Question 1: Marginal Costing (June 2017)

The anticipated sales of Electronic Corporation Ltd. is ₹ 4,00,000 and unit selling price is ₹ 20 each. The per unit cost of direct material is ₹ 9, labour is ₹ 3 and other variable expenses are ₹ 3 per unit. The company is earning a net profit of 5% and to improve the profitability, the following proposals were discussed at the Executive Committee Meeting:

a. The present administrative setup is on the regional basis and it was felt that centralization will reduce the fixed cost by ₹ 12,000.
b. The Production Manager has agreed that he will try to work on a cost reduction programme which will reduce the cost by ₹ 1 per unit but there will be little impact on the quality which will be negligible to the customer.
c. The Sales Manager opposed the two proposals and suggests that it may be possible to increase the number of units sold by 20%, provided the selling price is reduced by 5%.
d. Alternatively, as per Sales Manager, if the selling price is increased by 10%, the sales number of units will be reduced by 5%.

As the Cost and Management Accountant of the company, evaluate the aforesaid four proposals and also put forward your suggestions to improve the situation.

Question 2: Marginal Costing (June 2017)

Calculate Margin of Safety from the following information:

Sales ₹ 30,00,000; Fixed expenses ₹ 9,00,000; Profit ₹ 6,00,000

Question 3: Marginal Costing (December 2017)

The Asian Industries specialize in the manufacture of small capacity motors. The Cost Structure of a motor is as under:

Material	₹ 50
Labour	₹ 80
Variable overheads	75% of labour cost.

Fixed overheads of the company amounts to ₹ 2.4 lakhs per annum. The sale price of the motor is ₹ 230 each

(i) Determine the number of motors that have to be manufactured and sold in a year in order to break-even.

(ii) How many motors will have to be made and sold to make a profit of Rupees one lakh per year?

(iii) If the sale price is reduced by ₹ 15 each, how many motors will have to be sold to break-even?

Question 4: Marginal Costing (December 2017)

The table below shows the Costs and Profits of three different products — X, Y & Z, manufactured by Jerbera Co. Ltd.

	X	Y	Z	Total
	₹	₹	₹	₹
Sales	3,00,000	1,80,000	1,20,000	6,00,000
Variable Cost	2,40,000	1,26,000	72,000	4,38,000
Contribution	60,000	54,000	48,000	1,62,000
Fixed Cost				81,000
Profit				81,000

Can the profits of the company be increased by changing the sales mix of the products? Use Marginal Costing technique to arrive at your answer.

Question 5: Marginal Costing (June 2018)

QUALITY PRODUCTS LTD., manufactures and markets a single product. The following data are available:

	₹/Unit
Materials	16
Conversion Costs (Variable)	12
Dealer's Margin (10% of Sales)	4
Selling Price	40
Fixed Cost: ₹ 5 Lakhs	
Present Sales: 90,000 units	
Capacity Utilization: 60%	

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

(A) By reducing Selling Price by 5%

(B) By increasing dealer's margin by 25% over the existing rate.

Required:

(i) Which of these two suggestions you would recommend, if the company desires to maintain the present profit?

(ii) Give reasons.

Question 6: Marginal Costing (June 2018)

XYZ Co. purchases 40,000 glass cases per annum from an outside supplier at ₹ 5 each. The production manager feels that these should be manufactured and not purchased. A machine costing ₹ 1,00,000 (no salvage value) will be required to manufacture the item within the factory. The machine has an annual capacity of 60,000 units and life of 5 years. The costs required for manufacture of each glass case is as follows:

Direct Materials	₹ 2.00
Direct Labour	₹ 1.00
Variable overheads	100% of Labour Cost

Required:

(i) Should the company continue to purchase the glass cases from outside supplier or should it make them in the factory?

(ii) Should the company accept an order to supply 10000 glass cases to the market at a selling price of ₹ 4.50 per unit?

Question 7: Marginal Costing (December 2018)

CADINI LTD., a factory engaged in manufacturing Plastic Buckets is working to 40% capacity and produces 10,000 Buckets per annum. The present cost breakup for one Bucket is:

Material	Rs.10
Labour	Rs.3 and
Overhead	Rs.5 (out of which 60% is fixed)

The Selling Price is Rs.20 per Bucket

If it is decided to work the factory at 50% capacity, the Selling Price falls by 3%.

Calculate:

(i) The profit at 50% capacity.

(ii) Break Even Quantity in units.

Question 8: Marginal Costing (December 2018)

XER Co. manufactures an electronic product and puts a price tag of Rs.190.00 as wholesale price. The company has a production and storage facility with a 100,000 unit monthly output capacity based on running an 8 hours shift each workday.

Estimated Costs are given below:

Monthly Fixed Costs	(Rs.)	Per Unit Costs	(Rs.)
Building Depreciation	2,50,000	Production Labour	45.00
Project Management	1,75,000	Supervisors Charges	5.00
Advertising Costs	3,00,000	Material Handling	8.00
Network Administration	75,000	Sales Commissions	12.00
Office Expenses	1,50,000	Materials	70.00
Equipment (Depreciation)	2,00,000	Electricity Costs	3.00

Required:

(i) Based on the information provided, what quantity must this firm produce in order to be at breakeven?

(ii) If the firm produces at the plant's capacity, what is the minimum price at which the firm can sell the product and still breakeven?

(iii) Suppose the firm seeks to target profit of Rs.30,00,00 from this product based on the input costs and wholesale price noted in the problem. How many units would the firm need to produce to generate the required profit?

Question 9: Marginal Costing (June 2019)

AARINA LTD. sells its product at ₹ 30 per unit. During the quarter ending 31st March, 2019 it produced and sold 16000 units and suffered a loss of ₹ 10 per unit. If the volume of sales is raised to 40000 units, it can earn a profit of ₹ 8 per unit.

You are required to calculate:

(i) Break-Even Point in Rupees.

(ii) Profit, if the sales volume is 50000 units.

Question 10: Marginal Costing (June 2019)

TRITONI LTD. produces 3 products A, B and C from the same manufacturing facilities. The cost and other details of the 3 products are as follows:

Particulars	A	B	C	Total
Selling Price/unit (₹)	200	160	100	
Variable Cost/unit (₹)	120	120	40	
Fixed Expenses/month (₹)				2,76,000
Maximum Production/month (units)	5000	8000	6000	
Total Hours available for the month				200
Maximum demand/month (units)	2000	4000	2400	

The processing hours cannot be increased beyond 200 hours/month. You are required to:

(i) Compute the most profitable mix.

(ii) Compute the overall break-even sales of the company for the month based on the mix calculated in (i) above.

Question 11: Marginal Costing (December 2019)

REAXON LTD. a manufacturing company provides you the following details for the year 2018.

Sales (16,000 units)	₹16,00,000
Less Expenses (including ₹ 8,00,000 Fixed Expenses)	₹17,60,000
Net loss	₹ 1,60,000

The manager believes that an increase of ₹4,00,000 in advertising outlays will increase sales substantially. His plan was approved by the chairman of the board:

Required:

(i) Calculate P/V Ratio and Break Even Sales.

(ii) What additional sales will be required to offset that increase in advertisement outlays?

(iii) What should be selling price per unit if the breakeven point is brought down to 20,000 units?

Question 12: Marginal Costing (December 2019)

ZEESLIN LTD. has furnished the following relevant information for the two years:

Year ended March 31	2018	2019
Sales	₹ 9,30,000	?
Profit/Volume Ratio (P/V ratio)	50%	38%
Margin of Safety sales as a % of total sales	40%	22%

There has been substantial savings in the fixed cost in the year 2019 due to the restructuring process.

The company could maintain its sales quantity level of 2018 in 2019 by reducing selling price.

You are required to calculate the following:

(i) Sales for 2019 in ₹

(ii) Fixed cost for 2019

(iii) Break-even sales for 2019 in Rupees.

Question 13: Marginal Costing (December 2021)

RITU Ltd a manufacturer of Gel Pens selling in the market at Rs 100 per dozen makes an average net profit of 20% on sales by producing 50000 dozens per annum against a Capacity of 75000 dozens.

The Cost Sheet of the Company for 2020 was as under:

Particulars	Cost per Dozen (Rs)
Direct material	36
Direct wages	30
Works overheads (50% variable)	10
Sales overheads (25% variable)	4
Total	80

In 2021, the Company anticipates its fixed cost to increase by 6%, Cost of Direct materials by 5% and Labour by 10%. Market enquires revealed that the Selling price of the product and quantity will remain unchanged in 2021.

Based on above information you are required to answer the following questions:

(i) How many number of Gel Pens have to be manufactured and sold in 2021 in order to break-even?

(ii) The Profit of the Company in the year 2021 would be how much?

(iii) An inquiry has been received for the Supply of 10000 dozen of Gel Pen to ZT Company, a Customer. If the business wants to make a maximum Profit of Rs 9 Lakh in 2021, what could be the lowest quotation?

Question 14: Marginal Costing (December 2021)

The variable cost structure of a product manufactured by ABX company during the current year is as under:

Particulars	Rs per unit
Material	168
Labour	42
Overheads	16.8

The selling price per units is Rs 378 and the fixed cost and sales during the current year are Rs 19.60 Lakh and Rs 56.70 Lakh respectively.

During the forthcoming year, the direct workers will be entitled to a wage increase of 10%from the beginning of the year and the material cost, variable overhead and fixed overhead are expected to increase by 7.5%, 5% and 3% respectively. Based on the above information you are required to answer the following questions

(i) What is the current year's Profit ?

(ii) The new sale price in the forth coming year if the current P/V Ratio is to be maintained would be how much ?

(iii) How many numbers of Units would required to be sold during the forth Coming year so as to yield the same of Profit in the Current year, assuming that selling price per unit will not be increased ?

Question 15: Marginal Costing (December 2022)

AGT Ltd. manufactures a product, currently utilising 50% capacity with a turnover of 18,00,000 at 100 per unit and its P/V Ratio is 40%. The cost data is as under:

Direct Material per unit 30

Direct Wages per unit 20

Variable Overheads per unit 8

Semi-Variable Overheads (which will increase by 22,800 for every 18% increase in capacity or any part thereof) 96,000

Fixed Overheads 2,40,000

Required:

(i) Calculate the Total Fixed Cost at 50% capacity level.

(ii) Calculate the Number of units to be sold to earn a profit of 28 per unit.

(iii) Calculate the Selling Price per unit to earn a profit of 25% on capital employed at the 80% activity level. The fixed portion of capital employed is 53,85,600 and the Working Capital portion is 20% of Sales.

Question 16: Marginal Costing (December 2022)

Calculate Break-Even-Point for a train journey between Delhi and Jaipur where the cost of an Engine is 80,000 and of a Bogie is 16,000. The capacity of a bogie is 70 passengers and each ticket is priced at 600. The variable cost per ticket is 100.

Question 17: Marginal costing (June 2023 syllabus 2016)

GYC Ltd. provides you with the following information:

Year 1		Year 2	
Loss	40,000	Cost	11,40,000
Cost	108% of sales	Profit	24% of sales

During the next year III, the Selling Price and Variable Cost are expected to be reduced by 20% and 33-1/3% respectively and Fixed Costs are expected to increase by 25%.

Required: Estimate the Sales so as to earn a return of 30% on Capital Employed. Working Capital is 25% of Sales and 20% of Capital Employed.

Question 18: Marginal costing (June 2023 syllabus 2016)

Kaloo Ltd. manufactures three products X, Y and Z. The unit selling price of these products are ₹ 50, ₹30 and 20 respectively. The corresponding Variable Cost to Sales Ratio is 20%, 30% and 50%. The total fixed costs are 59,83,000.

Required: (i) Calculate the Overall P/V Ratio if the proportion (Quantity wise) in which these products are manufactured and sold are 20%, 30% and 50% respectively. (ii) Calculate Overall Contribution per unit if the proportion (value-wise) in which these products are manufactured and sold are 20%, 30% and 50% respectively.

Question 19: Marginal Costing (December 2023 syllabus 2016)

The Cost Volume Profit relationship of AVOM Ltd., is described by the equation Y = 240000 + 0.6 x, in which x represents Sales revenue and Y is the Total Cost (FC+VC) at the Sales revenue / Volume represented by X.

Required:

(i) Identify the P/V Ratio

(ii) What Sales volume must be obtained to Break-even for the Company?

(iii) Analyze Sales volume to be required to produce an income of 100000

Question 20: Marginal Costing (December 2023 syllabus 2016)

FOVA Ltd., a manufacturing company sells 24,000 flower vases every year. The detail of cost for year ended 31 st March 2022 is given below:

Selling price per flower vase 800

Variable Cost per flower vase 600

Fixed Cost: Staff salaries: 24,00,000

General Office Cost: 8,00,000

Advertising Cost: 8,00,000

Required:

(i) Assess the Break-Even Point and margin of safety in no of units of sales.

(ii) The company has gained reputation and in the year 2023 no advertising cost will have to incurred if the company so decides. The selling price will remain unaltered. The variable costs will have to increase by 10% to make the flower vases more attractive. Considering the new BEP and the new margin of safety. Justify it would be prudent to cut the advertising cost.

Question 21: Marginal costing (June 2023 syllabus 2022)

RONBANI Ltd., a manufacturing company, has prepared its budget to produce 2,00,000 units. The variable cost per unit is 16 and fixed cost is 4 per unit. The company fixes its selling price to fetch a profit of 20% on total cost.

You are required to calculate:

(i) Present break-even sales (in quantity).

(ii) Revised break-even sales (in quantity), if it reduces its selling price by 10%

Question 22: Marginal costing (June 2023 syllabus 2022)

M/s Ankita Plastics Limited provides you the data of the following products for the year 2022-23.

Particulars	1" PVS Pipe	½" PVS Pipe
Profit	3,00,000	60,000
Unit Selling price	200	150
P/V Ratio	40%	50%

Sales Mix = 2:1

Joint Fixed Cost = 8,15,000

M/s Ankita Plastics Limited expects that number of units to be sold in 2023-24 would be same as in 2022-23. However, due to upgradation in manufacturing process, the joint fixed cost would be reduced by 10% and the variable cost would increase by 8%.

You are required to calculate the following:

A. Number of units of product 1 PVC Pipe and 1/2" PVC Pipe sold in 2022-23.

B. Total expected profit of the company from the two products in 2023-24.

Question 23: Marginal costing (June 2023 syllabus 2022)

M/s Visual Infotech Pvt. Limited is a multiple product manufacturer. One product line consists of CCTV Camera and the company manufactures three different models. M/s Visual Infotech Pvt. Limited is currently considering a proposal from a supplier who want to supply lenses of the CCTV Camera to M/s Visual Infotech Pvt. Limited.

M/s Visual Infotech Pvt. Limited currently produces all the lenses it requires. In order to meet customers' needs, M/s Visual Infotech Pvt. Limited produces three different types of lenses for each CCTV Camera model (i.e. nine different lenses).

The supplier would charge 2,500 per lens, regardless of type of lens. For the next year, M/s Visual Infotech Pvt. Limited has projected the cost of its own production of lenses as follows (based on projected volume of 10,000 units):

Particulars	Amount
Direct Material	75,00,000
Direct Labour	65,00,000
Variable Overhead	55,00,000
Fixed Overhead:	
Factory Supervisors' Cost	35,00,000
Other Fixed Cost	65,00,000
Total Production Cost	2,95,00,000

Additional information:

1. The equipment utilized to produce the lenses has no alternative use and no market value.
2. The space occupied by the lens production unit will remain idle if the company purchases the lenses from outside market rather than produce in-house.
3. Factory supervision cost is for salary of a Quality Manager & Production Supervisor who would be dismissed from the company if the company closes its lens production unit.

Required:

(i) Determine the net profit or loss of purchasing (rather than manufacturing) the lenses required for CCTV Camera.

(ii) Determine the level of production where the company would be indifferent between buying and producing the lenses. If the future volume level is predicted to decrease, would that influence your decision?

(iii) What would be your decision if the space presently occupied by lens production unit could be leased to another company at a lease rent of 25,00,000 per annum?

Question 24: Marginal Costing (December 2023 syllabus 2022)

M/s Bishalgarh Tiles Limited is manufacturing and selling 4 types of PVC Pavers Block which are used for laying in public parks. The Board of Directors of M/s Bishalgarh Tiles Limited is considering a proposal for product promotion campaign which would cost the company 2,50,000. The Business development department of M/s Bishalgarh Tiles Limited provides you the following two alternative Sales Budgets for the next financial year.

Alternative 1	Production (Units I Nos)			
Without product promotion campaign	AON	NEON	ZEON	PP
	2,00,000	3,50,000	3,20,000	1,90,000

Alternative 1	Production (Units I Nos)			
With product promotion campaign	AON	NEON	ZEON	PP
	2,40,000	3,80,000	3,50,000	2,00,000

Selling price and Variable Production Cost are budgeted as follows:

Particulars	Products (Rs per unit)			
	AON	NEON	ZEON	PP
Selling price	12	14	16	22
Variable production cost				
Direct material	5	6.5	8	10
Direct labour	2	2.5	3.5	4.5
Variable production overheads	0.84	0.72	1.2	1.2

M/s Bishalgarh Tiles Limited provides you the following additional details:

(i) The Variable production overhead is absorbed on a Machine Hour basis at a rate of 1.20 per Machine hour.

(ii) Fixed overhead to be 35,000 p.a.

(iii) Production capacity during the budgeted period is 8,90,000 Machine hours.

(iv) Product AON & ZEON could be bought from market at 10.50 per unit & 15.50 per unit respectively.

(v) The machine capacity will not increase after product promotion campaign.

Determine whether M/s Bishalgarh Tiles Limited should invest in product promotion campaign and advise how the production facilities would be best utilized.

Question 25: Marginal Costing (December 2023 syllabus 2022)

M/s BLB Industries provided you the following information for the year ended 31-03-2023:

Particulars	Amount (In₹)
Sales	40,000
Raw Material Cost	20,000
Direct Wages	6.000
Fixed & Variable Overhead	10,000
Profit	4,000
Units Sold	200 units

In the next financial year M/s BLB Industries expects the following:

(i) Wage rate will increase by 50%.

(ii) Fixed Cost will decrease by ₹ 1,000.

(iii) No. of units to be sold in the next year is 300 units.

(iv) Total Fixed & Variable overhead in the next financial year will be 12,000.

How many units are required to be sold in the next year so that same amount of profit per unit as in 2023 can be achieved?

Question 26: Marginal Costing (December 2023 syllabus 2022)

Company XYZ produces two components (M and N) and is planning the allocation of its available resources for the next period. 750 units of component M and 600 units of component N are required to be produced but machine hour capacity is restricted to a total of 3,000 hours. Any deficit of components produced in-house can be made up by the purchase of any quantity of either component from an outside supplier. The objective of the company is to satisfy the requirement for components at minimum total cost.

The following information is available concerning each component.

Particulars	M	N
Cost (Rs per unit):		
Direct Material	62	87
Direct Labour	51	75
Variable production overheads	12	13
Fixed production overheads	48	64
Total	173	239
Machine hours (per unit)	2	3
Price from outside supplier (Rs per unit)	185	259

Calculate the variable costs of producing each component in house, extra costs of buying-in each component and determine which component should have production priority.

Question 27: Standard Costing (June 2017)

In MJ Limited the standard set for material consumption was 100 kg. @ ₹ 2.25 per kg. In a cost period:
Opening stock was 100 kg. @ ₹ 2.25 per kg. Purchases made 500 kg. @ ₹ 2.15 per kg.
Consumption 110 kg.
As a Cost and Management Accountant you have to calculate:

(i) Material Usage Variance, and

(ii) Material Price Variance in the following three situations:

(A) When variance is calculated at point of purchase.

(B) When variance is calculated at point of issue on FIFO basis.

(C) When variance is calculated at point of issue on LIFO basis.

Question 28: Standard Costing (June 2017)

From the following information compute the Fixed Overhead Variance, Expenditure Variance and Volume Variance:

	Budget Expenses (₹)	Actual Expenses (₹)
Fixed Overheads	40,000	40,800
Units of Production	20,000	20,800
Time for each unit of production	2 hours	
Actual Hours worked		40,200

Question 29: Standard Costing (December 2017)

X Ltd. uses budgetary control and standard costing system. The following data are available:

Product	Budgeted		Actual	
	Units to be sold	Sales value (₹)	Units sold	Sales value (₹)
A	100	1,200	100	1,100
B	50	600	50	600
C	100	900	200	1,700
D	75	450	50	300
	325	3,150	400	3,700

Calculate:

(i) Sales Volume Variance

(ii) Sales Price Variance

(iii) Sales Variance

Question 30: Standard Costing (December 2017)

The standard labour and the actual labour engaged in a week for a job are as under:

	Skilled workers	Semi-skilled workers	Unskilled workers
A. Standard number of workers in the gang	32	12	6
B. Standard rate of wages per hour (₹)	3	2	1
C. Actual number of workers employed in the gang during the week	28	18	4
D. Actual rate of wages per hour (₹)	4	3	2

During the 40-hour working week, the gang produced 1800 standard labour hours of work.

Calculate:

(i) Labour Sub-efficiency Variance

(ii) Labour Mix or Gang Variance

(iii) Labour Efficiency Variance

(iv) Labour Rate Variance

(v) Labour Cost Variance

Question 31: Standard Costing (June 2018)

The Standard Material cost to produce a tonne of prefabricated building material of AJANTA LTD. is:

300 kgs. of material X @ ₹ 10 per kg.

400 kgs. of material Y @ ₹ 5 per kg.

500 kgs. of material Z @ ₹ 6 per kg.

During December 2017, 100 tonnes of mixture prefabricated building material were produced from the usage of:

35 tonnes of material X at a cost of ₹ 9,000 per tonne

42 tonnes of material Y at a cost of ₹ 6,000 per tonne

53 tonnes of material Z at a cost of ₹ 7,000 per tonne

Required:

Calculate the following variances:

(i) Total material cost variance

(ii) Total and individual material price variances

(iii) Total and individual material usage variances

Question 32: Standard Costing (June 2018)

The following details are available for ABC LTD. A manufacturing company:

	Budgeted Expenses, units & hrs.	Actual Expenses, units & hrs.
Variable Overheads (₹)	5,00,000	5,20,000
Output in units	50,000	40,000
Working hours	2,50,000	2,20,000

You are Required to Calculate the following variances:

(i) Variable Overhead Expenditure Variance

(ii) Variable Overhead Efficiency Variance

(iii) Total Variable Overhead Variance

Question 33: Standard Costing (December 2018)

The following information is available from the records of REEDYAAH LTD., a manufacturing company using Standard Costing System for the week ended April 30, 2018:

	Standard		Actual	
	Qty.	Unit Price	Qty.	Unit Price
Material 'A'	60%	Rs.20	44 kg	Rs.25
Material 'B'	40%	Rs.10	66 kg	Rs.5
Processing Loss	10%	--	--	--
			Actual output 90 kg	

Required:

Calculate from the information stated Supra:

(i) Material Cost Variance

(ii) Material Price Variance

(iii) Material Usage Variance

(iv) Material Mix Variance

(v) Material Yield Variance

Question 34: Standard Costing (December 2018)

The following information has been obtained from the records of PURNOMINA LTD., a manufacturing organization using the Standard Costing System for the month ended March 31, 2018:

	Budget	Actual
Production (Units)	4000	3800
Working days	20	21
Fixed overhead (Rs.)	40000	39000

Your are required to calculate the following overhead cost variances:

(i) Fixed overhead expenditure variance;

(ii) Fixed overhead volume variance;

(iii) Fixed overhead efficiency variance;

(iv) Fixed overhead calendar variance;

(v) Fixed overhead cost variance;

Question 35: Standard Costing (June 2019)

WESTLAND LTD., a manufacturing company, operates standard costing system and showed the following data in respect of the month of May 2019:

Budgeted		Actual	
Working days	20	Working days	22
Man hours	4000	Man hours	4200
Fixed overhead cost (₹)	2400	Fixed overhead cost (₹)	2500
Output (units)	800	Output (units)	900

You are required to calculate the following Fixed overheads variances:

(i) FOH Budget Variance

(ii) FOH Cost Variance

(iii) FOH Efficiency Variance

(iv) FOH Capacity Variance

(v) FOH Calendar Variance

(vi) FOH Volume Variance

Question 36: Standard Costing (June 2019)

SHIBHUMA LTD., budgets to sell in the quarter ending March 31, 2019:

500 Units of product P @ ₹ 30 per unit,

400 Units of product Q @ ₹ 20 per unit and

100 Units of product R @ ₹ 50 per unit.

During the quarter Actual Sales were as follows:

400 Units of product P @ ₹40 per unit.

500 Units of product Q @ ₹10 per unit.

50 Units of product R @ ₹40 per unit.

You are required to determine the following sales variances:

(i) Sales Value variance

(ii) Sales Price Variance

(iii) Sales Volume Variance

(iv) Sales Mix Variance

(v) Sales Sub-Volume Variance

Question 37: Standard Costing (December 2019)

ESKAY LTD. a manufacturing company operating Standard Costing System produces a product Cemco by blending two basic raw materials. The following standard have been set up for materials:

Material	Standard Mix	Standard Price per kg.
A	40%	20
B	60%	30

Standard loss in process is 10%. During the month of September 2019, the Company produced 182 kg of Cemco. The Cost records for the period showed the following usage:

Material	Quantity (Kg)	Price per kg (₹)
A	90	18
B	110	34

You are required to calculate the following Material Variances:

(i) Material Cost Variance (MCV)

(ii) Material Price Variance (MPV)

(iii) Material Usage Variance (MUV)

Question 38: Standard Costing (December 2019)

The following information is extracted from the records of ALJHON LTD. a manufacturing company using standard costing system for the month ending October, 2019.

	Budget	Actual
Fixed Overhead	₹10,000	₹12,000
Production(units)	2,000	2,100
Standard Time per Unit (hours)	10	--
Actual Hours Worked	--	21,000

Required:

Calculate the following Fixed Overhead Variances:

(i) Fixed Overhead Cost Variance

(ii) Fixed Overhead Expenditure Variance

(iii) Fixed Overhead Volume Variance

Question 39: Standard Costing (December 2021)

VINAK LTD uses a Standard Cost System and manufactures Product Z by blending two materials A and B. The Standard and Actual Particulars of September 2021 are as follows:

Material	Standard		Actual	
	Qty	Unit price	Qty	Unit price
A	60%	20	88	30
B	40%	10	132	10

Standard loss : 10%

During September 2021 the Company Produced 180 kgs of Product Z.

Based on above information you are required to answer the following questions :

(i) What is the value of Material Cost Variance ?

(ii) Material Price Variance is

(iii) What will be the amount of Material Usage Variance?

Question 40: Standard Costing (December 2021)

TRIST LTD, a manufacturing Company, operating Standard Costing System has a normal Capacity of 720 machine hours per day of 25 days a month. The fixed overheads are budgeted Rs 108000 per month. The Standard time required to manufacture one unit of production is 4 hours.

In June 2021, the Company worked 24 days of 630 machine hours per day and produced 3980 units of output. The actual fixed overheads are Rs 106500. Based on the above information you are required to answer the following questions

(i) What is the amount of Fixed overhead Efficiency Variance?

(ii) Fixed overhead Capacity Variance will be.

(iii) What will be the Fixed overhead Calendar Variance?

Question 41: Standard costing (December 2022)

Average of the Actual Fixed Overhead Rate per hour and Standard Fixed Overhead Rate per hour is 3.05. The difference between the Actual Fixed Overhead Rate per hour and Standard Actual Fixed Overhead Rate per hour is ₹0.10. Average of Standard Hours and Actual Hours is 28,350 hours. Fixed Overhead Cost Variance is ₹ 11,070 (Adv), Standard Overhead Absorption Rate per hour 4. Standard Overhead Absorption Rate per Unit 8, Variable Overhead Cost Variance is 270 (Fav). Budgeted Production 15,000 Units, Actual Output per man-hour (in Units):1/2.2. Actual Variable Overhead Rate per Unit 1.98. Calculate all the Overhead Variances.

Question 42: Standard Costing (June 2023 syllabus 2016)

Following information relates to the labour of Baba Ltd:

Particulars	Skilled	Semi-skilled	Unskilled	Total
Number of workers in standard gang	12	8	5	25
Standard rate per hour	75	50	40	
Number of workers in actual gang				25
Actual rate per hour	80	48	42	-

The standard output of the gang was 12 units per hour of product M. The gang was engaged for 200 hours during the month of March 2022 out of which 20 hours were lost due to machine breakdown and 2,295 units of product M were produced. The actual number of skilled workers was 2 times the semi-skilled workers. Total labour mix variance was 10,800 (A). You are required to calculate actual number of workers in each category.

Question 43: Standard Costing (June 2023 syllabus 2016)

Calculate Variable Overheads Efficiency Variance, Fixed Overheads Efficiency Variance and Fixed Overheads Calendar Variance from the following information provided by ALD Ltd: 6

Particulars	Budgeted	Actual
No. of Working days	25	26
Working hours per day	8	9
No. of Workers	150	132
Output per man-hour (in units)	1/2	1/2.2
Fixed Overheads	75,000	78,570
Variable Overheads	18,000	15,930
Semi-variable Overheads	27,000	24,300

Question 44: Standard Costing (December 2023 syllabus 2016)

ZNB Ltd., operates a system of standard costing throughout its division. The company produces an alloy by mixing and processing two materials A and B. For making 10 kgs. of Alloy, the standard requirement are:

Material	Quantity (KG)	Rate per kg
A	8	6
B	4	4

During the month of September 2023 1000 Kgs of Finished Alloy were produced. The actual Consumption of Materials is as under:

Material	Quantity (KG)	Rate per kg
A	750	7
B	500	5

Required:

Analyze the following Material Variances:

(i) Material Cost Variance (MCV)

(ii) Material Price Variance (MPV)

(iii) Material Usage Variance (MUV)

Question 45: Standard Costing (December 2023 syllabus 2016)

TEXO Ltd., a manufacturing unit using the standard costing and budgetary Control system has furnished the following information for the month of November 2023.

Particulars	Budget	Actual
Output (Units)	30000	32500
Hours	30000	33000
Fixed Overhead	45000	50000
Working days	25	26

Required:

Analyze the following fixed Overhead Variances:

(i) Fixed Overhead Cost. Variance

(ii) Fixed Overhead Expenditure Variance

(iii) Fixed Overhead Volume Variance

(iv) Fixed Overhead Efficiency Variance.

(v) Fixed Overhead Capacity Variance

(vi) Fixed Overhead Calendar Variance

Question 46: Standard Costing (June 2023 syllabus 2022)

DASON Ltd., using standard costing system, has the following information for the month of September 2022.

Budgeted Fixed overheads for the month: 5,00,000. Overheads are recovered on the basis of standard machine hours. The company had budgeted for 1,00,000 machine hours for the month. During the month, the company used 1,10,000 machine hours while it should have used 95,000 machine hours for actual output. Actual Fixed Overheads for the month: 4,70,000.

Required:

Analyse the following Fixed Overhead Variances:

(i) Fixed Overhead Volume Variance

(ii) Fixed Overhead Efficiency Variance

(iii) Fixed Overhead Cost Variance.

Question 47: Standard Costing (June 2023 syllabus 2022)

DOXTIN Ltd. is using a system of Standard Costing and has a manufacturing division which makes a product to which the following details relate:

	Per Unit
Direct Material: 5 kg. at 20	100
Direct labour: 12 hours at ₹ 20	240
Variable overheads: 12 hours at ₹ 10	120

Relevant fixed overheads are based at ₹ 1,00,000 per month and planned output is 2,000 units per month. The selling price is 550 per unit. During a recent month when output was 1,800 units, the following actual costs were incurred:

	Amount
Direct Materials (8,500 kg)	1,72,000
Direct labour (20,000 hours)	4,20,000
Variable overhead	2,20,000
Fixed overhead	98,000
Profit	40,000
Sales value	9,50,000

Required:

(i) Analyse and calculate the variances which occurred during the month.

(ii) Reconcile the actual profit with budgeted profit.

Question 48: Standard Costing (December 2023 syllabus 2022)

M/s Gems Limited provided you the following data for the month of March, 2023.

Particulars	Standard	Actual
Fixed Overhead	30,000	35,000
Units Produced	1000	1200
Hours Per Unit	1	1.1
No. of days	20	23

You are required to calculate the following Fixed Overhead Variances:

(i) Efficiency Variance

(ii) Capacity Variance

(iii) Idle Time Variance

(iv) Volume Variance

(v) Budget/Expenditure Variance

(vi) Fixed Overhead Cost Variance

Question 49: Budgets (June 2017)

A company is at present working at 90% of its capacity and producing 13,500 units per annum. It operates a flexible budgetary control system. The following figures are obtained from its budget:

	90%	100%
	(₹)	(₹)
Sales	15,00,000	16,00,000
Fixed expenses	3,00,500	3,00,600
Semi-fixed expenses	97,500	1,00,500
Variable expenses	1,45,000	1,49,500
Units made	13,500	15,000

Labour and material costs per unit are constant under present conditions. Profit margin is 10%.

(i) You are required to determine the differential cost of producing 1,500 units by increasing capacity to 100%?

(ii) What would you recommend for an export price for these 1,500 units if overseas prices are much lower than indigenous prices?

Question 50: Budgets (December 2017)

As a Cost and Management Accountant of MJK Ltd., prepare a Sales Overhead Budget for the months of January, February and March from the estimates given below:

(iii)

Expenses per month:	₹
Advertisement	2,500
Salaries of the Sales Department	5,000
Expenses of the Sales Department	1,500

Counter Salesmen's Salaries and Dearness Allowance 6,000

Commission to counter salesmen @ 1% on their sales. Travelling salesmen's commission @ 10% on their sales and expenses @ 5% on their sales.

The sales during the period were estimated as under:

Month	Counter Sales	Travelling Salesmen Sales
January	80,000	10,000
February	1,20,000	15,000
March	1,40,000	20,000

Question 51: Budgets (June 2018)

PENTAX LTD., has prepared its Expense Budget for 20,000 units in its factory for a year as detailed below:

Particulars	₹/unit
Direct Material	50
Direct Labour	20
Variable Overhead	15
Direct Expenses	6
Selling Expenses (20% Fixed)	15
Factory Expenses (100% Fixed)	7
Administrative Expenses (100% Fixed)	4
Distribution Expenses (85% Variable)	12
Total (₹)	129

Required:

Prepare an Expenditure Budget for the Production of 15,000 units and 18,000 units.

Question 52: Budgets (December 2018)

Your are given the following particulars concerning MINTEX LTD, a manufacturing organisation:

	At 80% capacity (Rs.)
Variable Overheads:	
Indirect Labour	12,000
Stores (including Spares)	4,000
Semi Variable Overheads:	
Power (30% Fixed)	20,000
Repairs & Maintenance (60% Fixed)	2,000
Fixed Overheads:	
Depreciation	11,000
Insurance	3,000
Salaries	10,000
Total Overheads	62,000
Estimated Directed Labour Hours	124,000 Hours

You are required to:

(i) Draw a Flexible Budget for Overhead expenses on the basis of the above data at 80% and 90% Plant Capacity.

(ii) Determine the Overhead Rates at 80% and 90% Plant Capacity.

Question 53: Budgets (December 2019)

The following data have been compiled for TTA Tea Co regarding the budgeted and actual production of green tea packets for six months ending 30 June, 2019.

	(Amount in ₹)	
Production	Units 40,000 (Budgeted)	Units 50,000 (Actual)
Material Consumed	1,35,000 (45,000 kgs @ ₹3 per Kg.)	1,89,750 (55,000 kgs @ ₹3.45)
Wages at 3 hrs. per unit	1,80,000 (@ ₹1.5 per hr.)	2,44,500 (@ ₹1.63 per hr.)
Variable Overheads	80,000 (@ ₹2 per unit)	1,25,000 (@ ₹2.5 per unit)
Fixed Overheads	75,000	1,00,000
Total	4,70,000	6,59,250

During the budgeted period:

(i) Production is expected to go up to 60,000 units.

(ii) Material required is expected to go up to 65,000 kgs for production.

(iii) The prices of materials are expected to increase further in the same manner as they had increased over the budgeted price.

(iv) Labour charges are expected to increase by ₹ 0.50 per hour above the actual rate shown above though efficiency is expected to decline by 20%.

(v) Variable overheads are expected to increase by 10% over June 2019 Actual. (vi) Fixed overheads are expected to increase by 20% over June 2019 Actual.

You are required to prepare the Production Cost Budget for the six months ending 31st December 2019.

Question 54: Budget (December 2021)

ABT Ltd produces and sells a single product PANCO. Sales Budget for Calendar year 2021 by quarters is as under:

Quarter	No. of units to be sold
1	12000
2	15000
3	16500
4	18000

The year is expected to open with an inventory of 4000 units of finish products and close with an inventory of 6500 units.

Production is customarily scheduled to provide for two – thirds of the current quarter's Sales demand plus one third of the following quarter's demand. Thus production anticipates Sales volume by about one month.

The Standard cost details for one unit of the product PANCO is as follows :

Direct Materials 10 kgs @ 50 Paise per kg.

Direct Labour 1 hour 30 Minutes @ Rs 4 per hour

Variable overheads 1 hour 30 minutes @ Re 1 per hour

Fixed overheads @ Rs 2 per hour, based on a budget Production Volume of 90000 Direct Labour hours for the year.

Based on the above information you are required to answer the following questions

(i) How many budgeted number of units to be produced for the four quarters of year 2021 ?

(ii) What is the value of Budgeted Production Cost for the quarter III of year 2021 ?

(iii) What is the Total value of Budgeted Production Cost for the year 2021?

Question 55: Budgets (December 2022)

PCT Ltd. provides you with the following information:

Particulars	Product A	Product B
(i) Figures for the year 2021:		
Sales	2,40,000	2,00,000
Selling Price Per Unit	24	50
Closing Finished Stock (on FIFO basis)	20,000 @20	46,000 @ 20
(ii) Material and Labour requirements:		
Direct Material X @3 Per Unit	1.9 Units	3.8 Units
Direct Material Y@1 Per Unit	1.08 Units	1.62 Units

Direct Labour in P Deptt. @1 Per Hour	2 Hours	1 Hour
Direct Labour in Q Deptt. @3 Per Hour	1 Hour	1 Hour
(iii) Targets for 2022:		
Sales Quantity Increase /(Decrease)	(20%)	25%
Selling Price Increase /(Decrease)	25%	(20%)
Closing Finished Stock (Units)	2,700	1,100
Post Production Rejection Rate	3%	5%
(iv) Direct Material Stocks:		
Closing Stock on 31.12.2021	11,280 Units	1,640 Units
Estimated Stock as on 31.12.2022	16,000 Units	4,000 Units
Material Wastage Rate	5%	4%

(v) Material Prices are expected to increase by 10%.

(vi) Wage Rates are expected to increase by. 30% and a 25% increase in labour productivity is expected.

(vii) The factory works for 8 hours a day, 6 days a week and the budget period is one year and during each quarter hours lost due to leave, holidays and other causes are estimated to be 124 hours.

Required: Prepare Sales Budget, Production Budget, Direct Material Usage & Purchase Budget, Man Power Budget, Direct Labour Cost Budget.

Question 56: Budgets (December 2022)

BTC Ltd. manufactures two products X and Y. Product X requires 5 hours to produce while 5 units of product Y can be produced in one hour. In July 3,000 units of X and 15,000 units of Y were produced. Activity Ratio is 93.75% of the Capacity Ratio and the Capacity Ratio is 102.4% of the Efficiency Ratio. Calculate the Idle Capacity Ratio.

Question 57: Budgets (June 2023 syllabus 2016)

Oreo Ltd. provides you with the following information:

Material and Labour requirements:

Direct Material @5 Per Unit	1.9 Units
Direct Labour @5 Per Hour	2.4 Hours
Material Wastage Rate	5%
Expected increase in labour productivity	25%

	(In Lakhs)	
	At 80% Capacity	At 60% Capacity
Production Overheads (including depreciation)	5.224	4.768
Depreciation on Production Machinery	0.40	0.40
Administrative Overheads	3.840	3.680
Selling & Distribution Overheads	3.800	3.600
Sales@200 Per Unit	32.00	24.00

Required: Prepare Flexible Budget at 50% and 90% capacity.

Question 58: Budgets (June 2023 syllabus 2016)

Oli Ltd. manufactures two products X and Y. Product X requires 5 hours to produce while 5 units of product Y can be produced in one hour. In July of 24 effective working days of 8 hours a day, 3000 units of X and 15,000 units of Y were produced. The company employs 100 workers in the production department to produce X and Y. There were 25 working days specified in the budget. Maximum possible working hours in July 24,000 hours,

Required: Calculate (a) Efficiency Ratio, (b) Activity Ratio, (c) Capacity Ratio,
(d) Calendar Ratio (e) Idle Capacity Ratio, (f) Standard Capacity Usage Ratio and
(g) Actual Usage of Maximum Capacity Ratio.

Question 59: Budgets (December 2023 syllabus 2016)

BOTON Ltd., is manufactures electronic switches. Each switch requires three minor circuits that cost 2.00 each. The company has prepared a production budget for the electronic switches by quarters for Year 2 and the first quarter of Year 3, as follows:

	Year 2				Year 3
Budgeted Production	First	Second	Third	Fourth	First
	60,000	90,000	1,50,000	1,00,000	80,000

The inventory of the circuits at the end of a quarter must be equal to 20% of the following quarter's production needs. There will be 36000 minor circuits on hand to start the first quarter of year two.

Required:

Prepare direct materials budget for the minor circuits, for each quarter for years 2.

Question 60: Budgets (June 2023 syllabus 2022)

ASHUB (P) Company manufactures two products-X and Y. A forecast of units to be sold in the first five month of the year is given below:

Months	Product x	Product Y
April	1000	2800
May	1200	2800
June	1600	2400
July	2000	2000
August	2400	1600

Other information is as follows:

Cost per unit	Product X	Product Y
Direct material	12.5	19
Direct Labour	4.5	7
Factory Overheads	3	4

There will be no opening and closing work-in-progress at the end of any month. Finished product (in units), equal to half of the budgeted sales of the next month, should be in stock at the end of each month (including previous year ended March).

You are required to prepare:

(i) Production (in quantity) Budget for April to July; and

(ii) Summarized Production Cost Budget for the period.

Question 61: Budgets (June 2023 syllabus 2022)

ANTU GLASS Company provides the following details relating to Master Budget for the year ended March 31, 2024.

Sales:	
Toughened Glass	60,00,000
Bent Glass	20,00,000
Direct material cost	60% of sales
Direct wages	20 workers @1500 per month
Factory overheads:	
Indirect labour-	
Works manager	5000 per month
Foreman	4000 per month
Stores and spares	2.5% on sales
Depreciation on machinery	1,26,000
Light and power	30,000
Repairs and maintenance	80,000
Others sundries.	10% of direct wages
Administration, selling and distribution expenses	3,60,000 per year

Required:

Prepare the Master Budget for the year ended March 31, 2024.

Question 62: Budgets (December 2023 syllabus 2022)

From the following data obtained from the cost records of M/s Palapalli oil limited, prepare cash budget for the period pf 3 months ending 31/03/2024

Month	Direct material	Direct labour	Direct expenses	Factory overheads	Admin overheads
OCT	70000	25000	13000	30000	48000
NOV	80000	30000	16000	35000	56000
DEC	75000	35000	17000	42500	68000
JAN	65000	30000	14000	37500	53000
FEB	90000	45000	25000	50000	72000
MARCH	110000	50000	28000	55000	75000
TOTAL	490000	215000	113000	250000	372000

Additional Information:

(i) Cash in hand on 01-01-2024 is 1,35,000.

(ii) The Company produces two products Lubricating Oil & Grease Oil and operates three sales offices at Kolkata, Delhi & Chennai for sale of their products. Actual and budgeted sales units from October, 2023 to March, 2024 are as under:

Month	Lubricating oil			Grease oil		
	Kolkata	Delhi	Chennai	Kolkata	Delhi	Chennai
	Units	Units	Units	Units	Units	Units
OCT	1000	1200	900	750	900	1000
NOV	1200	1440	1080	900	1080	1200
DEC	1100	1320	990	825	990	1100
JAN	1000	1200	900	750	900	1000
FEB	1400	1300	1300	900	1200	1300
MAR	1600	1500	1400	1200	800	1700

The sales price per unit of product Lubricating Oil is 90 and that of product Grease Oil is 75. There is an increase in sales price per unit by 3 & 2 for Lubricating Oil & Grease Oil respectively from Jan, 2024.

(iii) 20% of sales are on cash basis. Remaining 80% sales are on credit basis. 50% of credit sales are collected in the next month and remaining 50% are collected in the second month following.

(iv) Lag in payment to creditors for material-1 Month

(v) Wages to the labours are paid between 1st to 5th of the month due.

(vi) Direct expenses are paid 1 month in lag.

(vii) Factory overheads and Admin overheads are paid 1½ months in lag.

(viii) Mr. R. Rajendran, Principal Director of the company will get superannuation from the company on 31-03-2024 after serving the company for 24 years. His superannuation benefits comprise of Gratuity of 7,00,000 and Benevolent fund of₹ 1,00,000. It is the general practice of the Company to release the gratuity amount and Benevolent fund on the last day of service.

(ix) On 1st April, 2023, the company purchased a vehicle for its directors at a cost of 14,00,000 by taking 2 years' loan from Bank. EMI for the bank loan is auto debited by bank @75,000 per month.

Question 63: Budgets (December 2023 syllabus 2022)

XCell Chemical Ltd. manufactures two products AB+ and CD+ by mixing the raw materials in the proportion shown:

Raw material	Product AB+	Product CD+
A	80%	
B	20%	
C		50%
D		50%

The finished weight of products AB+ and CD+ are equal to the weight of ingredients. During the month of June, it is expected that 60 tons of AB+ and 200 tons of CD+ will be sold.

Actual and budgeted inventories for the month of June are as follows:

	Actual Inventory (1st June) Quantity (Tons)	Budgeted Inventory (30th June) Quantity (Tons)
A	15	20
B	10	40
C	200	300
D	250	200
Product AB+	10	5
Product CD+	50	60

The Purchase prices of material for June are expected to be as follows:

Material	Cost per ton (₹)
A	500
B	400
C	100
D	200

All materials will be purchased on 3rd of June.

Prepare Production Budget and Material Requirement Budget for the month of June and the Material Purchase Budget indicating the total expenditure for material for the month of June.

Question 64: Transfer Pricing (June 2017)

A company has two divisions, manufacturing and assembly. At a normal volume of 250,000 units of component YPY per year, production costs per unit are:

Direct materials	40
Direct labour	20
Variable factory overhead	12
Fixed factory overhead	42
Total	₹ 114

The manufacturing division has been manufacturing and selling 2,50,000 components per year to outside buyers for ₹ 136 each. However, the division can manufacture 350,000 components per year. The assembly division has been buying the components from outside suppliers for ₹ 130 each. The assembly division has offered to purchase 90,000 units of component YPY from the manufacturing division at the rate of ₹ 104 per unit. Should the manager of Electrical Division accept the offer? Will an internal transfer be of any benefit to the company?

Question 65: Transfer Pricing (December 2017)

A manufacturing company has two divisions — X and Y. Division X is mainly engaged in production of an electronic device and Division Y packs and labels the product and sells it in the market. Division X supplies 25,000 units of the product per month to Y for packaging and labelling. Division X incurs ₹ 16 as the variable cost for the product and fixed cost of ₹ 8,40,000 per year. Investment in fixed assets is ₹ 9,60,000. The division plans to have 12% return on fixed assets as normal profits. Division Y incurs ₹ 10 per product as variable expenses for packaging and marketing.

(i) Find the Transfer Price per unit of the product that Division X can charge for transfer to Y.

(ii) What will be profit of Division Y if it can sell all the products in the market at ₹ 80 per unit?

(iii) If Division Y can sell only 15,000 units of the product per month and asks Division X to supply only 15,000 units, what will be the effect on the Transfer Price and the profits of the divisions?

Question 66: Transfer Price (December 2019)

Division Z of STAREX LTD. is a profit center which produces four products A, B, C and D. Each product is sold in the external market also. Following data are available for the period:

	A	B	C	D
Market price per unit (₹)	600	580	560	510
Variable cost of production per unit (₹)	520	400	360	335
Labour hours required per unit (₹)	3	4	2	3

Product D can be transferred to division Y, but the maximum quantity that may be required for transfer is 15,000 units of D.

The maximum sales in the external market are:

A 16,800 units

B 15,000 units

C 13,800 units

D 9,600 units

Division Y can purchase the same product at a price of ₹500 per unit from outside instead of receiving transfer of product D from Division Z.

Required:

What should be the transfer price for each unit for 15,000 units of D, if the total Labour hours available in division Z are 1,20,000 hours.

Question 67: Transfer pricing (June 2023 syllabus 2022)

Zen Limited produces four products-A, B, C & D in Division-X. Products are sold in the external market and the cost data for the month of July, 2022 is as under:

Particulars	Product A	Product B	Product C	Product D
Selling price per unit in external market	250	450	300	350
Hours required to produce 1 unit	5	10	10	8
P/V Ratio	30%	40%	45%	50%

Product-D can be transferred to Division-Y. However, maximum quantity that might be required by Division-Y is 1500 units of Product-D. The maximum sales of the products in the external market are:

Product-A-3,000 Units

Product-B-4,000 Units

Product-C-3,500 Units

Product-D-2,000 Units

What should be the transfer price for each unit of Product-D if the total labour hours available in Division-X are:

(i) 70,000 Hours

(ii) 80,000 Hours

Question 68: Learning Curve (June 2018)

JANAK LTD. received an order to make and supply sixteen units of standard product which involves intricate labour operations. The first unit was made in 8 hours. It is understood that this type of operations is subject to 90% learning rate. The workers are getting a wage rate of ₹ 15 per hour.

Required:

What is the total time and labour cost required to execute the above order?

Question 69: Learning Curve (December 2018)

RADIANCE ENGINES LTD. manufacture engines mounting for Akash airlines. They have been asked to bid on a prospective contract for 30 engines mounting for the Jet aircraft. They have just completed and initial run of 10 of these mounting at the following costs:

Particulars	Amount in Rs.
Direct Materials	7,000
Direct labour (2000 hours @ Rs.4)	8,000
Variable overhead (Rs.0.50 per labour hour)	1,000
Fixed overhead (Rs.1 per labour hour)	2,000
	18,000

An 80% learning curve is thought to be pertinent in this case. Marketing Director believes that the quotation is unlikely to be accepted if it exceeds Rs.38,000 and as the company are short of work, he believes the contract to be vital.

Your are required to comment whether it is worth accepting at Rs.38,000.

Question 70: Learning Curve (June 2019)

DANDIA LTD., a manufacturing company, received an order for 16 units of a new product. So far, 4 units have been completed; the first unit required 40 direct labour hours and a total of 102.40 Direct labour hours has been recorded for the 4 units. The Production Manager expects on 80% learning effect for this type of work.

The direct cost attributed to the centre in which the unit is manufactured and its costs are as follows:

Direct Material	30.00 per unit
Direct Labour	6.00 per hour
Variable overhead	0.50 per direct labour hour
Fixed overheads apportioned	5.00 per direct labour hour

You are required to produce an estimated product cost for the initial order based on the cost data given.

Question 71: Learning Curve (December 2023 syllabus 2016)

BOB Ltd., an Electronics Company has just Completed the manufacture of 20 units of a Fire Alarm Equipment. The manufacturing Costs are as follows:

Direct Materials	40000
Direct Labour 400 hours @ 30 per hour	12000
Variable overheads @ Rs 15 per hour	6000
Special tools (Re-usable)	6000
Fixed overhead apportioned	12000

The Company uses a mark up to 25% on Total Costs. The company received another order for 60 units of Fire alarm equiments for which the company has been asked to quote a price for fulfill this order. The 90% learning curve is thought to be pertinent in this case.

Required:

(i) Identify the selling price per unit of First order for 20 units of Fire alarm equipment.

(ii) Assess the minimum quoted price per unit of Second order for 60 units of Fire alarm equipment.

Question 72: Learning curve (December 2023 syllabus 2022)

M/s Keshav Industries received a Work Order to make 64 pieces of logo engraving work on MS End fittings which involves intricate labour operations. The logo engraving is done in a specialized machine which processes two logo engraving at a time. The first 2 engraving work were completed in 10 minutes' time. The operation is subject to 80% learning rate. The direct labour rate per hour is 100.

Determine total time and labour cost required to execute the Work Order.

If a repeat work order of 100% of original quantity is also received from the same customer, what will be the total time & labour cost necessary for the repeat Work Order?

Question 73: Activity based costing (June 2023 syllabus 2022)

A Drug Store of MONSL Ltd. is presently selling three types of drugs namely 'Drug S', 'Drug T' and 'Drug Z'. It has provided the following data for year 2022-23 for each product line:

	Drugs Type		
	S	T	Z
Revenues	74,50,000	1,11,75,000	1,86,25,000
Cost of goods sold	41,44,500	68,16,750	1,20,63,750
Number of purchase order placed (in nos)	560	810	630
Number of deliveries received (in nos)	950	1000	850
Hours of shelf stocking time (in hours)	900	1250	2350
Units sold (in nos)	1,75,200	1,50,300	1,44,500

Following additional information is also provided:

Activity	Description of activity	Total cost	Cost allocation base
Drug license fee	Drug license fee	5,00,000	To be distributed in ratio 2:3:5 between S, T and Z
Ordering	Placing orders for purchases	8,30,000	2000 purchase orders
Delivery	Physical delivery and receipt of goods	18,20,000	2800 deliveries
Shelf stocking	Stocking of goods	32,40,000	4500 hours of shelf stocking time
Customer support	Assistance provided to customers	28,20,000	470000 units sold

You are required to calculate the operating income and operating income as a percentage (%) of revenue for each product line if:

(i) All the support costs (other than cost of goods sold) are allocated in the ratio of cost of goods sold.

(ii) All the support costs (other than cost of goods sold) are allocated using Activity Based Casting System.

Question 74: Activity based costing (December 2023 syllabus 2022)

Following are the data of three product lines of a departmental store for the year 2022-23:

	Cake	Pizza	Soft drinks
Revenues	30,24,750	52,51,500	19,83,750
Cost of goods sold	22,50,000	37,50,000	15,00,000
Cost of bottles returned			30,000
Number of purchase order placed	360	840	360
Number of deliveries received	660	2190	300
Hours of shelf stocking time	2700	5400	540
Items sold	3,06,000	11,04,000	1,26,000

Additional information related to the store are as follows:

Activity	Description of activity	Total Cost	Cost-allocation base
Bottles Returns	Returning of empty bottles	30,000	Direct tracing to soft drink line
Ordering	Placing of order for purchase	3,90,000	1560 purchase order
Delivery	Physical delivery and receipt of goods	6,30,000	3150 deliveries
Shelf stocking	Stocking of goods on store shelves and on-going restocking	4,32,000	8640 hours of shelf stocking time
Customer support	Assistance provided to customers including check-out	7,68,000	15,36,000 items sold

Calculate the total cost and operating income using Activity Based Costing system.

Question 75: Divisional performance measurement (June 2023 syllabus 2022)

The following information relates to the operating performance of two divisions of SINTRA Ltd. for last year.

Particulars	Division M	Division N
Operating Income	15,00,000	25,00,000
Operating assets	60,00,000	1,25,00,000
ROI	25%	20%

Required:

(i) Analyze which division is more successful in terms of ROI.

(ii) Using 15 percent as the minimum required rate of return, calculate the Residual Income for each division.

(iii) Identify the division which is more successful under the measure in (ii).

Question 76: Divisional performance measurement (June 2023 syllabus 2022)

From the following information obtained from the books of M/s AYC Limited, calculate Economic Value Added (EVA).

Equity Share of 100 each	Nos. 1,50,000
10% Debenture of 10 each	Nos. 20,00,000
Tax rate	30%
Degree of Financial Leverage (DFL)	1.1 times
Securities Premium	1.50,00,000
Reserve & Surplus (including Capital Reserve of 90 lacs)	2,00,00,000

It is the prevailing practice for the companies in the industry to which AYC Limited belongs to pay at least a dividend of 14% p.a. to its Equity Shareholders.

Question 77: Divisional performance measurement (December 2023 syllabus 2022)

M/s srilok polymer has provided you the following data for the year ended 31-03-2023

Particulars	Amount
Total Capital Employed	45,00,000
Debt equity ratio	1:4
Interest rate of debt	12%
Effective income tax rate	31.2%
Risk free rate of return	10%
Long term market rate of return (based on BSE sensex)	15%
Degree of financial leverage	1.1 times
The beta factor	1.4

Calculate the economic value added (EVA) and comment on your answer. Approximate up to 2 decimal places.

Question 78: Decision Theory (June 2023 syllabus 2022)

Mr. Kunch, a business man, has two independent investments A and B available to him but he lacks the capital to undertake both of them simultaneously.

He can choose to take A first and then stop, or, if A is successful then take B, or, vice versa. The probability of success on A is 0.7 while for B it is 0.4. Both investments require an initial capital outlay of 2000; and both return nothing if the venture is unsuccessful. Successful completion of A will return 3,000 (over cost), and successful completion of B will return ₹ 5,000 (over cost).

Required:

(i) Represent Mr. Kunch's problem as decision tree.

(ii) Suggest Mr. Kunch as to which investment he should chose

Question 79: Decision Theory (June 2023 syllabus 2022)

SIDSORY Ltd., a food products company, is contemplating the introduction of a revolutionary new product with new packaging to replace the existing product at a much higher price (S), or, a moderate change in the composition of the existing product with a new packaging at a small increase in price (S,), or, a small change in the price (S,). The possible states of nature or events are (i) high increase in the sales (N), (ii) no change in the sales (N) and (iii) decrease in the sales (N). The marketing department of the company worked out the pay-offs in terms of yearly net profits for each of the strategies for these events (expected sales). This is represented in the following table.

	State of nature		
Strategies	N1	N2	N3
S1	7,00,000	3,00,000	1,50,000
S2	5,00,000	4,50,000	0
S3	3,00,000	3,00,000	2,00,000

Required:

Develop a course of action for SIDSORY Ltd., based on-

(i) Maximin Criterion

(ii) Maximax Criterion

(iii) Laplace Criterion

(iv) Hurwicz Criterion [Alpha = 0.4]

Question 80: Decision Theory (December 2023 syllabus 2022)

The following information has been obtained from the books of M/s Das & Kumars for the year ended 31-03-2023.

Units sold	2,00,000	Fixed cost
Selling price per unit (₹)	10	
Particulars	Variable cost per unit (₹)	
Works overheads	4	2,00,000
Administrative overheads	1	50,000
Selling & distribution overheads	0.5	1,30,000

Income Tax rate (including education cess) is 31.2%.

The firm predicts variable works overhead at different sales level as under:

5.50 when sales are 1,80,000 units

4.00 when sales are 2,00,000 units

3.50 when sales are 2,40,000 units

The Sales team has forecasted the sales as follows:

Probability 0.3 -1,80,000 units

Probability 0.5 -2,00,000 units

Probability 0.2 -2,40,000 units

The Works Manager has indicated the variable works overhead as follows:

Probability 0.2 -5.50 per unit

Probability 0.6 -4.00 per unit

Probability 0.2 -3.50 per unit.

Prepare a Probabilistic Budget and calculate the Expected Value. Comment on your answer.