CHAPTER-14

MARGINAL COSTING

MARGINAL VS. ABSORPTION COSTING

Q1 **(C6).**Mega Company has just completed its first year of operations. The unit costs on a normal costing basis are as under:

	Rs.
Direct material 4kg @ Rs. 4	= 16.00
Direct labour 3 hrs Rs. 18	= 54.00
Variable overhead 3 hrs @ Rs.4	= 12.00
Fixed overhead 3 hrs @ Rs. 6	= 18.00
	= 100.00

Selling and administrative costs:

Variable	Rs. 20 per unit
Fixed	Rs.7,60,000

During the year the company has the following activity:

Units produced	= 24,000
Units sold	= 21,500
Unit selling price	= Rs.168
Direct labour hours worked	= 72,000

Actual fixed overhead was Rs.48,000 less than the budgeted fixed overhead. Budgeted variable overhead was Rs.20,000 less than the actual variable overhead. The company used an expected actual activity level of 72,000 direct labour hours to compute the predetermine overhead rates.

Required:

(i) Compute the unit cost and total income under
  (a) Absorption costing
  (b) Marginal costing
(ii) Under or over absorption of overhead.
(iii) Reconcile the difference between the total income under absorption and marginal costing. **(Nov. 09)**

Q2. **(C7).**X Ltd. provides you the following information:

Normal Capacity	2,40,000 units
Opening Stock	52,000 units
Units produced	2,34,000 units
Units sold	2,40,000 units
Direct material cost per unit	Rs.6
Direct labour cost per unit	Rs. 6
Variable manufacturing overhead per unit	Rs. 3
Fixed manufacturing overheads	Rs. 12,00,000
Variable Administration overhead per unit	Re. 0.80
Fixed Administration overhead	Rs. 1,20,000
Variable selling and distribution overhead per unit sold	Rs. 2.00
Fixed selling and distribution overheads	Rs. 2,40,000
Selling price per unit	Rs. 35

Required:

(a) Prepare Income Statement using
  (i) Absorption Costing
  (ii) Marginal Costing.
(b) Prepare a statement reconciling the difference in profit, if any.
(c) Calculate break-even-point and margin of safety.
(d) How many units are to be sold to earn a profit of 25% on cost?

Q3. **(SMN1) [Exclusive]** WONDER LTD. manufactures a single product, ZEST The following figures relate to ZEST for a one- year period:

Activity Level	50%	100%
Sales and production (units)	400	800
	Rs. Lakhs	Rs. lakhs
Sales	8.00	16.00
Production costs:		
Variable	3.20	6.40
Fixed	1.60	1.60
Selling and administration costs:		
Variable	1.60	3.20
Fixed	2.40	2.40

The normal level of activity for the year is 800 units. Fixed costs are incurred evenly throughout the year, and actual fixed costs are the same as budgeted. There were no stocks of ZEST at the beginning of the year.

In the first quarter, 220 units were produced and 160 units were sold.

Required:

(a) What would be the fixed production costs absorbed by ZEST if absorption costing is used?

(b) What would be the under/over-recovery of overheads during the period?

(c) What would be the profit using absorption costing?

(d) What would be the profit using marginal costing?

Q4. **(SMP1)** .XYZ Ltd. has a production capacity of 2,00,000 units per year. Normal capacity utilization is reckoned as 90%. Standard variable production costs are Rs. 11 per unit. The fixed costs are Rs. 3,60,000 per year. Variable selling costs are Rs. 3 per unit and fixed selling costs are Rs. 2, 70,000 per year. The unit selling price is Rs. 20.

In the year just ended on 30th June, 2006, the production was 1,60,000 units and sales were 1,50,000 units. The closing inventory on 30th June was 20,000 units. The actual variable production costs for the year were Rs. 35,000 higher than the standard.

(i) Calculate the profit for the year

(a) by absorption costing method and

(b) by marginal costing method.

(ii) Explain the difference in the profits.

Q5. T Ltd. produces a single product 'T-10' and sells it at a fixed price of Rs.2,050 per unit. The production and sales data for first quarter of the year 2014-15 are as follows:

	April	May	June
Sales in units	4,200	4,500	5,200
Production in units	4,600	4,400	5,500

Actual/budget information for each month was as follows:

Direct materials	4 kilograms at Rs.120 per kilogram
Direct labour	6 hours at Rs.60 per hour
Variable production overheads	150% of direct labour
Sales commission	15% of sales value
Fixed production overheads	Rs.5,00,000
Fixed selling overheads	Rs.95,000

There was no opening inventory at the start of the quarter. Fixed production overheads are budgeted at Rs.60,00,000 per annum and are absorbed into products based on a budgeted normal output of 60,000 units per annum.

Required:

(a) Prepare a profit statement for each of the three months using absorption costing principles.
(b) Prepare a profit statement for each of the three months using marginal costing principles.
(c) Present a reconciliation of the profit or loss figures given in your answer to (a) and (b).

(R-N-15/8)

Q6. **(C4/PM).**ABC Ltd. can produce 4,00,000 units of a product per annum at 100% capacity. The variable production costs are Rs. 40 per unit and the variable selling expenses are Rs. 12 per sold unit. The budgeted fixed production expenses were Rs. 24,00,000 per annum and the fixed selling expenses were Rs. 16,00,000. During the year ended 31st March, 2008, the company worked at 80% of its capacity. The operating data for the year are as follows:

Production	3,20,000 units
Sales @ Rs. 80 per unit	3,10,000 units
Opening stock of finished goods	40,000 units

Fixed production expenses are absorbed on the basis of capacity and fixed selling expenses are recovered on the basis of period.

You are required to prepare Statements of Cost and Profit for the year ending 31st March, 2008:

(i) On the basis of marginal costing
(ii) On the basis of absorption costing.

GENERAL QUESTIONS

PHASE-I

Q7. **(SMN3)**You are given the following particulars calculate:
(a) Break-even point
(b) Sales to earn a profit of Rs.20,000
i. Fixed cost Rs.1,50,000
ii. Variable cost Rs.15 per unit
iii. Selling price is Rs.30 per unit

Q8. **(SMP3)** If P/V ratio is 60% and the Marginal cost of the product is Rs.20. What will be the selling price?

Q9. **(SMP4).**The ratio of variable cost to sales is 70%. The break-even point occurs at 60% of the capacity Sales. Find the capacity sales when fixed costs are Rs. 90,000. Also compute profit at 75% of the capacity sales.

Q10. **(SMN4)**A company has a P/V ratio of 40%. By what percentage must sales be increased to offset: 20% reduction in selling price?

Q11. **(SMN8).**A company earned a profit of Rs.30,000 during the year 2008. If the marginal cost and selling price of the product are Rs. 8 and Rs. 10 per unit respectively, find out the amount of margin of safety.

Q12. **[SMP13]** A company has made a profit of Rs.50,000 during the year 20X3-X4. If the selling price and marginal cost of the product are Rs.15 and Rs.12 per unit respectively, find out the amount of margin of safety.

Q13. A company gives the following information:

Margin of Safety	Rs. 3,75,000
Total Cost	Rs. 3,87,500
Margin of Safety (Qty.)	15,000 units
Break Even Sales in Units	5,000 units

You are required to calculate:
(i) Selling price per unit
(ii) Profit
(iii) Profit/ Volume Ratio
(iv) Break Even Sales (in Rupees)
(v) Fixed Cost

[ICAI-N15/1(B)][IPC/N19/1(A)]

Q14. **(PM).**Product Z has a profit-volume ratio of 28%. Fixed operating costs directly attributable to product Z during the quarter II of the financial year2009-10 will be Rs.2,80,000.

Calculate the sales revenue required to achieve a quarterly profit of Rs. 70,000. **(May, 2009)**

PHASE-II

Q15. **(C1).**A company produces single product which sells for Rs. 20 per unit. Variable cost is Rs. 15 per unit and Fixed overhead for the year is Rs. 6,30,000.

Required:

(a) Calculate sales value needed to earn a profit of 10% on sales.
(b) Calculate sales price per unit to bring BEP down to 1,20,000 units.
(c) Calculate margin of safety sales if profit is Rs. 60,000.

Q16. **(C5).**PQ Ltd. reports the following cost structure at two capacity levels:

	(100% capacity)	
	2,000 units	1,500 units
Production overhead I	Rs. 3 per unit	Rs. 4 per unit
Production overhead II	Rs. 2 per unit	Rs. 2 per unit

If the selling price, reduced by direct material and labour is Rs. 8 per unit, what would be its break-even point?

Q17. **(C8).**The P/V Ratio of Delta Ltd. is 50% and margin of safety is 40%. The company sold 500 units for Rs. 5,00,000. You are required to calculate:

(i) Break even point, and
(ii) Sales in units to earn a profit of 10% on sales.

Q18.(SMP5)

			Rs.
(i)	Ascertain profit, when sales	=	2,00,000
	Fixed Cost	=	40,000
	BEP	=	1,60,000
(ii)	Ascertain sales, when fixed cost	=	20,000
	Profit	=	10,000
	BEP	=	40,000

Q19. **(SMN9).**A Ltd. Maintains margin of safety of 37.5% with an overall contribution to sales ratio of 40%. Its fixed costs amount to Rs. 5 lakhs.

Calculate the following:

1. Break-even sales
ii. Total sales
iii. Total variable cost
iv. Current profit
v. New 'margin of safety' if the sales volume is increased by 7½ %.

Q20. **(SMP14)(a)** If margin of safety is Rs. 2,40,000 (40% of sales) and P\V ratio is 30% of AB Ltd, calculate its (1) Break even sales, and (2) Amount of profit on sales of Rs. 9,00,000.

(a) X Ltd. has earned a contribution of Rs. 2,00,000 and net profit of Rs. 1,50,000 of sales of Rs. 8,00,000. What is its margin of safety?

Q21. **(PM).**A Company sells two products, J and K. The sales mix is 4 units of J and 3 units of K. The contribution margins per unit are Rs.40 for J and Rs.20 for K. Fixed costs are Rs.6,16,000 per month. Compute the break-even point. **(November, 2009)**

Q22. (SMP10/PM). An Automobile manufacturing company 'Bharti' produces different models of cars. The budget in respect of model no. 1000 for the month of September, 2006 is as under:

Budgeted output		40,000 units
Variable Costs:		(Rs. Lakhs)
Materials	264	
Labour	52	
Direct expenses	124	440
Fixed costs:		
Specific fixed costs	90.00	
Allocated fixed costs	112.50	202.50
Total costs		642.50
Add: Profit		57.50
Sales		700.00

Calculate:

(i) Profit with 10% increase in selling price with a 10% reduction in sales volume.

(ii) Volume to be achieved to maintain the original profit after a 10% rise in material costs, at the originally budgeted selling price per unit.

Q23.(SMN10). By noting "P/V will increase or P/V will decrease or P/V will not change", as the case may be, state how the following independent situations will affect the P/V ratio:

(i) An increase in the physical sales volume;

(ii) An increase in the fixed cost;

(iii) A decrease in the variable cost per unit;

(iv) A decrease in the contribution margin;

(v) An increase in selling price per unit;

(vi) A decrease in the fixed cost;

(vii) A 10% increase in both selling price and variable cost per unit;

(viii) A 10% increase in the selling price per unit and 10% decrease in the physical sales volume.

(ix) A 50% increase in the variable cost per unit and 50% decrease in the fixed cost.

(x) An increase in the angle of incidence.

Q24. (SMP16) The following information is given by Star Ltd.:

Margin of Safety	Rs. 1,87,500
Total Cost	Rs. 1,93,750
Margin of Safety	3,750 units
Break-even Sales	1,250 units

Required:

Calculate Profit P/V Ratio, BEP Sales (in Rs.) and Fixed Cost.

Q25. The following information was obtained from the records of a manufacturing unit:

	Rs.	Rs.
Sales 80,000 units @ Rs. 25		20,00,000
Material consumed	8,00,000	
Variable Overheads	2,00,000	
Labour Charges	4,00,000	
Fixed Overheads	3,60,000	17,60,000
Net Profit		2,40,000

Calculate:

(i) The number of units by selling which the company will neither lose nor gain anything.

(ii) The sales needed to earn a profit of 20% on sales.

(iii) The extra units which should be sold to obtain the present profit if it is proposed to reduce the selling price by 20% and 25%.

(iv) The selling price to be fixed to bring down its Break-even Point to 10,000 units under present conditions. **[ICAI-M17/3(A)]**

Q26. A company has introduced a new product and marketed 20,000 units. Variable cost of the product is Rs. 20 per units and fixed overheads are Rs. 3,20,000.

You are required to:

(i) Calculate selling price per unit to earn a profit of 10% on sales value, BEP and Margin of Safely?

(ii) If the selling price is reduced by the company by 10%, demand is expected to increase by 5,000 units, then what will be its impact on Profit, BEP and Margin of Safety?

(iii) Calculate Margin of Safety if profit is Rs. 64,000. **[ICAI-N16/2(A)]**

TWO PROJECTS / TWO PERIODS

Q27. **[SMP11]** You are given the following data:

	Sales	Profit
Year 20X3	Rs.1,20,000	Rs.8,000
Year 20X4	Rs.1,40,000	Rs.13,000

Find out—

(i) P/V ratio,
(U) B.E, Point
(iii) Profit when sales are Rs.1,80,000,
(iv) Sales required earn a profit of Rs.12,000,
(v) Margin of safety in year 20X4.

Q28. Followings figures have been extracted from the books of M/s. RST Private Limited:

Financial Year	Sales (Rs.)	Profit/Loss(Rs.)
2016-17	4,00,000	15,000 (loss)
2017-18	5,00,000	15,000 (Profit)

You are required to calculate:

(i) Profit Volume Ratio
(ii) Fixed Costs
(iii) Break Even Point
(iv) Sales required to earn a profit of Rs. 45,000
(v) Margin of Safety in Financial Year 2017-18. **[INTER-M18/1(C)][M-5]**

Q29. The following figures are available from the records of ABC Company as at 31st March.

	2015 (Rs. in lakhs)	2016 (Rs. in lakhs)
Sales	200	250
Profit	30	45

Calculate:

(i) The P/V ratio and total fixed expenses.
(ii) The break-even level of sales.
(iii) Sales required to earn a profit of Rs. 70 lakhs. **[ICAI-N16/1(A)][IPC-R-M18/9]**

Q30. **(SMP7/A32N).**A company sells its product at Rs. 15 per unit. In a period, if it produces and sells 8,000 units, incurs a loss of Ps. 5 per unit. If the volume is raised to 20,000 units, it earns a profit of Rs.4 per unit. Calculate breakeven point both in terms of rupees as well as in units. **[R-N18/13]**

Q31. A company is producing an identical products in two factories. The followings are the details in respect of both factories"

	Factory X	Factory X
Selling price per unit (Rs.)	50	50
Variable cost per unit (Rs.)	40	35
Fixed cost (Rs.)	2,00,000	3,00,000
Depreciation included in above fixed cost (Rs.)	40,000	30,000
Sales in units	30,000	20,000
Production capacity (units)	40,000	30,000

You are required to determine :

(i) Break Even Point (BEP) each factory individually.
(ii) Cash break -even point for each factory individually.
(iii) BEP for company as a whole, assuming the present product mix is in sales ratio.
(iv) Consequence on profit and BEP if product mix is changed to 2 : 3 and total demand same.

[IPC-M18/2(A)][M-8]

Q32. ABC Limited started its operations in the year 2013 with a total production capacity of 2,00,000 units. The following information, for two years, are made available to you:

	Year 2013	Year 2014
Sales (units)	80,000	1,20,000
Total Cost (Rs.)	34,40,000	45,60,000

There has been no change in the cost structure and selling price and it is anticipated that it will remain unchanged in the year 2015 also.

Selling price is Rs. 40 per unit. Calculate :

(i) Variable cost per unit.
(ii) Profit Volume Ratio.
(iii) Break-Even Point (in units)
(iv) Profit if the firm operates at 75% of the capacity. **[ICAI-M15/1(A)]**

Q33. **(SMN5)** PQR Ltd. has furnished the following data for the two years:

	2011	**2012**
Sales	Rs. 8,00,000	?
Profit/Volume Ratio (P/V ratio)	50%	37.5%
Margin of safety sales as a % of total sales	40%	21.875%

There has been substantial savings in the fixed cost in the year 2011 due to the restructuring process. The company could maintain its sales quantity level of 2011 in 2012 by reducing selling price.
You are required to calculate the following:
(i) Sales for 2012 in Rs.
(ii)Break-even sales for 2012 in Rupees.
(iii) Fixed cost for 2012

Q34. **(SMP12).**A single product company sells its product at Rs. 60 per unit. In 2010, the company operated at a margin of safety of 40%. The fixed costs amounted to Rs. 3, 60,000 and the variable cost ratio to sales was 80%.
In 2011, it is estimated that the variable cost will go up by 10% and the fixed cost will increase by 5%. Find the selling price required to be fixed in 2011 to earn the same P/V ratio as in 2010. Assuming the same selling price of Rs. 60 per unit in 2011, find the number of units required to be produced and sold to earn the same profit as in 2010.

Q35. **(PM).**Following information are available for the year 2008 and 2009 of PIX Limited:

Year	**2008**	**2009**
Sales	Rs. 32, 00,000	Rs. 57, 00,000
Profit/(Loss)	(Rs. 3,00,000)	Rs. 7, 00,000

Calculate- (a) P/V ratio, (b) Total fixed cost, and
(c) Sales required to earn a Profit of Rs. 12,00,000. **(May, 2010)[R-N-17/8]**

Q36. **(SMP6).**A company has three factories situated in north, east and south with its Head Office in Mumbai. The management has received the following summary report on the operations of each factory for a periods.

(Rs in '000)

	Sales		**Profit**	
	Actual	Over/(Under) Budget	Actual	Over/(Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

Calculate for each factory and for the company as a whole for the period:
(i) the fixed costs. (ii) break-even sales.

Q37. **(SMP15).**A company had incurred fixed expenses of Rs. 4,50,000, with sales of Rs. 15,00,000 and earned a profit of Rs. 3,00,000 during the first half year. In the second half, it suffered a loss of Rs. 1,50,000.

Calculate:

(i) The profit-volume ratio, break-even point and margin of safety for the first half year.

(ii) Expected sales volume for the second half year assuming that selling price and fixed expenses remained unchanged during the second half year.

(iii) The break-even point and margin of safety for the whole year.

Q38. **(SMN2/PM).**MNP Ltd sold 2,75,000 units of its product at Rs. 37.50 per unit Variable costs are Rs. 17.50 per unit (manufacturing costs of Rs. 14 and selling cost Rs. 3.50 per unit). Fixed costs are incurred uniformly throughout the year and amount to Rs. 35,00,000 (including depreciation of Rs.15,00,000). there are no beginning or ending inventories.

Required:

(i) Estimate breakeven sales level quantity and cash breakeven sales level quantity.

(ii) Estimate the P/V ratio.

(iii) Estimate the number of units that must be sold to earn an income (EBIT) of Rs. 2,50,000.

(iv) Estimate the sales level achieve an after-tax income (PAT) of Rs. 2,50,000. Assume 40% corporate Income Tax rate. **(November, 2010)[R-M19/12-10 Times][R-N19/13-Similar]**

Q39. **(PM).**The Ward Company sold 1,00,000 units of its product at Rs. 20 per unit. Variable costs are Rs. 14 per unit (manufacturing costs of Rs. 11 and selling costs of Rs. 3). Fixed costs are incurred uniformly throughout the year and amount to Rs. 7,92,000 (manufacturing costs of Rs. 500,000 and selling costs of Rs. 292,000). There are no beginning or ending inventories.

Required:

Determine the following:

a. The break-even point for this product

b. The number of units that must be sold to earn an income of Rs. 60,000 for the year (before income taxes)

c. The number of units that must be sold to earn an after-tax income of Rs. 90,000, assuming a tax-rate of 40 percent.

d. The break-even point for this product after a 10 percent increase in wages and salaries (assuming labour costs are 50 percent of variable costs and 20 percent of fixed costs).

Q40. A dairy product company manufacturing baby food with a shelf life of one year furnishes the following information:

(i) On 1st January, 2016, the company has an opening stock of 20,000 packets whose variable cost is Rs.180 per packet.

(ii) In 2015, production was 1,20,000 packets and the expected production in 2016 is 1,50,000 packets. Expected sales for 2016 is 1,60,000 packets.

(iii) In 2015, fixed cost per unit was Rs. 60 and it is expected to increase by 10% in 2016. The variable cost is expected to increase by 25%. Selling price for 2016 has been fixed at Rs. 300 per packet.

You are required to calculate the Break-even volume in units for 2016. **[ICAI-M16/1(B)]**

SHUT DOWN POINT

Q41. **(SMP9).**Mr. X has Rs. 2,00,000 investments in his business firm. He wants a 15 per cent return on his money. From an analysis of recent cost figures, he finds that his variable cost of operating is 60 per cent of sales, his fixed costs are Rs 80,000 per year. Show computations to answer the following questions:

(i) What sales volume must be obtained to break even?

(ii) What sales volume must be obtained to get 15 per cent return on investment?

(iii) Mr. X estimates that even if he closed the doors of his business, he would incur 25,000 as expenses per year. At what sales would he be better off by locking his business up?

KEY FACTORS

Q42. **(A49(29).**X Ltd. which produces two products using the same raw-material and production facilities, provides you the following information:

	Product A Rs.	**Product B Rs.**
Selling Price per unit	100	80
Material @ Rs 2 per kg	20	10
Labour Rs 3 per hour	15	30
Variable Overheads @ Rs 4 per machine hour	40	16

Total fixed overheads: Rs 6,00,000

Required: Comment on the profitability of each product when:

(a) Sales Quantity is limited;

(b) Sales Value is limited;

(c) Raw-material is in short supply;

(d) Labour hours are limited;

(e) Production Capacity (in terms of Machine Hours) is limited;

(f) there are heavy demand conditions;

(g) there are low demand conditions.

CAPACITY BASED QUESTIONS

Q43. A company, with 90% Capacity utilization, is manufacturing a product and makes a sale of Rs. 9,45,000 at Rs. 30 per unit. The cost data is as under:

Materials - Rs. 9 .00 per unit
Labour - Rs. 7,00 per unit
Semi variable cost (including variable cost of Rs. 4.25 per unit) - Rs. 2,10,000.

Fixed cost is Rs. 94,500 upto 90% level of output (capacity). Beyond this, an additional amount of Rs. 15,000 will be incurred.

You are required to calculate:

(i) Level of output at break-even point

(ii) Number of units to be sold to earn a net income of 10% of sales

(iii) Level of output needed to earn a profit of Rs. 1,41,375. **[ICAI-N17/4(A)]**

Q44. A Company manufactures a product, currently utilizing 80% capacity with a turnover of Rs.8,00,000 at Rs.25 per unit. The cost data are as under:

Material cost Rs.7.50 per unit, Labour cost Rs.6.25 per unit.

Semi variable cost (including variable cost of Rs.3.75 per unit) Rs.1,80,000. Fixed cost Rs.90,000 upto 80% level of output, beyond this an additional Rs.20,000 will be incurred.

Calculate:

(i) Level of output at Break-even Point

(ii) Number of units to be sold to earn a net income of 8% of sales.

(iii) Level of output needed to earn a profit of Rs.95,000

(iv) What should be the selling price per unit, if break-even point is to be brought down to 40% activity level? **(R-M-17/9)**

Q45. **(A(44N).**A, Band C are three similar plants under the same management who want them to be merged for better operation. The details are as under:

	Plant A at 100% (Rs. in lakhs)	Plant B at 70% (Rs. in lakhs)	Plant C at 50% (Rs. in lakhs)
Turnover	300	280	150
Variable Cost	200	210	75
Fixed Cost	70	50	62

Required:

(a) Compute the Capacity of the merged plant for break even!

(b) Compute the Profit of the merged plant at 75% capacity

(c) Compute the Capacity utilization of the merged plant to earn a profit of Rs. 28 lakhs.

(d) Compute the percentage increase in selling price necessary to sustain an increase in Fixed Overheads by 6% when the merged plant is working at a capacity to earn a profit of Rs, 28 lakhs.

COST INDIFFERENCE POINT

Q46. **(SMP18/P37).**The following are the cost data for three alternative ways of processing the clerical work for cases brought before the LC Court System –

Particulars		A	B	C
Nature		Manual	Sami-automatic	Fully-automatic
Monthly Fixed Costs:	Occupancy	Rs. 15,000	Rs. 15,000	Rs. 15,000
	Maintenance Contract	Nil	Rs. 5,000	Rs. 10,000
	Equipment Lease	Nil	Rs. 25,000	Rs. 1,00,000
Unit Variable Costs per report		Rs. 40	Rs. 80	Rs. 20
	Labour	5 hours × Rs. 40	1 hour × Rs. 60	0.25 hour × Rs.80

Required:

1. Calculate the Cost Indifference Points. Interpret your results.
2. If the present case load is 600 cases, and it is expected to go up to 850 cases in near future, which method is the most appropriate on cost considerations?

BREAK EVEN CHARTS

Q47. **[SMN7]**Prepare a profit graph for products A, B and C and find break-even point from the following data:

Products	A	B	C	Total
Sales (Rs.)	7,500	7,500	3,750	78,750
Variable cost (Rs.)	7,500	5,250	4,500	77,250
Fixed cost (Rs.)	---	---	---	5,000

Q48. **(C2).** Explain and illustrate Cash Break-even Chart. Take Example and Draw Chart.

Q49. **(SMN6).**You are given the following data for the year 2007 of Rio Co. Ltd:

Variable cost	60,000	60%
Fixed cost	30,000	30%
Net profit	10,000	10%
Sales	1,001000	100%

Find out (a) Break-even point, (b) P/V ratio, and (c) Margin of safety. Also draw a break-even chart showing contribution and profit. **[R-M-16/10]**

Q50. **(SMP17)** (a) You are given the following data for the coming year for a factory.

Budgeted output	8,00,000 units
Fixed expenses	40,00,000
Variable expenses per unit	Rs. 100
Selling price per unit	Rs. 200

Draw a break-even chart showing the break-even point

(b) If price is reduced to Rs. 180, what will be the new break-even point?

Q51. **(PM).**Following is the data taken from the records of a concern manufacturing a special part ZED.

Selling price per unit	Rs. 20
Direct material cost per unit	Rs. 5
Direct labour cost per unit	Rs. 3
Variable overhead cost per unit	Rs. 2
Budgeted level of output and sales	80,000 units

Budgeted recovery rate of fixed overheads cost per unit Rs.5

You are required to:

(a) Draw a break-even chart showing the break-even point.

(b) In the same chart show the impact of break-even point.

I (i) If selling price per unit is increased by 30% and

(ii) If selling price per unit is decreased by 10%.

Miscellaneous

Q52. **[SMN11]** A company can make any one of the 3 products x, y or z in a year it can exercise its option only at the beginning of each year.

Relevant information about the products for the next year is given below.

	X	Y	Z
Selling price (Rs./unit)	10	12	12
Variable Costs (Rs./unit)	6	9	7
Market Demand (unit)	3,000	2,000	1,000
Production Capacity (unit)	2,000	3,000	900
Fixed Costs (unit)		30,000	

Required

Compute the opportunity costs for each of the products.

Q53. **[SMN12]** M.K. Ltd. manufactures and sells a single product X whose selling price is Rs.40 per unit and the variable cost is Rs.16 per unit.

(i) if the Fixed Costs for this year are Rs.4,80,000 and the annual sales are at 60% margin of safety, calculate the rate of net return on sales, assuming an income tax level of 40%

(ii) For the next year, it is proposed to add another product line Y whose selling price would be Rs.50 per unit and the variable cost Rs.10 per unit. The total fixed costs are estimated at Rs.6,66,600. The sales mix of X : Y would be 7:3. At what level of sales next year, would M.K. Ltd. break even? Give separately for both X and Y the break-even sales in rupee and quantities.

[MTP-OCT19/1(A)-Similar]

Q54. **[SMN13]** X Ltd. supplies spare parts to an air craft company Y Ltd. The production capacity of X Ltd. facilitates production of any one spare part for a particular period of time. The following are the cost and other information for the production of the two different spare parts A and B:

Per unit	**Part A**	**Part B**
Alloy usage	1.6 kgs.	1.6 kgs.
Machine Time: Machine A	0.6 hrs.	0.25 hrs,
Machine Time: Machine B	0.5 hrs.	0.55 hrs.
Target Price (Rs.)	145	115
Total hours available:	Machine A 4,000 hours	
	Machine B 4,500 hours	

Alloy available is 13,000 kgs. @ Rs.1250 per kg.

Variable overheads per machine hours: .....Machine A: Rs.80

Machine B: Rs.100

Required

(i) Identify the spare part which will optimize contribution at the offered price.

(ii) If Y Ltd. reduces target price by 10% and offers Rs.60 per hour of unutilized machine hour what will be the total contribution from the spare part identified above?

Q55. **[SMN14]** The profit for the year of R.J. Ltd. works out to 12.5 % of the capital employed and the relevant figures are as under:

Sales	Rs.5,00,000
Direct Materials	Rs. 2,50,000
Direct Labour	Rs.1,00,000
Variable Overheads	Rs.40,000
Capital Employed	Rs.4,00,000

The new Sales Manager who has joined the company recently estimates for next year a profit of about 23% on capital employed, provided the volume of sales is increased by 10% and simultaneously there is an increase in Selling Price of 4% and an overall cost reduction in all the elements of cost by 2%.

Required

Find out by computing in detail the cost and profit for next year, whether the proposal of Sales Manager can be adopted.

Q56. **[SMP8]** The product mix of a Gama Ltd. is as under:

	Products	
	M	N
Units	54,000	18,000
Selling price	Rs.7.50	Rs.15.00
Variable cost	Rs.6.00	Rs.4.50

Find the break-even points in units, if the company discontinues product 'M' and replace with product 'O'. The quantity of product 'O' is 9,000 units and its selling price and variable costs respectively are 18 and Rs.9. Fixed Cost is Rs.15,000.

Q57. **(SMP19)** XY Ltd. makes two products X and Y, whose respective fixed costs are F_1 and F_2. You are given that the unit contribution of Y is one fifth less than the unit contribution of X, that the total of F_1 and F_2 is Rs.1,50,000, that the BEP of X is 1,800 units (for BEP of X, F_2 is not considered) and that 3,000 units is the indifference point between X and Y. (i.e. X and Y make equal profits at 3,000 unit volume, considering their respective fixed costs). There is no inventory build up as whatever is produced is sold.

Required

Find out the values F_1 and F_2 and units contributions of X and Y.

Q58. **(SMP2).** A Chinese soft drink company is planning to establish a subsidiary company in India to produce mineral water. Based on the estimated annual sales of 40,000 bottles of the mineral water, cost studies produced the following estimates for the Indian subsidiary:

	Total annual costs	Percent of total Annual Cost which is variable
Material	2,10,000	100%
Labour	1,50,000	80%
Factory Overheads	92,000	60%
Administration Expenses	40,000	35%

The Indian production will be sold by manufacture's representatives who will receive a commission of 8% of the sale price. No portion of the Chinese office expenses is to be allocated to the Indian Subsidiary. You are required to

(i) Compute the sale price per bottle to enable the management to realize an estimated 10% profit on sale proceeds in India.

(ii) Calculate the break-even point in rupee sales as also in number of bottles for the Indian subsidiary on the assumption that the sale price is Rs. 14 per bottle.

Q59. The M-Tech Manufacturing Company is presently evaluating two possible processes for the manufacture of a toy. The following information is available:

Particulars	Process A (Rs.)	Process B (Rs.)
Variable cost per unit	12	14
Sales price per unit	20	20
Total fixed costs per year	30,00,000	21,00,000
Capacity (in units)	4,30,000	5,00,000
Anticipated sales (Next year, in units)	4,00,000	4,00,000

Suggest:

1. Which process should be chosen?
2. Would you change your answer as given above, if you were informed that the capacities of the two processes are as follows:
   A-6,00,000 units; B-5,00,000 units? Why? **[ICAI-M16/6(A)(i)]**

ADDITIONAL QUESTIONS FOR PRACTICE

Q60. XY Ltd. makes two products X and Y, whose respective fixed costs are F_1 and F_2. You are given that the unit contribution of Y is one fifth less than the unit contribution of X, that the total of F_1 and F_2 is Rs.1,50,000, that the BEP of X is 1,800 units (for REP of X, F_2 is not considered) and that 3,000 units is the indifference point between X and Y. (i.e. X and Y make equal profits at 3,000 unit volume, considering their respective fixed costs). There is no inventory build up as whatever is produced is sold.

Required

Find out the values F_1 and F_2 and units contributions of X and Y.

Q61. **(A(35N).**Quality Products Ltd. manufactures and markets a single product. The following data are available:

Materials per unit	Rs. 16	Dealers Margin per unit	10% on Selling Price
Conversion Costs (variable) per unit	12	Selling Price per unit	40

Fixed Cost : Rs. 5 lakhs

Present Sales : 90,000 units

Capacity utilization : 60 per cent

There is acute competition. Extra efforts are necessary to sell. Suggestions have been made for increasing sales

Proposal I By reducing selling price by 5 per cent.

Proposal II By increasing dealers margin by 25 per cent over the existing rate.

Which of these two suggestions you would recommend, if the company decides to maintain the present profit? Give reasons.

Q62. **(PM8).**ABC Ltd is planning a concert in a remote village in India. The following costs have been estimated,

	Rs.
Rent of premises	1,300
Advertising	1,000
Printing of tickets	250
Ticket sellers , security	400
Wages of ABC Ltd personnel employed at the concert	600
Fee to artist	1,000

There are no variable costs of staging the concert. The company is considering a selling price for tickets at either Rs. 4 or Rs. 5 each.

Required:

(a) Calculate the number of tickets that must be sold at each price in order to breakeven.

(b) Recalculate, the number of tickets which must be sold at each price in order to breakeven, if the artist agrees to change from a fixed fee of Rs. 1,000 to a fee equal to 25% of the gross sales proceeds.

(c) Calculate the level of ticket sales, for each price, at which the company would be indifferent as between the fixed and percentage fee alternatives.

(d) Comment on the factors which you think the company might consider in choosing between the fixed fee and percentage fee alternative.

Q63. **(C3).** A company has fixed cost of Rs. 90,000, Sales Rs. 3,00,000 and Profit of Rs. 60,000.

Required:

(i) Sales volume if in the next period, the company suffered a loss of Rs. 30,000.

(ii) What is the margin of safety for a profit of Rs. 90,000 ?

Q64. Arnav Ltd. manufacture and sales its product R-9. The following figures have been collected from cost records of last year for the product R-9:

Elements of Cost	Variable Cost portion	Fixed Cost
Direct Material	30% of Cost of Goods Sold	--
Direct Labour	15% of Cost of Goods Sold	--
Factory Overhead	10% of Cost of Goods Sold	Rs.2,30,000
General & Administration Overhead	2% of Cost of Goods Sold	Rs.71,000
Selling & Distribution Overhead	4% of Cost of Sales	Rs.68,000

Last Year 5,000 units were sold at Rs.185 per unit. From the given data find the followings:

(a) Break-even Sales (in rupees)

(b) Profit earned during last year

(c) Margin of safety (in %)

(d) Profit if the sales were 10% less than the actual sales. **(R-M-15/8)**

Q65. ABC Baggage Ltd. sells different styles of laptop bags with identical purchase costs and selling prices. The company is trying to find out the profitability of opening another store which will have the following expenses and revenues:

	Amount per Piece (Rs.)
Selling Price	600
Variable costs:	
Material cost	410
Salesmen's commission	60
Total variable cost	470
Annual fixed expenses are:	(Rs.)
- Rent	6,00,000
- Office and administrative expenses	20,00,000
- Advertising	8,00,000
- Other fixed expenses	2,00,000

For the each following independent situation, you are required to:

(i) Calculate the annual break-even point in units and in value. Also determine the profit or loss if 35,000 units of bags are sold.

(ii) The sales commissions are proposed to be discontinued, but instead a fixed amount of Rs.9,00,000 is to be incurred in fixed salaries. A reduction in selling price of 5% is also proposed. What will be the break-even point in units?

(iii) It is proposed to pay the store manager Rs.5 per piece as further commission. The selling price is also proposed to be increased by 5%. What would be the break-even point in units?**(R-N-16/9)**

Q66. A laboratory carrying out various tests on products produced by various drug companies to ascertain whether drugs are fit for medical use or not. At present, the laboratory carries out 10,000 tests each year and a survey carried out by the laboratory shows a rise in number of tests to 15,000 tests a year, to carrying out all these tests would require an additional shift to be worked.

The current cost of carrying out a full test is:

	Rs. Per test
Materials	1,500
Technicians' fees	130
Variable expenses	25
Fixed cost	100

Working the additional shift would:

(i) require a shift premium of 50 per cent to be paid to the technicians on the additional shift;

(ii) enable a quantity discount of 10 per cent to be obtained for al materials if an order was placed to cover 15,000 tests;

(iii) increase fixed costs by Rs. 5,00,000 per year.

The current fee per test is Rs. 2,000.

Required:

(a) Calculate the profit for the period at the current capacity of 10,000 tests.

(b) A profit statement if the additional shift was worked and 15,000 tests were carried out. **[R-N-13/8]**

Q67. The Dabour Co. Ltd. Is developing the annual profit plan. They have just reviewed the "first cut" at the annual income statement and are concerned with the Rs. 1,10,000 indicated profit on a sales volume of 20,000 units. The fixed cost structure of Rs. 9,90,000 appears to be high and they have some doubts about departing from the unit sales price of Rs. 100. There is a general agreement that the "profit target should be Rs. 2,20,000".

You are required to compute.

(a) The budgeted break-even point in rupees and in units and the number of units required to be sold to earn the target profit;

(b) What will be the new Break-even-point in the following cases:

(i) — If sales price is increased by 20%, and sales will be dropped by 15% then what would be the new break-even point in rupees and in units. What would be the new profit figures? How many units would have to be sold to earn the target profit?

(ii) — A decrease in fixed costs of Rs. 55,000 and a decrease in variable costs of 6% are contemplated. What would be new B.E.P. in rupees? How many units must be sold to earn a target profit? **[R-M-11/11]**

Q68. Maxim Ltd. manufactures a product "N-joy". In the month of August 2014, 14,000 units of the product "N-joy" were sold, the details are as under.

	(Rs.)
Sale Revenue	2,52,000
Direct Material	1,12,000
Direct Labour	49,000
Variable Overheads	35,000
Fixed Overheads	28,000

A forecast for the month of September 2014 has been carried out by the General manger of Maxim Ltd. As per the forecast, price of direct material and variable overhead will be increased by 10% and 5% respectively.

Required to calculate:

(i) Number of units to be sold to maintain the same quantum of profit that made in August 2014.

(ii) Margin of safety in the month of August 2014 and September 2014. **[R-N-14/8]**

Q69. **(A(50N).**Tulsian Ltd. has the choice of buying Machine X or Machine Y or Machine Z Following are the Cost details:

	Machine X	Machine Y	Machine Z
Fixed Cost	Rs. 3,00,000	Rs. 5,80,000	Rs. 40,00,000
Variable Cost	Rs. 140	Rs. 70	Rs. 40

Required:

(a) Compute the Cost Indifference Points for each of the pair of machines.

(b) What do the Cost Indifference Points suggest as a course of action in this regard?

(c) If the management expects to produce 8,700 units, which machine would be most economical?

Q70. **(A(53N) .**Two firms A & Co. and B & Co. sell the same type of product in the same market. Their budgeted Profit & Loss Account for the year ending 31st March, 20X1 are as Follows:

	A & Co.		B & Co.	
	Rs.	Rs,	Rs,	Rs.
Sales		5,00,000		6,00,000
Variable costs	4,00,000		4,00,000	
Fixed costs	30,000	4,30,000	70,000	4,70,000
Net Profit		70,000		1,30,000

Required:

(a) Calculate sales volume at which both the firms will earn equal profit.

(b) State which firm is likely to earn greater profits in condition of:

(i) heavy demand for the product

(ii) low demand for the product. Give reasons.

Q71. **(A(54N).**A Practicing Chartered Accountant now spends Re, 0.90 per km. On taxi fares for his clients work. He is considering two other alternatives, the purchase of a new small oar or an old bigger car.

Items	New Small Car Rs.	Old Bigger Car Rs.
Purchase Price	35,000	20,000
Sales Price, after 5 years	19,000	12,000
Repairs and Servicing, per annum	1,000	1.200
Taxes and Insurance, per annum	1,700	700
Petrol consumption, per litre	10 kms.	7 krns.
Petrol Price, per litre	3.50	3.50

He estimates that he travels 10,000 km annually which of the three alternative will be cheapest? If his practice expands and has to do 19,000 km. Per annum, what should be his decision? At how many km. per annum will the cost of the two cars break-even? Ignore interest and income-tax.

Q72. A company manufactures two types of herbal product, A and B. Its budget shows profit figures after apportioning the fixed joint cost of Rs.15 lacs in the proportion of the numbers of units sold. The budget for 2018, indicates:

	A	B
Profit (Rs.)	1,50,000	30,000
Selling Price / unit (Rs.)	200	120
P/V Ratio (%)	40	50

Required:

COMPUTE the best option among the following, if the company expects that the number of units to be sold would be equal.

(i) Due to exchange in a manufacturing process, the joint fixed cost would be reduced by 15% and the variables would be increased by 7½ %.

(ii) Price of A could be increased by 20% as it is expected that the price elasticity of demand would be unity over the range of price.

(iii) Simultaneous introduction of both the option, viz, (i) and (ii) above. **[R-M18/13]**

Q73. M/s. Gaurav Private Limited is manufacturing and selling two products : "BLACK" and "WHITE" at selling price of Rs. 20 and Rs. 30 respectively.
The following sales strategy has been outlined for the financial year 2019-20 :

(i) Sales planned for the year will be Rs. 81,00,000 in the case of 'BLACK' and Rs. 54,00,000 in the case of 'WHITE'.
(ii) The selling price of 'BLACK' will be reduced by 10% and that of 'WHITE' by 20%.
(iii) Break-even is planned at 70% of the total sales of each product.
(iv) Profit for the year to be maintained at Rs. 8,26,200 in the case of 'BLACK' and Rs. 7,45,200 in the case of 'WHITE' . This would be possible by reducing the present annual fixed cost of Rs. 42,00,000 allocated as Rs. 22,00,000 to 'BLACK' and Rs. 20,00,000 to 'WHITE'.

You are required to calculate :
(1) Number of units to be sold of 'BLACK' and 'WHITE' to Break even during the financial year 2019-20.
(2) Amount of reduction in fixed cost product-wise to achieve desired profit mentioned at (iv) above.

[INTER/M19/5(A)]

Q74. When volume is 4000 units, average cost is Rs. 3.75 per unit. When volume is 5000 units, average cost is Rs. 3.50 per unit. The Break-Even point is 6000 units.
Calculate:- (i) Variable Cost per unit (ii) Fixed Cost and (iii) Profit Volume Ratio.

[INTER/N19/1(D)]

Q75. A manufacturing company is producing a product 'A' which is sold in the market at Rs. 45 per unit. The company has the capacity to produce 40000 units per year. The budget for the year 2018-19 projects a sale of 30000 units.
The costs of each unit are expected as under:

	Rs.
Materials	12
Wages	9
Overheads	6

Margin of safety is Rs. 4,12,500.
You are required to:
(i) Calculate fixed cost and break-even point.
(ii) Calculate the volume of sales to earn profit of 20% on sales.
(iii) If management is willing to invest Rs. 10,00,000 with an expected return of 20% , calculate units to be sold to earn this profit.
(iv) Management expects additional sales if the selling price is reduced to Rs. 44. Calculate units to be sold to achieve the same profit as desired in above (iii). **[INTER/N18/2(B)]**

Q76.

Fixed Cost	Rs. 1,20,000
Variable costs	Rs. 3 per unit
Selling price	Rs. 7 per unit
output	50,000 units

CALCULATE the profit for each of the following situation with the above data.
(i) With the data above.

(ii) With a 10% increase in output & sales.

(iii) With a 10% increase in fixed costs.

(iv) With a 10% increase in variable costs.

(v) With a 10% increase in selling price.

(vi) taking all the above situations. **[MTP/AUG.18/4(A)]**

output of 55,000 units has been sold.

Q77. Arnav Ltd. is producing a single product, has the profit volume Ratio of 40% .The company wishes to increase the selling price by 10 % which will increase the variable cost by 5%. The fixed overheads will increase from its present level of Rs. 20,00,000 to 30,00,000.

Required:

(i) Compute the company's original break-even point sales and the break-even point sales after the increase.

(ii) Estimate the sales value for the firm to make a profit of Rs. 4,50,000 after the increase.

[MTP-OCT18/1(A)]

Q78. SK Ltd. engaged in the manufacture of tyres. Analysis of income statement indicated a profit of Rs.150 lakhs on a sales volume of 50,000 units. The fixed cost is Rs. 850 Lakhs which appears to be high. Existing selling price is Rs. 3,400 per unit. The company is considering to revise the profit target to Rs. 350 Lakhs. You are required to compute –

(i) Break –even point at existing levels in units and in rupees.

(ii) The number of units required to be sold to earn the target profit.

(iii) Profit with 15 % increase in selling price and drop in sales volume by 10 %

(iv) Volume to be achieved to earn target profit at the revised selling price as calculated in (ii) above, if a reduction of 8% in the variable costs and Rs. 85 Lakhs in the fixed cost is envisaged. **[MTP-MAR-18/2(B)]**

Q79. Yamuna Ltd. manufactures a product , currently utilizing 80% capacity with a turnover of Rs. 8,00,000 at Rs. 25 per unit. The cost data are as under:
Material cost Rs. 7.50 per unit, Labour cost Rs. 6.25 per unit.
Semi-variable cost (Including variable cost of Rs. 3.75 per unit) Rs. 1,80,000.
Fixed cost Rs. 90,000 upto 80 % level of output , beyond this an additional Rs. 20,000 will be incurred.
Calculate:

(i) Activity level at Break-even-point.

(ii) Number of units to be sold to earn a net income of 8 % of sales.

(iii) Activity level needed to earn a profit of Rs. 95,000. **[MTP-APR-19/1(A)]**

Q80. M Ltd. has an annual fixed cost of Rs. 98,50,000. In the year 20X8-X9, sales amounted to Rs. 7,80,60000 as compared to Rs. 5,93,10,00 in the preceding year 20X7-X8. Profit in the year 20X8-X9 is Rs.37,50,000. More than that in 20X7-X8.
Required :

(i) CALCULATE Break-even sales of the company;

(ii) DETERMINE profit/loss on a forecasted sales volume of Rs. 8,20,00,000.

(iii) If there is a reduction in selling price by 10% in the financial year 20X8-X9 and company desires to earn the same amount of profit as in 20X7-X8, COMPUTE the required sales amount?

[MTP/MAR.19/1(A)]

Q81. A manufacturing concern was operating at margin of safety of 40% in the year 2018 and was selling its product at Rs. 75 per unit. Variable cost ratio to sales was 80% and fixed costs amounted to Rs. 5,40,000.
In the year 2019, the concern anticipates an increase in the variable costs and fixed costs by 15% and 5% respectively.
You are required to :
Find out the selling price to be fixed in the year 2019 keeping in view that concern is willing to maintain the same P/V ratio as it was in the year 2018. **[IPC/N18/1(B)]**

Q82. PH Gems Ltd. is manufacturing readymade suits. It has annual production capacity of 2,000 pieces. The Cost Accountant has presented following information for the year to the management :

Particulars	Amount (Rs.)	Amount (Rs.)
Sales 1,500 pieces @ Rs. 1,800 per piece		27,00,000
Direct Material	5,94,200	
Direct Labour	4,42,600	
Overheads (40% Fixed)	11,97,000	22,33,800
Net Profit		4,66,200

Evaluate following options :

(i) If selling price is increased by Rs. 200, the sales will come down to 60% of the total annual capacity. Should the company increase its selling price ?

(ii) The company can earn a profit of 20% on sales if the company provide TIEPIN with readymade suit. The cost of each TIEPIN is Rs. 18. Calculate the sales to earn a profit of 20% on sales.

[INTER/M18/5(B)]

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Notes

Absorption Costing vs. Marginal Costing

Main Difference : Under "Absorption Costing" , Fixed Production Overheads are treated as "Production Cost" and are absorbed at Actual Production with "Pre Determined Absorption Rate."

- **Pre Determined Rate** = $\frac{Normal\ Fixed\ Production\ Overheads}{Normal\ Capacity/Normal\ Output}$
- **POH Absorbed (Fixed)** = Actual output × Pre-Determined Rate

Effect : Closing Stock includes Proportionate Fixed Production Overheads.

But under "Marginal Costing" all fixed overheads (POH, AOH, S & Dist. OH) are treated as period cost (which is not affected with less or more production) and are charged from current years's sales.

Effect: Closing Stock is valued only at variable cost because S- V = C.

Effect on Final Results : (i) Under absorption costing situation under / over absorption of POH arises, but under marginal costing such situation does not arise. (ii) Profit on both techniques comes different if stocks are there.

Format : **Income Statement (Absorption Costing) for the year ending .....**

Particulars		Rs.	Rs.
A. Sales			**xxx**
B. Production Costs :			
Output			
➢ **Direct Production Costs :**		xxx	
• Direct Material		xxx	
• Direct Labour		xxx	
• Direct Expense		xxx	
➢ **Indirect Production Costs :**			
• **Standard** Variable Overheads (Excluding under absorbed VOH)			
• **Standard** Fixed Overheads (Excluding under absorbed FOH)			
➢ **Total Production Costs**		**xxx**	
Add : Opening stock	**Rs.**		
• Variable Overheads	xxx		
• Fixed Overheads	xxx	xxx	
Less : Closing stock (Based on **Total Production Costs**)		(xxx)	**xxx**
(A – B)			xxx
	Rs.		
Less: Fixed Overheads (Actual)		xxx	
• Administration		xxx	
• Selling & Distribution		xxx	
Less : Variable Overheads (Actual)		xxx	xxx
• Administration			
• Selling & Distribution			
Profit before under / over absorption of Production Overheads			
Add : Over absorption of Production Overheads		xxx	
Fixed		xxx	
Variable			
Less: Under absorption of Production Overheads		xxx	
Fixed		xxx	xxx
Variable			
Profit after under / over absorption			**xxx**

Income Statement (Marginal Costing)

for the year ending .....

Particulars		Rs.	Rs.
A. Sales			**XXX**
B. Variable Production Costs (Actual):			
Output			
➢ **Direct Production Costs :**		XXX	
• Direct Material		XXX	
• Direct Labour		XXX	
• Direct Expense		XXX	
➢ **Indirect Production Costs :** (Including under absorbed VOH)			
• Indirect Material			
• Indirect Labour			
• Indirect Expense			
Total Variable Production Costs	**Rs.**	**XXX**	
Add : Opening stock (Units × VC per unit)	XXX		
Less : Closing stock (Based on **Total Variable Production Costs**)	XXX		
		XXX	**XXX**
C. Indirect Variable Administration Overheads			**XXX**
D. Indirect Variable Selling & Distribution Overheads			**XXX**
Contribution A – B + C + D			
	Rs.		
Less: Fixed Overheads (Actual)			
• Factory		XXX	
• Administration		XXX	
• Selling & Distribution		XXX	
		XXX	**XXX**
Profit			XXX

Reasons for Difference in Profit	Rs.
Profit as per Marginal Costing	XXX
Add/ Less : Effects on Profit under / over valuation closing / opening stock	XXX
Profit as per absorption Costing	XXX

Solution :2

Income Statement (Absorption Costing)
for the year ending .....

Particulars			Rs.	Rs.
Sales	(21,500 units @ Rs. 168)			36,12,000
Production Overheads :				
Output				
• Standard Variable Overheads (Excluding under absorbed VOH Rs. 35,000)				
(24.000 units @ Rs.82 i.e. 16+54+12)			19,68,000	
• Standard Fixed Overheads (Excluding under absorbed Rs. 3,60,000-3,20,000=40,000)				
➢ Standard Rate	Rs. 18 per unit or Rs. 6 per hour			
➢	24,000 units @ Rs. 18 or 72,000 hour @ Rs. 6		4,32,000	
Add :Opening stock		**Rs.**	**24,00,000**	
• Variable Overheads		-		
• Fixed Overheads		-	-	
Less :Closing stock	$\left[\frac{Rs.24,00,000}{24,000\ units} \times 24,000 - 21,500\ units\right]$		(2,50,000)	21,50,000
Less : Selling Overheads		**Rs.**		
• Variable	(21,500 × 20)	4,30,000		
• Fixed		7,60,000		11,90,000
Profit before under absorption				**2,72,000**
Add : Over absorption of overheads				
• Fixed		(4,32,000 – 3,84,000)		48,000
Less: Under absorption of overheads				
• Variable				(20,000)
Profit after under absorption				**3,00,000**

Income Statement (Marginal Costing)
for the year ending .....

Particulars			Rs.	Rs.
Sales	(21,500 units @ Rs. 168)			36,12,000
Less:Variable Costs (Actual) :				
• **Production overheads**				
➢ Material		(24,000 units @ Rs. 16)	3,84,000	
➢ Labour		(24,000 units @ Rs. 54)	12,96,000	
➢ Overheads		(24,000 units @ Rs. 12 + 20,000)	3,08,000	
Total			**19,88,000**	
Add : Opening stock			.....	
Less : Closing stock	$\left[\frac{Rs.19,88,000}{24,000\ units} \times 25,00\ units\right]$		(2,07,083)	
			17,80,917	
• **Selling & Administration Overheads**	(21,500 units × Rs. 20)		4,30,000	22,10,917
Contribution				14,01,083
Less:Fixed Costs (Total) :				
• Production Overheads		(4,32,000-48,000)	3,84,000	
• Selling & Administration Overheads			7,60,000	11,44,000
Profit				**2,57,083**

Reasons for Difference in Profit	Rs.
Profit as per Marginal Costing	2,57,083
Less : Cl. Stock under -valued in marginal costing (Rs. 2,50,000 – 2,07,083)	2,57,083
Profit as per absorption Costing	42,917
	3,00,000

Solution:5

Income Statement (Absorption Costing)
for the year ending 30.06.2006

Particulars			Rs.	Rs.
Sales	(1,50,000 units @ Rs. 20)			30,00,000
Production Overheads :				
Output				
• Standard Variable Overheads (Excluding under absorbed VOH Rs. 35,000)				
(1,60,000 units @ Rs.11)			17,60,000	
• Standard Fixed Overheads (Excluding under absorbed Rs. 3,60,000-3,20,000=40,000)				
➢ Standard Rate	Rs. 3,60,000 ÷ 2,00,000/90% = Rs.2			
➢	1,60,000 units @ Rs. 2		3,20,000	
Add :Opening stock		Rs.	**20,80,000**	
• Variable Overheads	(10,000 units @ Rs. 11)	1,10,000		
• Fixed Overheads	(10,000 units @ Rs. 2)	20,000	1,30,000	
Less :Closing stock	$\left[\frac{Rs.20,80,000}{1,60,000 units} \times 20,000\ units\right]$		(2,60,000)	19,50,000
Less : Selling Overheads		**Rs.**		
• Variable	(1,50,000 × 3)	4,50,000		
• Fixed		2,70,000		7,20,000
Profit before under absorption				**3,30,000**
Less : Under absorption of overheads				
• Variable		35,000		
• Fixed		40,000		75,000
Profit after under absorption				**2,55,000**

Income Statement (Marginal Costing)
for the year ending 30th June 2006

Particulars	Rs.	Rs.
Sales (1,50,000 units @ Rs. 20)		30,00,000
Less:Variable Costs (Actual) :		
• **Production overheads**		
Output (1,60,000 units × SR. i.e. Rs. 11 + Rs. 35,000)	17,95,000	
Add : Opening stock (1,50,000 - 1,60,000+20,000)units @ Rs. 11	1,10,000	
Less : Closing stock $\left[\frac{Rs.17,95,000}{1,60,000 units} \times 20,000\ units\right]$	(2,24,375)	
	16,80,625	
• **Selling overheads** (1,50,000 × 3)	4,50,000	21,30,625
Contribution		8,69,375
Less:Fixed Costs (Total) :		
• Production Overheads	3,60,000	
• Selling Overheads	2,70,000	6,30,000
Profit		**2,39,375**

Reasons for Difference in Profit	Rs.
Profit as per Marginal Costing	2,39,375
Add: Op. stock under -valued in marginal costing (Rs. 1,30,000 - 1,10,000)	20,000
	2,79,375
Less : Cl. Stock under -valued in marginal costing (Rs. 2,60,000 - 2,24,375)	35,625
Profit as per absorption Costing	**2,55,000**

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HOME WORK