it **prevents the carry forward of the current year's fixed overhead in closing stock**, so there are no fictitious profits from over-valued stock; it yields the break-even point, the profit expected at different levels, and the sales needed for a target profit; and it supports pricing, product-mix selection, make or buy, key-factor problems, shut-down decisions and management by exception.

The limitations — the set to learn as a list: the **separation of cost into fixed and variable is difficult** and sometimes misleading, because semi-variable costs divide only arbitrarily, variable cost does not stay proportional under the laws of diminishing and increasing returns, selling prices do not hold for ever, and fixed costs do not stay constant beyond a level of activity; the **exclusion of fixed cost from stock and work in progress is illogical**, since fixed cost is also incurred on manufacture, so stocks are undervalued and neither the profit and loss account nor the balance sheet gives a true picture; the problem of **under or over absorption survives in variable overheads**; the **time factor is ignored**, so of two jobs giving equal contribution the one taking longer is not treated as costlier; the technique **cannot be applied in contract or ship-building**, where work in progress is high and excluding fixed overhead produces losses every year and a huge profit in the year of completion; **cost control is better achieved by standard costing and budgetary control**; **a long-run selling price cannot be fixed on marginal cost alone**; and under automation the proportion of fixed cost is so high that decisions taken on marginal cost alone may be wrong.

Cost behaviour, the four statements to keep straight: **total variable cost varies** with volume while **variable cost per unit stays constant**; **total fixed cost stays constant** within the range while **fixed cost per unit falls as volume rises** and rises as volume falls; a **semi-variable cost** is split into its fixed and variable parts before either statement is used; and fixed cost is treated as a **period cost**, transferred to the profit and loss account rather than attached to the product.

The high-low split of a semi-variable cost: take the **difference in total cost ÷ the difference in units or in the activity between the two levels** to get the **variable cost per unit**, and then **total cost at either level – (variable cost per unit × that level)** to get the **fixed cost**. On total overheads of ₹9,20,000 at 60% and ₹11,60,000 at 80% capacity, where 50% capacity is 60,000 units, the 20% difference of ₹2,40,000 is spread over 24,000 units and the variable overhead is ₹10 a unit.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks • 14 questions

- Fourteen objective questions are placed on this topic — nine at one mark and five at two, nineteen marks in all — and two of the fourteen are printed as compulsory. Most are recognition of a name or of a definition, and four turn on cost behaviour.
- The naming questions come back in different clothes and are worth carrying as sentences. Marginal costing is also known as **variable costing**, and **direct costing is another name for marginal costing**; another name for contribution is **marginal income**; **contribution margin is equal to fixed cost less loss**, which is only $C = F + P$ with a negative P ; variable cost is the **product cost** in the marginal costing technique, and fixed costs are **period costs** in variable costing, which is keyed True.
- Four are on how cost behaves and they are answered from one pair of statements. When production increases within the relevant range **variable costs vary in total** while variable cost per unit does not; **fixed cost per unit decreases as production volume increases**; and it is the **fixed** portion whose per-unit expense varies with volume while the **variable** portion stays the same per unit — the two-mark MQP 2024-Dec S1 question is keyed '(a) Fixed; Variable' and rewards reading the blanks in the right order. For the commercial airline, interest on leasing, pilots' salaries and depreciation of aircraft are all fixed, so the key is that **none of the three can be classified as variable**.
- Two are arithmetic on the **high-low split** and they are one subtraction and one division each. Total overheads of ₹9,20,000 at 60% and ₹11,60,000 at 80% capacity with 60,000 units at 50%: ₹2,40,000 over 24,000 units gives ₹10 a unit. The two-mark compulsory 2024-Jun question on M/s Unicorn Limited gives overheads of ₹10,000 on 200 units and ₹12,000 on 300: the variable rate is ₹20 a unit and the fixed overhead is ₹10,000 – ₹4,000 = ₹6,000. The other compulsory question, the two-mark 2024-Dec, asks which statement is **not** true and is keyed to the one about plant and machinery depreciating more quickly when kept idle; read the stem for the word 'not' before reading the options.

OQ • PYQ 2017-Dec [1] (a) (ii) • 1M • Pg 116	OQ Objective	Easy
OQ • PYQ 2018-Dec [1] (a) (ii) • 1M • Pg 117	OQ Objective	Easy
OQ • PYQ 2018-Dec [1] (a) (v) • 1M • Pg 117	OQ Objective	Easy
OQ • PYQ 2018-Dec [1] (a) (vi) • 1M • Pg 118	OQ Objective	Easy
OQ • PYQ 2019-Jun [1] (c) (i) • 1M • Pg 118	OQ Objective	Easy
OQ • PYQ 2022-Dec [1] (a) (iii) • 1M • Pg 120	OQ Objective	Easy
OQ • PYQ 2022-Dec [1] (c) (i) • 1M • Pg 120	OQ Objective	Easy
OQ • MQP 2023-Jun S2 [1] (a) (ii) • 1M • Pg 121	OQ Objective	Easy
OQ • MQP 2023-Jun S2 [1] (c) (vi) • 1M • Pg 123	OQ Objective	Easy

OQ • MQP 2023-Dec S1 [1] (v) • 2M • Pg 124	OQ Objective	Easy
OQ • MQP 2023-Dec S2 [1] (vii) • 2M • Pg 125	OQ Objective	Easy
OQ • PYQ 2024-Jun [1] (xii) {C} • 2M • Pg 127	OQ Objective	Easy
OQ • MQP 2024-Dec S1 [1] (x) • 2M • Pg 129	OQ Objective	Easy
OQ • PYQ 2024-Dec [1] (xv) {C} • 2M • Pg 129	OQ Objective	Easy

REMEMBERING recall and reproduce • 1 question

- The single recall question here is the four-mark TQ 1.1, from 2019-Jun, a short note on the **limitations of marginal costing**, and the printed answer sets out seven lettered points. Open with the two the answer opens with — the separation of cost into fixed and variable presents technical difficulties, no variable cost being completely variable nor any fixed cost completely fixed, and it is not correct to eliminate fixed cost from finished stock and work in progress — then take the exclusion of fixed overhead from inventories, the fluctuation of profit where sales are seasonal, the failure to reveal why output rose, and the absence of any standard against which performance can be evaluated.
- Four marks buys seven headings with a clause on each, not two headings at length. Do not drift into the assumptions or the advantages; and close as the printed answer closes, on budgetary control and standard costing giving more effective control than marginal costing does.

TQ 1.1 • PYQ 2019-Jun [5] (d) • 4M • Pg 132	SN Short note	Easy
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UNDERSTANDING explain with reasons • 1 question

- The one question at this level is the seven-mark PQ 1.2, from 2026-Jun, and its answer is held until the Institute releases its Suggested Answer, so prepare it now. Cost at 5,000 units totals ₹62,750, and each expense carries its own **percentage of variability**: material ₹25,000, labour ₹15,000 and stores ₹1,000 wholly variable; power ₹1,250 at 80%; repairs and maintenance ₹2,000 at 75%; inspection ₹500 at 20%; administration overhead ₹5,000 at 25%; selling overhead ₹3,000 at 50%; depreciation ₹10,000 wholly fixed.
- Split every line before you scale anything. The variable half of each expense moves with volume — 0.8 of it at 4,000 units and 1.2 at 6,000 — and the fixed half does not move at all: power, for instance, is ₹1,000 variable and ₹250 fixed, giving ₹1,050 at 4,000 units and ₹1,450 at 6,000. Totals come to **₹53,480 at 4,000 units, that is ₹13.37 a unit, and ₹72,020 at 6,000 units, that is ₹12.00 a unit**. The stem says 'showing each individual expense', so the answer is a nine-row table with two columns, not two totals; and cross-cast the 5,000-unit column back to ₹62,750 first to prove the split.

PQ 1.2 • PYQ 2026-Jun [6] (b) • 7M • Pg 133	DESC Descriptive	Medium
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Topic 2: Cost-Volume-Profit Analysis

CMAL2P12-C3-T02

FREQUENCY TABLE CORRECTED — the Scanner's table at page 110 counts 38 against this topic; the book carries 37 appearances — the questions printed under it and the earlier sittings listed against them. These notes follow the book.

Read first Read §3.2 Cost-Volume-Profit Analysis, ICAI Study Material Module 3, pages 111–114 — the break-even formula set on pages 111 and 112, the eight assumptions of break-even analysis and the seven assumptions of CVP analysis on pages 113 and 114, and the four limitations on page 114; then read the P/V ratio, the break-even point and the margin of safety with the formulas that close §3.1 on pages 106 to 110, and work Illustrations 5 to 16 on pages 134 to 140.

NOTES

Cost-volume-profit analysis, defined: the study of the interrelationships between **costs, volume and profit at various levels of activity**. It uses the degree of cost variability to measure the effect of a change in volume on profit, and it assumes the firm's fixed costs stay the same in total across the band of production within which the firm expects to operate — the **relevant range**. **Operating income = sales – variable costs – fixed costs**. It is an extension of marginal costing, a tool of **short-term** planning, typically a year, and it is inappropriate to extend it to long-term decisions.

The three forms of the P/V ratio: $(\text{Contribution} \div \text{sales}) \times 100$, equivalently $[(\text{Sales} - \text{variable cost}) \div \text{sales}] \times 100$ and, where the data are given for two periods, $(\text{Change in contribution} \div \text{change in sales}) \times 100$ or $(\text{Change in profit} \div \text{change in sales}) \times 100$; the answer is a **ratio, usually stated as a percentage**. The last two forms hold only while input prices and selling prices are unchanged. From it, **contribution = sales $\times$ P/V ratio** and **sales = contribution $\div$ P/V ratio**. The **P/V ratio and the variable cost ratio are complements** — a P/V ratio of 40% means a variable cost ratio of 60%, and a variable cost ratio of 70% means a P/V ratio of 30%.

Break-even point: the volume of production or sales at which there is neither profit nor loss, that is where total cost equals total revenue. **Break-even point in units = fixed cost $\div$ contribution per unit**, and **break-even point in value = (fixed cost $\times$ sales) $\div$ contribution**, equivalently **(fixed cost $\times$ sales) $\div$ (sales – variable cost)**, **(fixed cost $\times$ sales) $\div$ (fixed cost + profit)** and **fixed cost $\div$ P/V ratio**, where **fixed cost** is the total fixed cost of the period. The proof is the general sales equation: with **S** the selling price a unit, **V** the variable cost a unit, **U** the number of units, **F** fixed cost and **P** profit, **SU = F + VU + P**; at break-even **P = 0**, so **U (S – V) = F** and **U = F $\div$ (S – V)**. The answer is a **number of units** or an **amount in ₹**.

Margin of safety: the sales beyond the break-even point. **Margin of safety = total sales – break-even sales** in value and **budgeted sales units – break-even sales units** in units, and equally **margin of safety = profit $\div$ P/V ratio**. **Margin of safety ratio = (margin of safety $\div$ total sales) $\times$ 100**, and the margin of safety ratio and the break-even sales ratio are **complements of each other**. A high margin of safety means a **sound financial position**, and at the break-even point the margin of

safety is nil. From the ratio comes **profit = total sales × P/V ratio × margin of safety ratio**.

Measure	Formula
Contribution	Sales – variable cost, or fixed cost + profit
P/V ratio	$(\text{Contribution} \div \text{sales}) \times 100$, or $[(\text{sales} - \text{variable cost}) \div \text{sales}] \times 100$, or $(\text{change in profit} \div \text{change in sales}) \times 100$
Break-even point in value	$\text{Fixed cost} \div \text{P/V ratio}$, or $(\text{fixed cost} \times \text{sales}) \div \text{contribution}$
Break-even point in units	$\text{Fixed cost} \div \text{contribution per unit}$
Margin of safety in value	$\text{Total sales} - \text{break-even sales}$, or $\text{profit} \div \text{P/V ratio}$
Margin of safety in units	$\text{Budgeted sales units} - \text{break-even sales units}$
Margin of safety ratio	$(\text{Margin of safety} \div \text{total sales}) \times 100$
Profit	$(\text{Sales} \times \text{P/V ratio}) - \text{fixed cost}$, or $\text{total sales} \times \text{P/V ratio} \times \text{margin of safety ratio}$
Fixed cost	$(\text{Sales} \times \text{P/V ratio}) - \text{profit}$, or $\text{break-even sales} \times \text{P/V ratio}$
Sales for a desired profit	$(\text{Fixed cost} + \text{desired profit}) \div \text{P/V ratio}$, or, in units, $(\text{fixed cost} + \text{desired profit}) \div \text{contribution per unit}$
Shut-down sales	$(\text{Fixed cost} - \text{shut-down costs}) \div \text{P/V ratio}$; in units, $\div \text{contribution per unit}$
Indifference point	$\text{Difference in fixed cost} \div \text{difference in variable cost per unit}$

Sales for a target profit, before tax and after it: $\text{sales value} = (\text{fixed cost} + \text{desired profit}) \div \text{P/V ratio}$ and $\text{required units} = (\text{fixed cost} + \text{desired profit}) \div \text{contribution per unit}$, the answer being an **amount in ₹** or a **number of units**. Where the target is stated **after tax**, gross it up before it enters the numerator: **desired profit before tax = desired profit after tax $\div$ (1 – t)**, t being the rate of income tax. A post-tax profit of ₹60,000 with tax at 40% is ₹1,00,000 before tax; if the rate rises to 50% the same ₹60,000 needs ₹1,20,000 before tax, and the extra ₹20,000 of contribution is what the additional units have to earn.

The indifference point, and the shut-down point: $\text{indifference point} = \frac{\text{difference in fixed cost}}{\text{difference in variable cost per unit}}$ — the level at which two methods or two alternatives give the same cost and therefore the same profit; below it the alternative with the **lower fixed cost** wins and above it the one with the **lower variable cost per unit** wins. **Shut-down sales** = $(\text{fixed cost} - \text{shut-down costs}) \div \text{P/V ratio}$ and **shut-down units** = $(\text{fixed cost} - \text{shut-down costs}) \div \text{contribution per unit}$, **shut-down costs** being the fixed costs that go on being incurred while operations are suspended.

Eight assumptions of break-even analysis: all elements of cost can be segregated into fixed and variable components; variable cost per unit is constant, so total variable cost varies directly with output; fixed cost is constant at all volumes; selling price per unit is unchanged at all levels; **volume of production is the only factor that influences cost**; there is **no change in the general price level**; there is **one product only, or, on multiple products, an unchanged sales mix**; and there is **synchronisation between production and sales**.

Seven assumptions of CVP analysis: **all other variables remain constant**, volume being the only cause of a change in cost or revenue, so that a shift in production efficiency, sales mix or price levels makes the presentation incorrect; a **single product or a constant sales mix**, a planned mix being carried into the analysis through standard batch sizes; **total cost and total revenue are linear functions of output**, which holds only within the relevant range; **profits are calculated on a variable costing basis**, so that if absorption costing profit is to be predicted production must be assumed equal to sales; **costs can be accurately divided into their fixed and variable elements**, which in practice is extremely difficult for semi-variable costs; the analysis **applies only within the relevant range** and it is incorrect to project cost and revenue beyond it; and it applies only to a **short-term horizon**, typically a year, within which selling prices and costs cannot be significantly changed.

Four limitations of CVP analysis: fixed costs are assumed constant in total and variable costs constant per unit at every level of output, which is a great simplification — most fixed costs are **step costs** that change if output falls or rises substantially, and variable cost per unit falls with economies of scale and eventually rises again with diseconomies such as overtime working; **selling prices are assumed constant** at all levels, though the price may have to be cut to win extra volume; **production and sales are assumed equal**, so the consequences of a build-up of stock or of de-stocking are ignored; and the **uncertainty in the estimates** of fixed cost and unit variable cost is generally ignored.

The two ways a change in price or cost moves the break-even point: the point is $\frac{\text{fixed cost}}{\text{contribution per unit}}$, so anything that widens contribution lowers it and anything that narrows contribution raises it. A **rise in selling price** or a **fall in variable cost per unit** lowers the break-even point; a **fall in selling price** or a **rise in variable cost** raises it; and a change in **fixed cost** moves the break-even point in the same direction as itself, while leaving the P/V ratio untouched — the P/V ratio is a function of price and variable cost alone.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks · 34 questions

- Thirty-four objective questions are placed on this topic — fifteen at one mark and nineteen at two, fifty-three marks in all — and twelve of the thirty-four are printed as compulsory. More of the chapter's objective marks sit here than on the other five topics together, and most of them are arithmetic on a single relationship.
- Learn the four definitional keys in the words the options use. The P/V ratio is the **excess of sales over variable cost as a percentage of sales**; the break-even point is the point at which **there is no profit, no loss** in one paper and where **total costs equal total revenue** in another; the break-even point in rupee sales value is total fixed cost divided by the **profit/volume ratio**; and the margin of safety is the **excess of total sales over break-even sales**, is **nil at the break-even point**, and a large one indicates the **soundness of the business**. Two negative statements are keyed False: the P/V ratio does **not** increase when fixed cost falls, and an assumption of break-even analysis is that the sales mix will **not** vary.
- The computations run in every direction across one set of relationships, so read the stem for what is withheld. From profit and P/V ratio comes the margin of safety — ₹2,40,000 at 25% is ₹9,60,000. From the margin of safety percentage, the profit and the P/V ratio come the sales — a 25% margin of safety with a profit of ₹28 lakh at a 25% P/V ratio gives sales of ₹448 lakh. From break-even sales and fixed cost comes the P/V ratio — ₹8 lakh over ₹20 lakh is 40%, and the selling price of ₹5 printed in that stem is not used. And on the one-mark compulsory 2023-Jun question the 'Units produced 50,000' is a distractor: a contribution of ₹3 against fixed costs of ₹1,60,000 and a target profit of ₹80,000 needs 80,000 units, that is ₹12,00,000 of sales.
- The two-mark MQP 2024-Jun S1 question on the margin of safety should be worked before it is answered. It gives sales of ₹3,00,000 against a break-even point of ₹4,50,000 and is keyed '(a) ₹1,00,000', but on those figures sales fall ₹1,50,000 **short** of the break-even point, which is option (c), 'Amount of sales < B.E.P, therefore no margin of safety'. Both 2026-Jun questions are the newest here and their answers are held: Mr. Dinesh's break-even sales are $₹2,92,500 \div 45\% = ₹6,50,000$, which is two thirds of sales, so total sales are ₹9,75,000; and for DEF Limited the contribution at break-even is $₹3,20,000 - ₹2,00,000 = ₹1,20,000$, so a ₹30,000 fall in variable cost raises contribution by 25%.

OQ · PYQ 2017-Jun [1] (a) (v) · 1M · Pg 116	OQ Objective	Easy
OQ · PYQ 2018-Jun [1] (a) (ii) · 1M · Pg 117	OQ Objective	Easy
OQ · PYQ 2018-Dec [1] (c) (iv) · 1M · Pg 118	OQ Objective	Easy
OQ · PYQ 2019-Dec [1] (c) (iv) · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2021-Dec [4] · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2021-Dec [8] · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2021-Dec [13] · 1M · Pg 120	OQ Objective	Easy

OQ • PYQ 2021-Dec [14] • 1M • Pg 120	OQ Objective	Easy
OQ • PYQ 2022-Dec [1] (c) (iii) • 1M • Pg 121	OQ Objective	Easy
OQ • PYQ 2023-Jun [1] (a) (i) {C} • 1M • Pg 121	OQ Objective	Easy
OQ • PYQ 2023-Jun [1] (a) (x) {C} • 1M • Pg 122	OQ Objective	Easy
OQ • PYQ 2023-Jun [1] (c) (ii) • 1M • Pg 122	OQ Objective	Easy
OQ • PYQ 2023-Jun [1] (c) (v) • 1M • Pg 122	OQ Objective	Easy
OQ • PYQ 2023-Dec [1] (i) {C} • 2M • Pg 123	OQ Objective	Easy
OQ • MQP 2023-Dec S1 [1] (iv) • 2M • Pg 123	OQ Objective	Easy
OQ • MQP 2023-Dec S2 [1] (iv) • 2M • Pg 123	OQ Objective	Easy
OQ • MQP 2023-Dec S1 [1] (vi) • 2M • Pg 124	OQ Objective	Easy
OQ • PYQ 2023-Dec [1] (vi) {C} • 1M • Pg 124	OQ Objective	Easy
OQ • MQP 2023-Dec S2 [1] (vi) • 2M • Pg 124	OQ Objective	Easy
OQ • MQP 2023-Dec S2 [1] (viii) • 2M • Pg 125	OQ Objective	Easy
OQ • PYQ 2023-Dec [1] (xiii) {C} • 1M • Pg 125	OQ Objective	Easy
OQ • MQP 2024-Jun S1 [1] (v) • 2M • Pg 126	OQ Objective	Easy
OQ • MQP 2024-Jun S1 [1] (vii) • 2M • Pg 127	OQ Objective	Easy
OQ • PYQ 2024-Jun [1] (xiii) {C} • 2M • Pg 127	OQ Objective	Easy
OQ • MQP 2024-Dec S1 [1] (ii) • 2M • Pg 127	OQ Objective	Easy
OQ • PYQ 2024-Dec [1] (iv) {C} • 2M • Pg 128	OQ Objective	Easy
OQ • PYQ 2024-Dec [1] (v) {C} • 2M • Pg 128	OQ Objective	Easy
OQ • MQP 2024-Dec S1 [1] (v) • 2M • Pg 128	OQ Objective	Easy
OQ • MQP 2024-Dec S2 [1] (v) • 2M • Pg 128	OQ Objective	Easy

OQ • MQP 2024-Dec S1 [1] (vi) • 2M • Pg 129	OQ Objective	Easy
OQ • PYQ 2025-Jun [1] (iii) {C} • 2M • Pg 129	OQ Objective	Easy
OQ • PYQ 2025-Dec [1] (vi) {C} • 2M • Pg 130	OQ Objective	Easy
OQ • PYQ 2026-Jun [1] (v) {C} • 2M • Pg 131	OQ Objective	Easy
OQ • PYQ 2026-Jun [1] (vi) {C} • 2M • Pg 131	OQ Objective	Easy

REMEMBERING recall and reproduce • 2 questions

- Both questions at this level carry six marks and both are **built statements rather than recall**. The 2018-Dec PQ 2.14 on XER Co. lists six monthly fixed costs and six per-unit costs and asks for the break-even quantity, the minimum price at capacity and the units needed for a target profit of ₹30,00,000: add the fixed costs to ₹11,50,000 and the unit costs to ₹143, and the three answers are $11,50,000 \div (190 - 143) = 24,469$ units, $11,50,000 \div 1,00,000 + 143 = ₹154.50$, and $(30,00,000 + 11,50,000) \div 47 = 88,298$ units.
- The 2021-Dec PQ 2.19 on ABX company runs the same three steps through a set of cost increases — labour up 10%, material up 7.5%, variable overhead up 5%, fixed overhead up 3%. Number of units sold is sales $\div$ selling price, that is $₹56,70,000 \div ₹378 = 15,000$; contribution per unit is ₹151.20 and the current profit ₹3,08,000 on a P/V ratio of 40%. To hold the P/V ratio at 40% the new price is the new variable cost $\div 0.6 = ₹407.40$, and to hold the profit at the old price the units are $(3,08,000 + 20,18,800) \div 133.56 = 17,422$. Show the cost table before the answers: each part is worth its own marks and each is one line once the table stands.

PQ 2.14 • PYQ 2018-Dec [2] (b) • 6M • Pg 142	PRAC Practical	Medium
PQ 2.19 • PYQ 2021-Dec [2] • 6M • Pg 148	PRAC Practical	Medium

UNDERSTANDING explain with reasons • 12 questions

- Twelve questions sit here, forty-eight marks in all, and three of them are two-mark compulsory questions from the 2013-Dec and 2014-Jun papers. The short ones are single-step and the step is chosen by what the stem withholds: with a margin of safety of ₹4,00,000 and a profit of ₹80,000 the P/V ratio is 20% and break-even sales are $₹5,00,000 \div 20\% = ₹25,00,000$; with a turnover of ₹200 lakh at a 40% C/S ratio, a 10% profit on sales before depreciation of ₹10 lakh and interest of ₹15 lakh, the loss is ₹5 lakh and the fixed cost is ₹80 lakh + ₹5 lakh = ₹85 lakh.
- Two of the twelve are **step fixed cost** questions and neither can be answered by a single average. In the two-mark compulsory 2014-Jun PQ 2.4 the extra ₹7,000 of fixed cost above 10,000 units has to be taken out of the 15,000-unit total before the variable rate of ₹3 is struck, and then put back at 12,000 units, giving ₹5.00 a unit. In the seven-mark 2025-Dec PQ 2.35 the room rent of ₹760 for four children and the transport of ₹1,200 for six are converted into ₹190 and ₹200 a child, so that the effective contribution is $₹4,000 - ₹2,990 = ₹1,010$ and the break-even is $₹5,18,130 \div ₹1,010 = 513$ children. Say on the face of the answer that the step costs have been averaged.

- The seven-mark 2023-Dec PQ 2.26 on M/s BLB Industries is printed with two answers — '600 Units [or 334 units; alternate answer] to be sold in 2023-24 to earn same amount of profit per unit of the last year (2022-23)' — so show the working and let it carry the answer. Selling price is $\text{₹}40,000 \div 200 = \text{₹}200$ and the profit per unit $\text{₹}20$; the wage rate rises 50% to $\text{₹}45$; overheads of $\text{₹}10,000$ on 200 units against $\text{₹}12,000$ on 300 give a variable rate of $\text{₹}20$ and a fixed cost of $\text{₹}6,000$, less the $\text{₹}1,000$ saved, that is $\text{₹}5,000$. Contribution is then $\text{₹}35$, and $35X - 5,000 = 20X$ gives $X = 334$ units.
- The seven-mark 2026-Jun PQ 2.36 on Alfa Ltd comes from the chapter's newest session, which it shares with the seven-mark PQ 1.2 and two compulsory objectives, and its answer is held, so prepare it now: it is an **indifference point** question dressed as algebra. Let the contribution of X be C_x , so that Y's is one fifth less, $0.8C_x$. The break-even of X on F1 alone gives **$F1 = 1,800 C_x$** ; equal profits at 3,000 units give $3,000C_x - F1 = 2,400C_x - F2$, so **$F2 = 1,200 C_x$** ; and $F1 + F2 = \text{₹}1,50,000$ therefore makes $3,000C_x = \text{₹}1,50,000$. Hence **$C_x = \text{₹}50$, $C_y = \text{₹}40$, $F1 = \text{₹}90,000$ and $F2 = \text{₹}60,000$** — and both products return $\text{₹}60,000$ of profit at 3,000 units, which is the check to write out.

PQ 2.2 · PYQ 2013-Dec [1] (d) {C} · 2M · Pg 135	PRAC Practical	Easy
PQ 2.3 · PYQ 2014-Jun [1] (a) {C} · 2M · Pg 135	PRAC Practical	Easy
PQ 2.4 · PYQ 2014-Jun [1] (d) {C} · 2M · Pg 136	PRAC Practical	Easy
PQ 2.7 · PYQ 2015-Jun [1] (a) · 2M · Pg 138	PRAC Practical	Easy
PQ 2.9 · PYQ 2016-Jun [1] · 4M · Pg 139	PRAC Practical	Easy
PQ 2.20 · PYQ 2021-Dec [13] · 1M · Pg 150	PRAC Practical	Easy
PQ 2.21 · PYQ 2021-Dec [14] · 1M · Pg 150	PRAC Practical	Easy
PQ 2.11 · PYQ 2016-Dec [6] (a) · 6M · Pg 141	PRAC Practical	Medium
PQ 2.18 · PYQ 2021-Dec [1] · 7M · Pg 147	PRAC Practical	Medium
PQ 2.26 · PYQ 2023-Dec [4] (a) · 7M · Pg 153	PRAC Practical	Medium
PQ 2.35 · PYQ 2025-Dec [4] (a) · 7M · Pg 166	PRAC Practical	Medium
PQ 2.36 · PYQ 2026-Jun [4] (a) · 7M · Pg 168	PRAC Practical	Medium

APPLYING take the provision to the facts · 18 questions

- Eighteen questions sit here, ninety-five marks in all — one at nine marks, one at eight, five at seven, three at six, four at four, one at three and three at two — and the two- and three-mark ones are single-step. Four of the eighteen — PQ 2.1, PQ 2.6, PQ 2.10 and PQ 2.15 — are answered off the **change formula** alone: the P/V ratio is the change in profit $\div$ the change in sales, and once it is known the fixed

cost is (sales $\times$ P/V ratio) – profit and everything else follows. On sales of ₹2,00,000 and ₹3,00,000 against profits of ₹20,000 and ₹40,000, the ratio is 20%, the fixed cost ₹20,000, and the sales for a profit of ₹50,000 are ₹3,50,000.

- Build the marginal cost statement before the formulas whenever the stem gives a cost break-up. The six-mark 2018-Dec PQ 2.13 on CADINI Ltd is the model: production rises from 10,000 to 12,500 buckets at 50% capacity, the price falls 3% to ₹19.40, variable cost stays ₹15, and the statement gives a contribution of ₹4.40 a unit, ₹55,000 in total, a fixed overhead of ₹30,000 and a profit of ₹25,000, with a break-even quantity of 6,818.18, which the printed answer rounds **up** to 6,819 units. Round a break-even quantity up: a fraction of a unit does not break even.
- Three of the eighteen print only their final figures — PQ 2.22, PQ 2.23 and PQ 2.25 — so the working is yours to supply and is where the marks are. The nine-mark 2022-Dec PQ 2.22 on AGT Ltd is answered '(i) ₹3,00,000 (ii) 28,800 units (iii) ₹125 per unit' — a P/V ratio of 40% puts total variable cost at ₹60 a unit against the ₹58 listed, so the semi-variable overhead carries ₹2 a unit and, at the 18,000 units sold at 50% capacity, splits into ₹36,000 variable and ₹60,000 fixed; the step of ₹22,800 applies twice between 50% and 80% capacity, and the selling price in part (iii) has to satisfy a return of 25% on a capital employed that itself contains working capital at 20% of sales. The three-mark 2022-Dec PQ 2.23 on the Delhi to Jaipur train is answered 'BEP = 320 passengers': contribution is ₹500 a ticket, and five bogies at ₹16,000 with the engine at ₹80,000 give a fixed cost of ₹1,60,000 and a capacity of 350 — four bogies would give a break-even of 288 against a capacity of 280 and would not do.
- Three questions run the arithmetic **backwards** from ratios rather than from money. The seven-mark 2025-Jun PQ 2.34 gives a C/S ratio of 37% falling to 30% and a margin of safety of 25% rising to 40% on unchanged quantity, so the variable cost of ₹6,30,000 is the constant: revised sales are ₹6,30,000 $\div$ 0.70 = ₹9,00,000, the break-even is 60% of that, ₹5,40,000, and the revised fixed cost is ₹5,40,000 $\times$ 30% = ₹1,62,000. The seven-mark 2023-Jun PQ 2.25 on M/s Ankita Plastics turns a 2 : 1 mix into 235x of contribution against ₹11,75,000 to give 10,000 and 5,000 units, then reworks the year on a 10% lower joint fixed cost and 8% higher variable cost to reach ₹3,15,500.

PQ 2.1 • PYQ 2013-Dec [1] (b) {C} • 2M • Pg 134	PRAC Practical	Medium
PQ 2.5 • PYQ 2014-Dec [1] • 4M • Pg 136	PRAC Practical	Medium
PQ 2.8 • PYQ 2015-Dec [1] (a) • 2M • Pg 139	PRAC Practical	Medium
PQ 2.10 • PYQ 2016-Dec [1] (d) • 2M • Pg 140	PRAC Practical	Medium
PQ 2.12 • PYQ 2017-Jun [2] (b) • 4M • Pg 141	PRAC Practical	Medium
PQ 2.13 • PYQ 2018-Dec [2] (a) • 6M • Pg 142	PRAC Practical	Medium
PQ 2.15 • PYQ 2019-Jun [2] (a) • 4M • Pg 144	PRAC Practical	Medium
PQ 2.16 • PYQ 2019-Dec [2] (a) • 6M • Pg 145	PRAC Practical	Medium

PQ 2.17 • PYQ 2019-Dec [2] (b) • 6M • Pg 146	PRAC Practical	Medium
PQ 2.23 • PYQ 2022-Dec [2] (b) • 3M • Pg 151	PRAC Practical	Medium
PQ 2.24 • PYQ 2023-Jun [3] (a) • 4M • Pg 151	PRAC Practical	Medium
PQ 2.25 • PYQ 2023-Jun [3] (b) (ii) • 7M • Pg 152	PRAC Practical	Medium
PQ 2.27 • MQP 2023-Dec S1 [4] (a) • 7M • Pg 154	PRAC Practical	Medium
PQ 2.30 • PYQ 2024-Dec [4] (a) • 7M • Pg 159	PRAC Practical	Medium
PQ 2.31 • MQP 2024-Dec S1 [4] (a) • 7M • Pg 161	PRAC Practical	Medium
PQ 2.34 • PYQ 2025-Jun [4] (a) • 7M • Pg 165	PRAC Practical	Medium
PQ 2.6 • PYQ 2014-Dec [2] (c) (i) • 8M • Pg 137	PRAC Practical	Hard
PQ 2.22 • PYQ 2022-Dec [2] (a) • 9M • Pg 150	PRAC Practical	Hard

ANALYSING break down and compare • 3 questions

- All three questions in this band carry seven marks and each asks what a **change** does to the whole set of measures, not for a single figure. The 2024-Jun PQ 2.28 on RNS Ltd builds contribution of ₹20 a unit and a price of ₹40 from a profit of ₹4 a unit and fixed overheads of ₹3,20,000, giving a break-even of 16,000 units and a margin of safety of ₹1,60,000; a 10% price cut with 5,000 more units then moves contribution to ₹16, the break-even to 20,000 units and the margin of safety to ₹1,80,000. Close on the comparison in the printed answer's own terms — the break-even rises by 4,000 units while the margin of safety rises by ₹20,000 — because that sentence is what the word 'analyse' in the stem is asking for.
- The 2024-Dec PQ 2.33 on AKONA Ltd works from a **fixed break-even volume backwards to the fixed cost**. Both mobiles must break even at 400 units at the new prices, so break-even sales are $400 \times ₹8,000$ and $400 \times ₹9,000$; the revised fixed cost is the break-even sales $\times$ the unchanged P/V ratio, ₹8,00,000 and ₹10,80,000; and the answer is the reduction against the present fixed costs, ₹2,00,000 on XB and ₹4,20,000 on YB. Present it as the printed answer does, one row per step with the row letters, and note that the sales units it derives — 500 and 533.33 — are not whole numbers and are not meant to be.
- The 2024-Dec MQP S2 PQ 2.32 on Fashionable Clothing is the only one of the three that starts from a **published income statement** and has to be taken apart before anything can be computed: cost of goods sold ₹4,00,000, sales commission ₹90,000 and ₹65,000 of the other operating costs are variable, and salaries, depreciation, store rent and ₹5,000 of other costs are not. Contribution margin is ₹3,45,000 and the ratio 0.38; the printed answer then applies that 38% to the incremental revenue of ₹1,80,000 to give ₹68,400 and, after the ₹38,000 of advertising, an increase in operating income of ₹30,400. Use the rounded 38%, as the answer does, and state that you have.

PQ 2.28 • PYQ 2024-Jun [4] (a) • 7M • Pg 155	PRAC Practical	Medium
PQ 2.32 • MQP 2024-Dec S2 [4] (a) • 7M • Pg 162	PRAC Practical	Medium
PQ 2.33 • PYQ 2024-Dec [4] (b) • 7M • Pg 164	PRAC Practical	Medium

EVALUATING judge and justify • 1 question

- The single question at this level is the fourteen-mark 2024-Dec PQ 2.29 on M/s Garlic Hotels, the longest question in the chapter — no other question here carries more than nine marks — and it is a **step fixed cost** problem with a recommendation attached. Room-days come from the tariff: ₹400 lakh at ₹5,000 a day is 8,000 room-days. Contribution per room-day is ₹5,000 – ₹2,000 = ₹3,000 this year and ₹5,500 – ₹2,200 = ₹3,300 next, and total contribution ₹2,40,00,000 and ₹2,64,00,000.
- The housekeeping salary is the step: 8,000 room-days falls in the 7,500 to 9,500 band, so fifteen staff at ₹60,000 a month cost ₹1,08,00,000, and ₹7,56,000 a head after the 5% hike makes ₹1,13,40,000. Against fixed costs of ₹60,00,000 and an apportioned administrative charge of ₹1,00,00,000, rising to ₹66,00,000 and ₹1,11,00,000, the standard room segment shows a loss in both years. The break-even occupancy for the next year is ₹2,90,40,000 ÷ ₹3,300 = 8,800 room-days against the 8,000 the hotel actually sells.
- Part (iii) is where the marks are won or lost, and it is a **relevant cost** answer, not an arithmetic one. The stem says that on conversion to superior rooms the fixed cost of the standard rooms can be avoided; the apportioned administrative charge cannot. Say which costs the segment must therefore cover to justify its continuance, compute the tariff that covers them at the existing 8,000 room-days, and state the recommendation in a sentence. An answer that computes a tariff on the full apportioned cost without saying that the apportionment is unavoidable has not made the judgement the question is set to test.

PQ 2.29 • PYQ 2024-Dec [3] • 14M • Pg 157	PRAC Practical	Hard
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Topic 3: Break-Even Charts and Profit Charts

CMAL2P12-C3-T03

Read first Read §3.3 Break-Even Charts and Profit Charts, ICAI Study Material Module 3, pages 115–123 — the meaning of the chart and the eight construction assumptions on page 115, the formal chart with the angle of incidence on page 116, the four charts showing what a change in units, in selling price, in variable cost and in fixed cost does to the break-even point on pages 117 and 118, the non-linear chart and the cash break-even point on page 119, the conventional and contribution charts on pages 119 and 120, and the profit-volume chart with the sequential profit graph on pages 120 to 123; then work Illustration 12 on page 138.

NOTES

Break-even chart: a graphical representation of break-even analysis, that is of the cost-volume-

profit relationship. It indicates the point of production at which there is neither profit nor loss, and the approximate profit or loss at other levels of sales volume within a limited range. Its serious limitation is that it can show the costs, revenues, profits and margins of safety of a **single product only, or at best of a single sales mix**; a chart for several products can be drawn only where a **constant product sales mix** is assumed. Where a firm sells X, Y and Z at ₹8, ₹6 and ₹6 against variable costs of ₹3, ₹4 and ₹5, no chart can be drawn until the proportions in the mix are known.

Eight assumptions behind the chart: costs are classified into fixed and variable; fixed cost remains fixed over the relevant volume range of the graph; variable cost per unit remains constant over that range; selling price per unit remains constant; **sales mix remains constant**; **production and sales volume are equal**; the relationship between cost and revenue is linear; and that linear relationship is drawn as a straight line.

The construction of the chart: units produced and sold go on the **X axis** and costs and revenues on the **Y axis**. The **fixed cost line** is drawn parallel to the X axis, since fixed expenses are the same at any volume; the variable costs for the different levels are plotted **above** it and joined to it at zero volume, so that the same line is also the **total cost line**, starting where fixed cost has been incurred and variable cost is nil; and the sales values are plotted and joined to give the **sales line** from the origin. Where the sales line cuts the total cost line is the break-even point: a perpendicular dropped to the X axis gives the break-even **units** and one drawn to the Y axis gives the break-even **value**. Below the intersection lies the loss area and above it the profit area.

Angle of incidence: the angle formed at the intersection of the **total sales line and the total cost line** in a formal break-even chart. **A larger angle means a higher rate of growth of profit** and a smaller angle a lower rate, so the angle depicts the profitability rate, and it is an indicator of the firm's **profit-earning capacity above break-even sales**. On a conventional chart the same thing is read as the angle of the profit 'wedge': the wider the angle the faster profit grows once break-even is passed, and equally the faster losses are incurred as volume falls below it.

The four changes, and what each does to the break-even point: a change in the **number of units** alone raises total cost and total sales together and leaves the break-even point where it was; an **increase in selling price** lowers the break-even point and a decrease raises it, an **inverse relationship**; a **decrease in variable cost** lowers it and an increase raises it, a **direct relationship**; and a **decrease in fixed cost** lowers it while an increase raises it, again a **direct relationship**. Profit rises in the second, third and fourth cases; only the first leaves the break-even point untouched.

Non-linear break-even chart: where cost and sales do not behave linearly there may be **two or more break-even points**, a lower and an upper. Optimum profit is earned where the **difference between the sales line and the total cost line is largest**, and the business should produce only up to that level.

Cash break-even point: the break-even point computed on those fixed costs **payable in cash** alone, depreciation and other non-cash fixed costs being excluded. **Cash break-even point = cash fixed costs ÷ contribution per unit**; the answer is a **number of units**. On a price of ₹60 against a variable cost of ₹40, with fixed cost of ₹2,00,000 including ₹50,000 of depreciation, the cash fixed

cost is ₹1,50,000 and the cash break-even point $\text{₹}1,50,000 \div \text{₹}20 = 7,500$ units.

The conventional break-even chart, weighed: in its favour, a graphical presentation of cost and revenue data is more easily understood by **non-financial managers**; the model gives the profit or loss at any level of activity within the range for which it is valid, and the C/S ratio indicates the relative profitability of different products; it shows clearly the **constant nature of the fixed costs**; and the angle of the profit wedge shows profitability at a glance. Against it, profit can be read only by taking **readings at two separate points**; the chart is difficult to adapt to show the effect of a change in a variable such as a higher selling price or a lower unit variable cost; and **contribution cannot be read directly** from it.

The contribution break-even chart: its advantage over the conventional chart is that **contribution can be read directly**, the angle of the profit wedge still giving a visual reading of profitability. Its disadvantages are the conventional chart's own — profit needs readings at two separate points, and the chart is hard to adapt to a change in selling price or in unit variable cost.

Profit-volume chart: it exhibits the relationship between **profit and sales volume** and overcomes the one limitation of the break-even chart, that profit cannot be read from it without deducting total cost from sales. Profit is plotted directly against activity, loss below the axis and profit above it, and **the point at which the profit line cuts the sales line is the break-even point**. A simple profit-volume chart is built in three steps: find the profit at any **two** levels of activity, draw the sales line, and draw the profit line. Several such lines drawn on one set of axes give the **different break-even points at different price levels**. On 60,000 units at ₹15 against a variable cost of ₹10 with fixed costs of ₹1,50,000, the sales at which a profit of ₹87,500 is earned read off the chart at ₹7,12,500.

Sequential profit graph, also called the profit path chart or the profit-volume graph for a group of products: where a company makes more than one product of varying profitability, a change in the profitability of one changes the profitability of the whole, and this chart shows the **relative profitability of the products at a glance**, together with the average slope and the marginal slope. It is drawn in four steps: prepare a marginal cost statement to get the **P/V ratios**; prepare a statement of **cumulative sales and cumulative profit**; draw the **profit path** from those two columns; and draw the total profit line for the group.

The profit-volume chart, weighed: in its favour, the profit or loss at any level of activity can be read **directly**; the angle of the profit line gives a visual reading of the profitability of the product; the **loss below break-even is very clearly highlighted**; and several charts can be drawn on a common set of axes to show the effect of a change in a variable such as a higher selling price or a lower unit variable cost. Against it, the **cost behaviour patterns are not depicted** — the constant nature of the fixed costs, for instance, does not appear on it at all.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks · 8 questions

- Eight objective questions are placed on this topic — seven at one mark and one at two, nine marks in all — and none of the eight is printed as compulsory. All eight are recognition: three on the charts and their names, two on the angle of incidence, and three on what moves the break-even point.

- The chart questions key on one word each. The chart that shows the relationship between **profit and sales volume** is the **profit-volume chart**, not the break-even chart and not the contribution break-even chart; the statement that a **sequential profit graph** is prepared when multiple products are produced is keyed True; and the statement that the P/V chart exhibits the relationship between profit and **overhead** volume is keyed False, the relationship being with sales volume.
- The **angle of incidence** has been set twice, once as 'the angle between Sales line and Total Cost line' and once as 'an angle formed at the intersection point of total sales line and total cost line in a formal break-even chart'. Both are answered by the same three words, and the second wording is the Study Material's own.
- The three sensitivity questions are the four chart cases in disguise, so work them from the break-even formula rather than from memory. A hike in selling price **lowers** the break-even point, and the 2017-Jun statement to that effect is keyed True; a decrease in sales price **increases** it; and the break-even point can be reduced by increasing the selling price, by reducing variable costs **or** by reducing fixed costs, so the 2019-Dec question is keyed '(d) All of the above'.

OQ · PYQ 2017-Jun [1] (c) (iv) · 1M · Pg 116	OQ Objective	Easy
OQ · PYQ 2019-Jun [1] (c) (iv) · 1M · Pg 118	OQ Objective	Easy
OQ · PYQ 2019-Dec [1] (a) (iii) · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2019-Dec [1] (c) (i) · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2021-Dec [13] · 1M · Pg 119	OQ Objective	Easy
OQ · PYQ 2021-Dec [20] · 1M · Pg 120	OQ Objective	Easy
OQ · PYQ 2023-Jun [1] (c) (iii) · 1M · Pg 122	OQ Objective	Easy
OQ · MQP 2024-Jun S1 [1] (iv) · 2M · Pg 126	OQ Objective	Easy

REMEMBERING recall and reproduce · 2 questions

- Both recall questions are short notes and together they carry seven marks. The four-mark TQ 3.1, from 2017-Dec, is on **break-even analysis**, and the printed answer is a definition, a purpose and a chart: break-even is the volume of production or sales at which there is no profit or loss, that is where total cost equals total revenue; it establishes the relationship of costs and revenues to output; and the formal chart carries the fixed cost line, the total cost line and the total sales line, with the perpendicular from the intersection giving break-even units on the X axis and break-even value on the Y axis. Draw the chart. It is half of what the answer is for.
- The three-mark TQ 3.2, from 2021-Dec, is on the **angle of incidence** and the printed answer is three sentences: it is the angle formed at the intersection of the total sales line and the total cost line in a formal break-even chart; a larger angle means a higher rate of growth of profit and a smaller angle a

lower rate; and growth of profit, or the profitability rate, is what the angle depicts. Three marks, three sentences, and a small sketch marking the angle on the intersection.

TQ 3.1 • PYQ 2017-Dec [5] (a) • 4M • Pg 169

SN
Short note

Easy

TQ 3.2 • PYQ 2021-Dec [2] • 3M • Pg 170

SN
Short note

Easy

UNDERSTANDING explain with reasons • 1 question

- The single question at this level is the eight-mark TQ 3.3, from MQP 2023-Jun S1, and it is two questions under one number. Part (i) is the Study Material's own Illustration 9: sales ₹2,00,000, profit ₹20,000, variable cost ratio 60%, so the P/V ratio is 40%, contribution ₹80,000, fixed cost ₹60,000, and the sales to earn ₹50,000 are $(₹60,000 + ₹50,000) \div 40\% = ₹2,75,000$. Three figures, three lines.
- Part (ii) asks what the angle of incidence is **and whether it can be used in managerial decision making**, and the second half is the half that is usually dropped. Say that the angle is formed where the total sales line cuts the total cost line; that a wide angle means profit grows quickly once break-even is passed and a narrow one that it grows slowly; and then give it a use — read with the margin of safety it shows how safe and how profitable the firm is, so that between two products or two cost structures the one with the wider angle earns more from each additional rupee of sales. Do not answer part (ii) with the definition alone.

TQ 3.3 • MQP 2023-Jun S1 [3] (a) • 8M • Pg 170

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category not
printed

Hard

APPLYING take the provision to the facts • 1 question

- The single question at this level is the seven-mark TQ 3.4, from MQP 2023-Dec S2, and it is the Study Material's Illustration 8 set again on the same figures — total sales ₹5,00,000 at ₹100 a unit, variable cost ₹60, fixed cost ₹1,20,000. The three answers are a P/V ratio of 40%, a break-even point of $₹1,20,000 \div 40\% = ₹3,00,000$, and, at a reduced price of ₹80, a P/V ratio of $(80 - 60) \div 80 = 25\%$ with a break-even point of 6,000 units, that is ₹4,80,000.
- The third part is the one that carries the marks, and it is answered in units and in value because the printed answer gives both. Note what has happened and say it: cutting the price by 20% has raised the break-even point by ₹1,80,000 while the fixed cost has not moved at all, because the whole of the reduction comes out of contribution.

TQ 3.4 • MQP 2023-Dec S2 [4] (a) • 7M • Pg 171

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category not
printed

Medium

Topic 4: Multiple Product Break-Even Analysis

CMAL2P12-C3-T04

Read first Read §3.4 Multiple Product Break Even Analysis, ICMAI Study Material Module 3, pages

124 and 125 — the constant sales mix assumption and the weighted average contribution per mix on page 124, Illustration 2 worked through the standard batch on pages 124 and 125, and the effect of a change in the mix at the foot of page 125; then work Illustration 17 on page 140, where a four-product mix is broken even on a weighted P/V ratio.

NOTES

The assumption the whole analysis rests on: break-even analysis in a multi-product organisation requires a **constant product sales mix** — that whenever x units of A are sold, y units of B and z units of C are also sold. That assumption allows a **weighted average contribution per mix** to be computed, the weights being the quantities of each product in the constant mix, so that the unit contribution of the product making up the largest proportion of the mix has the greatest effect on the average. The **only** situation in which the mix does not affect the analysis is where all the products have the **same C/S ratio**.

Direct fixed cost against common fixed cost: where every fixed cost is directly attributable to a product, each product is broken even on its own — on direct fixed costs of ₹90,000 and ₹27,000 against unit contributions of ₹150 and ₹90, product A breaks even at 600 units and product B at 300. But selling those quantities covers the **direct** fixed costs only and leaves the **common** fixed costs uncovered, so a loss equal to the common fixed cost is reported and the break-even point of the firm as a whole has not been found. Common fixed costs cannot be identified with either product, because they are avoided only if **both** products are given up.

Step	What is done
1. Fix the standard batch	State the planned sales mix and define a batch that carries the products in that proportion
2. Contribution per batch	Sum, over the products, of the units of each in the batch × its contribution per unit
3. Total fixed cost	Direct avoidable fixed cost of every product + the common fixed costs
4. Break-even number of batches	Total fixed cost ÷ contribution per batch
5. Break-even in units of each product	Batches × the units of that product in one batch
6. Prove it	Rebuild the profit statement at those volumes; the profit must come to nil

The composite or weighted average P/V ratio: $\text{weighted P/V ratio} = (\text{total contribution of the mix} \div \text{total sales of the mix}) \times 100$, which is the same thing as the sum, over the products, of **each product's share of total sales value × that product's own P/V ratio**; the answer is a **percentage**,

and the break-even sales of the group are then **total fixed cost ÷ the weighted P/V ratio**, an amount in ₹. On sales of ₹20,000, ₹25,000, ₹10,000 and ₹5,000 with variable costs of 60%, 68%, 80% and 40% of selling price, the four P/V ratios are 40%, 32%, 20% and 60%; contribution of ₹21,000 on sales of ₹60,000 gives a weighted ratio of **35%**, and fixed costs of ₹14,700 give break-even sales of $₹14,700 \div 0.35 = ₹42,000$, which rebuilds as variable costs of ₹27,300 plus fixed costs of ₹14,700.

Break-even sales when the mix changes: the break-even point is **not a unique number** — it moves with the composition of the mix. Where the actual mix turns out to be 1 : 1 against a planned 2 : 1, the batch changes from two units of A and one of B to one of each, contribution per batch falls from ₹390 to **₹240**, and the break-even rises from 400 batches to $₹1,56,000 \div ₹240 = 650$ batches, that is 650 units of each product. At the same total volume of 1,200 units the 1 : 1 mix earns contribution of only ₹1,44,000 against fixed costs of ₹1,56,000 and returns a **loss of ₹12,000**. In general, an increase in the proportion of the **higher** contribution margin products decreases the break-even point, and an increase in the proportion of the lower margin products increases it.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks · 2 questions

- Two objective questions are placed on this topic, both at two marks, and one of the two is printed as compulsory. Both are the same computation — a weighted P/V ratio, then a division — and both can be worked in three lines.
- The MQP 2023-Dec S2 question gives shares of total sales of 50%, 30% and 20% with variable costs of 60%, 50% and 40% of sales, so the P/V ratios are 40%, 50% and 60% and the combined ratio is $(0.50 \times 40) + (0.30 \times 50) + (0.20 \times 60) = 47\%$. The compulsory 2025-Dec question on M/s Bishnu Limited gives a 3 : 2 mix with variable costs at 95% and 90% of sales, so the P/V ratios are 5% and 10%, the weighted ratio is $[(3 \times 5) + (2 \times 10)] \div 5 = 7\%$, and the break-even is $₹7,000 \div 7\% = ₹1,00,000$.
- Both stems give the mix in **sales value** and both give variable cost as a **percentage of sales**, which is what makes the weighted ratio the right route. Where a stem instead gives unit contributions and a mix in units, the standard batch is the route: contribution per batch, then fixed cost ÷ contribution per batch.

OQ · MQP 2023-Dec S2 [1] (ix) · 2M · Pg 125

OQ
Objective

Easy

OQ · PYQ 2025-Dec [1] (v) {C} · 2M · Pg 130

OQ
Objective

Easy

APPLYING take the provision to the facts · 1 question

- The single question at this level is the eight-mark PQ 4.1, from MQP 2023-Jun S2, and it is two separate mixes under one number. In part (i) Z plc sells Aye, Bee and Cee in **equal quantities at the same selling price**, so each takes a third of sales value; with C/S ratios of 40% and 50% on the first two and 48% overall, the third is a **balancing figure** — $(48 \times 3) - 40 - 50 = 54\%$. On the revised mix of 40 : 25 : 35 the ratio is $(0.40 \times 40\%) + (0.25 \times 50\%) + (0.35 \times 54\%) = 47.4\%$.
- Part (ii) is one weighted average and one division: on C/S ratios of 30%, 20% and 25% in the ratio 2 : 5 : 3, the weighted ratio is $[(30 \times 2) + (20 \times 5) + (25 \times 3)] \div 10 = 23.5\%$, and monthly fixed costs of ₹1,00,000

give a break-even of $\text{₹}1,00,000 \div 23.5\% = \text{₹}4,25,532$ to the nearest rupee. Weight on the **sales value** shares, not on unit contributions, whenever the stem gives C/S ratios and a ratio of sales; and carry the ratio unrounded into the division, because rounding 23.5% to 24% moves the answer by more than ₹8,000.

PQ 4.1 · MQP 2023-Jun S2 [3] (a) · 8M · Pg 172

PRAC
Practical

Hard

Topic 5: Differential Cost Analysis

CMAL2P12-C3-T05

Read first Read §3.5 Differential Cost Analysis, ICAI Study Material Module 3, pages 126–129 — the meaning of differential cost and the ₹25,000 example on page 126, the nine characteristics of differential costing and the policy decisions it is used for on pages 127 and 128, the comparison of marginal cost with differential cost on page 128, and Illustration 3 with the export price on page 129.

NOTES

Differential cost: the change in the costs which results from the adoption of an alternative course of action. The alternatives may arise from a change in sales volume, in price, in product mix — by increasing, reducing or stopping the production of certain items — or in the methods of production, sales or sales promotion, or they may be make or buy and take or refuse decisions. Where the change in cost comes of moving the activity from one level to another it is called **incremental cost** if output rises and **decremental cost** if output falls, though accountants generally do not distinguish the terms and use them to mean the same thing.

The determination of differential cost, and the direction it points: differential cost is the **algebraic difference between the relevant costs of the alternatives being considered**, so with two levels of activity it is the cost at one level less the cost at the other. It may be an increase or a decrease. Where the present cost is ₹2,50,000 with the work done by labour and the expected cost ₹2,25,000 with it done by machinery, the differential cost is a **decrease of ₹25,000**, and the replacement should be implemented, because that decrease raises the firm's profit by ₹25,000.

Nine characteristics: only **total cost** is needed, not cost per unit; the existing level is the **base** against which a future or forecast level is compared; differential cost is the **economist's concept of marginal cost**; it is called incremental where the difference comes of an increase in production and decremental where it comes of a decrease; it **does not form part of the accounting records**, though it may be incorporated in budgets; the marginal cost technique need **not** be adopted for it, since it can be worked out under absorption costing or standard costing; what is said of differential cost applies equally to **differential revenue**; **variable costs are the differential costs where the additional output involves no additional fixed cost**; and the analysis is carried on using **relevant costs only**. Differential costs are **future** costs, they suit an existing business rather than a new set-up, and they are used for planning and decision-making rather than recorded.

The decisions differential costing is used for: the introduction of a new plant; **make or buy; lease or buy**; discontinuing a product or suspending or closing down a segment; the profitability of a change in **product mix**; the acceptance of an offer at a lower selling price, or a quotation at a lower price to fill capacity; a change in the methods of production; the determination of the most profitable **level of production and price**; submitting tenders; the price at which raw materials may be purchased; **equipment replacement**; the profitability of **further processing** a product rather than selling it as it is; and the opening of a new sales area or territory.

Marginal cost against differential cost: they are alike in that both are techniques of cost analysis and presentation, both are used in decision-making and in formulating policy, both arise out of the difference in behaviour between fixed and variable costs, and both compare with the economist's marginal cost. They differ in four ways: differential cost analysis **can be made under absorption costing as well as marginal costing**; while marginal costing excludes the entire fixed cost, **some fixed costs may be relevant for differential cost analysis**; marginal costs may be embodied in the accounting system whereas differential costs are **worked out separately as analysis statements**; and marginal costing decides on contribution and the contribution ratio, while differential cost analysis compares **differential costs with incremental or decremental revenues**. The distinguishing point is the treatment of fixed cost: under differential costing both variable and fixed cost change with the level of activity, under marginal costing only variable cost does.

Illustration 3, the shape a differential cost answer takes: a company at 90% capacity making 13,500 units is compared with itself at 100%, making 15,000. Material and labour cost is first extracted as a balance — sales ₹15,00,000 less profit at 10%, that is ₹1,50,000, gives a total cost of ₹13,50,000, from which fixed ₹3,00,500, semi-fixed ₹97,500 and variable ₹1,45,000 leave **₹8,07,000** of material and labour. The differential cost of the extra 1,500 units is then built line by line: material and labour ₹89,667, fixed expenses ₹100, semi-fixed ₹3,000 and variable ₹4,500, that is **₹97,267** in all, or **₹64.84 a unit** — and the recommendation is that the export price for those 1,500 units should not be less than ₹64.84.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks · 6 questions

- Six objective questions are placed on this topic — two at one mark and four at two, ten marks in all — and three of the six are printed as compulsory. Two are the definition itself, one contrasts differential cost with marginal costing, one is a two-level computation, and two are decisions taken on a comparison of alternatives.
- The definition has been set twice in the Study Material's own words and both are keyed True or to the same phrase. **Differential cost is the change in the costs which results from the adoption of an alternative course of action**; and **the difference in total cost that results from two alternative courses of action** is differential cost — not relevant cost, not opportunity cost and not marginal cost, which is the key to the two-mark compulsory 2025-Jun question. A third statement is keyed True and is worth carrying as it stands: while marginal costing excludes the entire fixed cost, **some of the fixed costs may be taken into account as being relevant for differential cost analysis**.
- The computation is one subtraction on each line. Variable costs of ₹12,000 at 60% activity against ₹16,000 at 80%, with fixed costs of ₹20,000 against ₹22,000, give a differential cost for the 20% of

$\text{₹}4,000 + \text{₹}2,000 = \text{₹}6,000$ — the fixed cost has stepped up and belongs in the answer, which is exactly the point the question is set on.

- The two decision questions are worked on the same rule and both are compulsory. For the two-mark 2025-Jun question on XYZ Ltd, the maximum price payable to an outside supplier is the **variable cost saved plus the contribution the released capacity would earn** — $\text{₹}15 \text{ lakh} + \text{₹}25 \text{ lakh} = \text{₹}40 \text{ lakh}$, the $\text{₹}40$ lakh of fixed cost being unchanged either way and therefore irrelevant. For the two-mark 2025-Dec question on the two machines, the **indifference point** settles it: $(\text{₹}30,000 - \text{₹}12,000) \div (\text{₹}10 - \text{₹}4) = 3,000$ units, so below 3,000 units the semi-automated machine is cheaper and above it the fully-automated one is, which makes '(a) the Semi-Automated machine at 2,500 units' the key.

OQ • MQP 2023-Jun S2 [1] (a) (v) • 1M • Pg 121	OQ Objective	Easy
OQ • MQP 2023-Jun S2 [1] (a) (vii) • 1M • Pg 121	OQ Objective	Easy
OQ • MQP 2023-Dec S2 [1] (iii) • 2M • Pg 123	OQ Objective	Easy
OQ • PYQ 2025-Jun [1] (iv) {C} • 2M • Pg 130	OQ Objective	Easy
OQ • PYQ 2025-Jun [1] (xi) {C} • 2M • Pg 130	OQ Objective	Easy
OQ • PYQ 2025-Dec [1] (vii) {C} • 2M • Pg 131	OQ Objective	Easy

REMEMBERING recall and reproduce • 1 question

- The single question on this topic is the four-mark TQ 5.1, from 2017-Jun, a short note on **differential cost**, and the printed answer runs in two halves. Open with the Study Material's own sentence — differential cost is the change in the costs which results from the adoption of an alternative course of action — then name where the alternatives come from: a change in sales volume, price, product mix or methods of production, sales or sales promotion, or a make or buy or take or refuse decision. Add that the change is called incremental or decremental according to the direction of the output change, and that accountants do not in practice distinguish the two terms.
- The second half of the printed answer is the **four essential features**, and they are what lift a definition to four marks: the data used are the costs, revenues and investment factors relevant to the problem; **total** differential costs are considered rather than cost per unit; the analysis is made **outside the accounting records**; and, because it is the difference between two levels that matters, the absolute cost at each level is not as relevant as the difference, so items of cost that do not change are left out.

TQ 5.1 • PYQ 2017-Jun [5] (a) • 4M • Pg 173	SN Short note	Easy
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Topic 6: Marginal Costing vs. Absorption Costing (Advanced Applications)

CMAL2P12-C3-T06

Read first Read §3.6 Marginal Costing vs. Absorption Costing (advanced applications), ICAI Study Material Module 3, pages 130–134 — the two techniques defined and the two variance differences on pages 130 and 131, the five-point difference table on page 131, the four stock cases on pages 131 and 132, the operating income statement under each technique on pages 132 and 133, and Illustration 4 with its two working notes on pages 133 and 134.

NOTES

Absorption costing: the cost of the product is determined after considering the **total cost, both fixed and variable**, which is why it is also called **traditional or total costing**. Variable costs are charged direct to the products and fixed costs are **apportioned over the products on a suitable basis**, so that all costs are identified with the manufactured products. Fixed production overhead is charged to the product and released as part of the cost of goods sold, profit being the difference between sales and cost of goods sold; the arbitrary apportionment of fixed cost may result in the **under or over recovery of overheads**.

Marginal costing: only variable costs are charged to products, processes or operations, and **fixed costs are charged as period costs** to the profit statement of the period in which they are incurred. The cost of production therefore excludes fixed factory overhead, the value of **closing stock comprises variable cost only**, no part of the fixed expense is carried over to the next period, and no under or over recovery of fixed overhead arises. Decisions are taken on **contribution**, the excess of selling price over variable cost.

	Absorption costing
Costs taken into product cost and inventory valuation	Both fixed and variable costs
Treatment of fixed cost	Charged to the cost of production, each product bearing a reasonable share, so that profitability is influenced by the apportionment
Presentation of the cost data	The conventional pattern; the net profit of each product is struck after subtracting fixed cost along with variable cost
Effect of the difference between opening and closing stock	Affects the unit cost of production, through the fixed cost carried in the stock
Cost per unit as production rises	Reduces, because fixed cost per unit reduces while variable cost per unit stays the same

The four stock cases, and which technique reports the higher profit: where there is **no opening or closing stock**, the profit is the **same** under both; where **opening stock equals closing stock** it is the same, provided the fixed cost element in the two stocks is the same amount; where **closing stock is more than opening stock** — production exceeds sales — **absorption costing reports the higher profit**, because part of the period's fixed overhead is carried forward in the closing stock; and where **opening stock is more than closing stock** — sales exceed production — **marginal costing reports the higher profit**, because part of the preceding period's fixed cost is added to this period's cost of goods sold through the opening stock. Put in one line: **marginal costing rewards sales and absorption costing rewards production.**

Operating income statement under marginal costing	₹
Sales	XXXXX
Direct material consumed, direct labour cost and variable manufacturing overhead	XXXX
= Variable cost of goods produced	XXXX
Add: opening stock of finished goods, valued at the total variable cost of the previous year	XXXX
Less: closing stock of finished goods, valued at the total variable cost of the current year	XXXX
= Variable cost of goods sold	XXXX
Add: variable administration, selling and distribution overhead	XXXX
= Total variable cost	XXXX
Contribution margin (sales – total variable cost)	XXXX
Less: fixed operating costs — production, administration, selling and distribution	XXXX
Operating income	XXXX
Operating income statement under absorption costing	₹

Sales	XXXX
Direct material consumed, direct labour cost, variable manufacturing overhead and fixed manufacturing overhead	XXXX
= Manufacturing cost incurred during the year (gross factory cost)	XXXX
Add: opening work-in-progress; less: closing work-in-progress	XXXX
= Total cost of goods manufactured	XXXX
Add: opening stock of finished goods, valued at the total cost of the previous year	XXXX
Less: closing stock of finished goods, valued at the total cost of the current year	XXXX
Gross profit or margin (sales – cost of goods sold)	XXXX
Less: operating costs — administration, and selling and distribution, each both fixed and variable	XXXX
Operating income	XXXX

Illustration 4, and where the two profits part company: on a capacity of 5,00,000 units the company produces 4,00,000 and sells 3,87,500 at ₹64, with an opening stock of 50,000 units, variable production cost ₹32 a unit, variable selling expenses ₹9.60 a unit, fixed production cost ₹30,00,000 and fixed selling expenses ₹20,00,000. Under marginal costing the closing stock of 62,500 units is valued at ₹32, contribution comes to ₹86,80,000 and profit to **₹36,80,000**. Under absorption costing fixed production overhead is absorbed at **₹30,00,000 ÷ 5,00,000 units = ₹6 a unit** — the rate is struck on **capacity**, fixed production expenses being absorbed on the basis of capacity and fixed selling expenses on the basis of period — so 4,00,000 units absorb ₹24,00,000, stocks are valued at ₹38, and the profit of ₹43,55,000 is reduced by the **₹6,00,000 of fixed production overhead under-absorbed** to **₹37,55,000**.

Reconciliation of the two profits, on Illustration 4	₹
Profit under marginal costing	36,80,000

Add: fixed production overhead carried forward in closing stock (62,500 units × ₹6)	3,75,000
Less: fixed production overhead brought in with opening stock (50,000 units × ₹6)	3,00,000
Profit under absorption costing	37,55,000

The rule the reconciliation states: **profit under absorption costing – profit under marginal costing = (closing stock units – opening stock units) × fixed production overhead per unit**. The answer is an **amount in ₹**, and its **sign** is the whole of the point — positive where stock has been built up, negative where stock has been run down, nil where the two stocks are equal. On Illustration 4 the stock rises by 12,500 units, so absorption profit exceeds marginal profit by $12,500 \times ₹6 = ₹75,000$.

Two differences in the variances the two systems throw up: in marginal costing fixed costs are not absorbed into product costs, so there are no fixed cost variances to explain under or over absorption and **no fixed overhead volume variance** — there is, however, a **fixed overhead expenditure variance**, computed exactly as it is under absorption costing. And in marginal costing the **sales volume variance in units is valued at the standard contribution margin** and is called the **sales volume contribution variance**, where standard absorption costing uses standard profit instead of standard contribution.

OBJECTIVE recognise the right answer — Section A of the Scanner, 1 and 2 marks · 8 questions

- Eight objective questions are placed on this topic — six at one mark and two at two, ten marks in all — and two of the eight are printed as compulsory. Every one of the eight turns on one of three things: the name of the technique, what goes into stock, or which technique reports the higher profit.
- The naming questions are recognition and their keys are fixed. **Absorption costing is also known as total costing**, not committed, target or discretionary costing; the costing method where **fixed factory overheads are added to inventory** is absorption costing; and the technique in which **both fixed and variable costs are considered for product costing and inventory valuation** is absorption costing, which is why the same sentence said of marginal costing, in the 2023-Jun statement, is keyed False.
- The stock questions are answered from one sentence: under marginal costing **both opening and closing stock are valued at variable cost**. The one-mark compulsory 2023-Dec question offers three wrong mixtures of variable and total cost around that single rule, and the fill-in-the-blank asks the same thing in a single gap.
- Two questions are on the profit comparison and they are the ones to reason rather than recall. Where there are **no opening or closing stocks** the profit under marginal costing is **equal** to that under absorption costing, because no fixed overhead is carried into or out of stock; and the statement that the profit calculated under the two techniques is **always** equal is keyed False, because it is equal only in that case and where the two stocks carry the same fixed cost. Test any such statement by asking whether stock has moved.

OQ • PYQ 2017-Jun [1] (a) (iv) • 1M • Pg 116	OQ Objective	Easy
OQ • PYQ 2017-Dec [1] (c) (i) • 1M • Pg 117	OQ Objective	Easy
OQ • PYQ 2019-Dec [1] (a) (ii) • 1M • Pg 118	OQ Objective	Easy
OQ • PYQ 2023-Jun [1] (b) (ii) • 1M • Pg 122	OQ Objective	Easy
OQ • MQP 2023-Jun S1 [1] (c) (vi) • 1M • Pg 122	OQ Objective	Easy
OQ • PYQ 2023-Dec [1] (xv) {C} • 1M • Pg 126	OQ Objective	Easy
OQ • MQP 2024-Jun S1 [1] (vi) • 2M • Pg 126	OQ Objective	Easy
OQ • PYQ 2024-Jun [1] (xi) {C} • 2M • Pg 127	OQ Objective	Easy

REMEMBERING recall and reproduce • 1 question

- The single recall question is the four-mark TQ 6.1, from 2017-Dec, a short note on **absorption costing against marginal costing**, and the printed answer is two paragraphs rather than a table. Define absorption costing first — the cost of the product determined after considering the total cost, both fixed and variable, the variable costs charged direct and the fixed costs apportioned over the products on a suitable basis, which is why it is also called traditional or total costing. Then define marginal costing in the Institute's own words: the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs.
- Close as the printed answer closes, on the synonyms — direct costing, contributory costing, variable costing, comparative costing, differential costing and incremental costing are used more or less synonymously with marginal costing. Four marks does not buy the five-point comparison table as well; that is what the four-mark question in the next band asks for.

TQ 6.1 • PYQ 2017-Dec [5] (b) • 4M • Pg 175	SN Short note	Easy
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ANALYSING break down and compare • 1 question

- The single question at this level is the four-mark TQ 6.2, from 2023-Jun, and it asks for the **differences** rather than for two definitions. The printed answer is a two-column table of five rows and the marks are in the rows: what is taken into product cost and inventory valuation; how fixed cost is treated, and that under marginal costing profitability is judged by the P/V ratio; how the cost data are presented, conventionally against a presentation that highlights contribution; whether the difference between opening and closing stock affects the unit cost of production; and what happens to cost per unit as production rises.
- Draw the table. Two columns headed absorption costing and marginal costing, five numbered rows, one line in each cell — an answer written as continuous prose has to make the same five points and reads as

three. Row four is the one to get exactly right, because it is the row that the profit reconciliation depends on: under absorption costing the difference in the magnitude of opening and closing stock **affects** the unit cost of production through the fixed cost carried in the stock, and under marginal costing it does not.

TQ 6.2 · PYQ 2023-Jun [3] (b) (i) · 4M · Pg 175

DB
Distinguish

Medium